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M. H. Callender

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ROMAN AMPHORAE

Part II "General"

by

M.H. Callender., M.A., Hatfield College.

Presented for the Degree of Doctor of

Philosophy in June, 1950

PART IICHAPTER I

(Notes are given at the end of each chapter)

NOMENCLATURE

It has been considered necessary to include this brief chapter for two reasons; first because of the extensive misuse of the word dolium <sup>(1)</sup> in Excavation and Pottery Reports, and secondly in order to define as closely as possible the meaning of the term amphora and some closely-associated words.

It is extremely unlikely that a dolium, in the real sense of the word, has ever been found in this country, despite the frequency with which such finds are recorded. The dolium was a gigantic earthen-ware vessel with thick walls and a wide mouth, the capacity of which appears to have varied from about 20 to 70 quadrantals = amphorae. Cato for example refers to one which would contain at least 65 amphorae and to another of 50 amphorae (de r.r. CIV : CXII), whilst Columella speaks of the dolia sesquiculearia i.e. vessels containing 30 amphorae (XII 18).

The main purpose of the dolium was the fermenting and storage of wine, and the storage and preservation of many other commodities. Thus from the treading of grapes the wine flowed down a channel into a reservoir or open vat called a lacus. Varro refers to this when he advises that the cella vinaria or olearia should have a floor sloping to the lacus in case the dolia should burst as a result of the fermentation of the must (de r.r. I 13,b). From the lacus the wine (presumably after being allowed to settle) was transferred to dolia or seriae <sup>(2)</sup>; "Pour the wine into the dolia from the lacus" (Cato de r.r. CXIII). The must was then allowed to ferment for a time in these vessels. Cato recommended a period of 30 days for this process, after which they had to be sealed and made air-tight (de r.r. CV).

But in addition to wine and oil many other commodities were preserved in dolia and it is exactly this use for preservation which was one of their main characteristics. Grape-pulp, amurca (the lees of olive-oil), grain, grape-husks (as winter food for cattle), Scantian quinces, other fruits and salted hams are all mentioned in this category by Cato (de r.r. X,4: XXV,1 : CXLIII : CLXII), pomegranates by Varro (de r.r. I 59, 3 : in dolio harenae), and apples and pears by Columella (XVIII, 65).

These vessels were then, because of their cumbersome and unwieldy size and their use for preserving commodities, essentially static. They formed part of the necessary furniture of the cella vinaria or olearia; the owner of the latter should have dolia multa there, uti lubeat caritatem expectare (Cato de r.r. III, 2). Normally they were dug into the sand or floor of the cellar (3). Thus "districts with a milder climate store their wine in dolia and bury them in the ground entirely" (Plin. n.h. XXVII, 133). They have been found thus in Italy at Anzi, in France at Apt (Vaucluse) and near Clermont and at Tunis (Walters History of Ancient Pottery II p.459) (4).

The next stage in the process of wine production was to rack off from dolia or seriae into amphorae or cadi. "Rack off the wine in the dolium into amphorae in the spring" (Cato de r.r. CV). In the case of expensive wines it was common to store them in amphorae or cadi for considerable periods. Thus Cato advises that the sealed amphorae should stand in the sun for not more than four years and that four years later i.e. after eight years they should be packed closely "in cuneum" viz., in tiers like the seats in a theatre. (de r.r. CXIII). Pliny refers several times to the use of cadi for the same purpose; thus a certain type of Greek wine was stored in them and left in the sun to mature; the people of Gallia Narbonensis

put their must in cadi and then plunged the latter into water until midwinter passed, whilst he indicates that the finest Campanian wines were stored in cadi in the open air, exposed to the sun, moon, rain and wind (n.h. XIV 10,78: 11,83: 27,136). That these two vessels were approximately the same in size and appearance and the two words more or less interchangeable as far as the Romans were concerned <sup>(5)</sup> is proved by Columella's words "in cado duarum urnarum" and "vinum.....quod in amphoris et cadis diffusum est" (XII 28,4: 38,4), as well as by the use of both words by Martial. "Why do you choose Tucca", he says, "to mix the must stored in Vatican cadi with old Falernian. An amphora so priceless did not deserve to die", and later he advises against the sparing of Falernian; rather he says, "leave your cadi filled with coin. Loving let her be; let her be rich, but let your daughter drink new wine; an amphora new to-day will grow old with its mistress" (Epig. I, 18: VI, 27). Here he has used the two words interchangeably in connection with Falernian wine, as he has done elsewhere e.g. "Why linger, boy, to pour the immortal Falernian? Double four measures from the older cadus" and "perfume.....of an amphora of dark Falernian shattered, but far off" (Epig. IX, 93: XI, 8), or again "Pour the immortal Falernian; such vows as mine call for an old cadus" and "now a crumbling amphora of dark Falernian is requested" (ibid., IX, 36: 50). <sup>(6)</sup> It may be that originally the larger two-handled vessels were called cadi, but that this distinction soon lapsed since the variations in size and so capacity were enormous, and therefore the early use of the amphora and cadus as measures of 2 and 3 urnae respectively lost its meaning.

In this respect the ideal amphora was from the first century B.C. the chief Roman liquid measure; it was supposed to equal the capacity of a cubic foot i.e. the quadrantal (= approximately 6 English gallons); this was equated with 2 urnae, 8 congi, 48 sextarii and 96 heminae (see RE s.v. Amphora pt.2). The use of the word in this sense is reflected in its employment

as the measure of the yield of vineyards. Varro speaks of the iugerum yielding 300 amphorae in one instance (de r.r. I 2,7), whilst Pliny mentions that a single vine (in the Colonnades of Livia in Rome) produced 12 amphorae of must yearly (n.h.XIV 3,2). But at the same time the word was used equally as a measure of length, as a dry measure and as the measure of a ship's tonnage "naves onevariae quarum minor nulla evat duum millium amphorum" (RE.s.v.Amphora). On the whole, however, these uses of the word must have been in the theoretical sense of an ideal amphora, since in practice vessels which must have been called amphorae or cadi varied so much in shape, size and therefore capacity; the original meaning of the word apparently became so debased that any vessel which had two handles, a general superficial likeness to the original Greek form, and which was used both for the storage and transport, and chiefly the latter, of commodities, was almost certainly designated an amphora or cadus<sup>(7)</sup>. This definition might be limited by adding that such vessels would normally be unable to stand without support when loaded with their commodities<sup>(8)</sup>. Normally when stored it was stacked in tiers on racks or shelves, or placed in a leaning position against the wall of the cellar, or dug into the sand or earth of the cellar (fig.27). When it was brought up for use at the table<sup>(9)</sup> it was placed in a tripod-stand of metal or wood (see Walters History of Ancient Pottery II p.460). The methods of transporting amphorae and the commodities they contained are dealt with in Chapter V and IV respectively.

#### Notes

(1) Bohn has already deprecated the misuse of this word for what are obviously globular amphorae (Germania IX p.76, note 6).

(2) The seria was a smaller type of dolium which only contained seven amphorae (Col.XII 28,1: Plant.Capt.IV 4,9). It appears to have been used chiefly in the pressing-room e.g. 10 seriae as part of the equipment of the olive yard, 4 as part of the equipment of the pressing-room, and 1 needed at

the time of pressing (Cato de r.r.X,4: XII,4: XIII,1). Cato also(as well as the authors quoted above) groups dolia and seriae together as being obviously of the same class - opercula doliis seriis priva (de r.r.X,4).

(3) A group of dolia found at Ostia and buried in this fashion is illustrated in JRS II p.186 fig.28.

(4) For an illustration of a dolium see Caylus Recueil d'Antiquités IV pl. LVIII,3. This was an example found near Herculaneum which had walls 4 ins. thick, was 5 ft.6 ins. high and 15 ft. at its greatest diameter - and this was not a particularly large example!

(5) Both are words of Greek origin, but whereas the Greek amphora equalled two urnae, the Greek cadus equalled three i.e. one and half amphorae (Metrol. p.129,2 "graece amphora est continens urnas tres"; Grom. p.376,10 "urnae tres cadum vel artabam faciunt"; See also RE s.v. cadus, cols.1171-2).

(6) H.Syer Cuming wrote on the subject of these vessels, but reached different conclusions. He appeared to equate the cadus with the small carrot-shaped vessels (Cam.Rep.Form 189) with deep rilling, normally brick- or tile-red and between 12 and 18 ins. in height. He also equated the globular amphora with the seria. (JBAA XIII p.332: XXVIII p.79)

(7) It is known for certain that Dressel Form 4 (see fig.1,4) was called an amphora since vessels of this type have been found at Pompeii with painted inscriptions, which actually included the word e.g. VINI AMPHORA APER(ta) (C IV supp.5532).

(8) This definition includes (1) vessels with small stand-rings(fig.1, 30) which can stand unsupported - although somewhat precariously - when empty, but which must have had some external means of support, if only for safety's sake, when full. (2) Very small "carrot-shaped"vessels probably utilised for transporting some special commodity such as honey or dates (Cam.Rep.Form 189); it excludes on the other hand (1) dolia

and seriae (2) Ollae, almost certainly vessels without two handles and used in the main for storing grapes (and probably other fruits) as distinct from wine (Cato de r.r. VII 2: Varro de r.r. I 58: I 59,3: Pliny n.h. XIV 3,16 : 4,29 : 4,34).

(9) "And besides, did not Caesar also, when Dictator, apportion to each table an amphora of Falernian and a cadus of Chian at the banquet in celebration of his triumph?" (Pliny n.h. XIII 17,97).

C H A P T E R    I I  
FORM AND CHRONOLOGY.

The amphora, whether used for ornamental or strictly utilitarian purposes or both, is an exceedingly long-lived type. Thus a vessel of amphora-like appearance was unearthed at Kusura in Anatolia in levels which were dated to B.C. c. 3000 (Arch. 86 pl. X, n.10). Although it might not be historically correct to give such a vessel the appellation amphora, nevertheless it had many of the characteristics usually associated with the latter - two handles, an inability to stand without support, and a height (c.25 ins.) and shape indicating a capacity of some gallons. At the Hal-Tarxien neolithic temple, Malta, several "amphorae" were found. They were about 20 ins. in height in some instance and 11 ins. in others, but in both the shape was the same i.e. a globular body, conical base and fairly narrow neck. Rope-holes had been cut at the base of the neck to serve the purpose of handles (hardly as ornaments, since this would have largely destroyed the purpose of the vessels) (Arch. 68 p.277 & fig.5; *ibid.*, 67 p.144 & pl.XXV, fig.2).

On the other hand the amphora is still in use in some parts of the Mediterranean to-day. They are, for example, made at Saida (Sidon) and then transported empty by sea to el Bōss about 150 miles away, where "they are exchanged against donkey-loads of sheep-dung which are brought down to the coast by peasants from the Alaonite Hills" (Antiquity (March, 1939) pp.86-87 & pl.V = pl.I of this Thesis). Moreover, some of these ships come from the Isle of Ruad (Phoenician Arvad), and illustrate therefore "a remarkable relic of the ancient Phoenician carrying-trade which the mariners themselves admit to be hereditary, plying between the ancient Phoenician seaports and carrying a type of vessel used by the ancient Phoenicians themselves" (*ibid.*, p.87)<sup>(1)</sup>. Another variant of the modern amphora, made in Tunisia, is illustrated

in the "Geographical Magazine" (March, 1937 pl. XXV = pl. II of this thesis).

The amphora-type vessel has in fact shown a continuity of use in the lands bordering the Mediterranean for some thousands of years<sup>(2)</sup>. Beautifully made and decorated examples graced the dwellings of the Minoans and have been found at Knossus (Arch. 65 p.20 & figs. 28, 29, 63-65, 66 a.b.). The Greeks likewise used their amphorae as mediums for expression of artistic feelings; with them the vessel was a household ornament, as well as a container for consumable goods (See AJ LI fig.11 for example). Some of the earliest known Roman amphorae, influenced by Greek tradition, were decorated with horizontal stripes, sometimes with ornamentation and sometimes with figure-decoration. This was a survival from the metal industry, in which metal vessels were constructed from sheet metal strips joined together (RE s.v. Amphora col.1975). But by the 1st century B.C. at the latest, all decoration had disappeared from Roman vessels and they had become strictly utilitarian.

#### Difficulty of classifying amphora-forms according to chronology.

The variations in shape of Roman amphora are so numerous as to defy attempts at classification in the conventional sense<sup>(3)</sup>. Because it has been possible to assign a chronological significance to variation in form of other types of Roman pottery, it has in the past been considered that the same methods could equally be applied to amphorae<sup>(4)</sup>. But this is definitely the wrong angle of approach, this attempt to classify according to minor differences in handles, rims and general body-shape. Samian ware, and to a lesser extent mortaria, were produced in recognized centres, the former, and in some cases the latter also, under a "Factory System". Shape and decoration were altered deliberately to attract the buying public. Amphorae on the other hand were manu-

factured on numerous different estates, spread throughout the producing areas, and were not made to suit public taste but the commodity they contained. They are in this respect somewhat similar to locally-produced jugs, bowl and platters, and it would be impossible to formulate a chronological classification of all these types, from whichever part of the Western Empire they originated, according to minor variations in their cross-sections; they have to be treated on a local basis.

In the main the variations in form of amphorae must have been the result of either differences in provenance or differences in use or a mixture of both. The nearest modern equivalent, as a sort of general hold-all, is the bottle. Few buy a bottle of wine because the bottle itself is attractive; normally the only factors taken into account in such a purchase are the contents and the price. Yet the modern bottle, <sup>like</sup> ~~as~~ the Roman amphora, (~~and~~) varies in shape enormously. No doubt the initiated can recognize different bottles as originating from different firms or parts of the world, and as containing beers, wines, spirits, orange-squash or lemonade; most laymen could recognize a bottle of a well-known brand of tomato sauce. The main idea behind a distinctively shaped bottle is to impress that shape on the public and make it easily recognizable. A secondary factor in deciding shape is the use for which the bottle is intended, but this is not so important with the bottle as it was with the very much larger, clumsier and more difficult to handle amphora.

The latter, like the bottle, had a label, but presumably in its case hung round the neck with string, and variously described as pittacia (Petron. Sat. 34), notae (Hor. Carm. II 3,8) or tituli (Juven. V, 34); in addition it normally had an inscription painted in black, and less frequently red paint or inscribed with black ink. The labels presumably gave the names of the sender and addressee, whilst the paint-

ed inscriptions probably served the double purpose of informing the Customs and Excise of the contents and acting as a safeguard against the loss of the label.

Even without either of these, however, it was probably possible for a Roman trader or merchant to recognize within reasonable limits the origin, and in some cases the content, purely from the shape of the vessel<sup>(5)</sup>. If this is accepted it follows that modern archeologists might eventually be able to do the same and so deduce facts of immense importance for the economic history of the Empire. If we can assign a certain form to a certain area and say that it normally contained wine, then by studying the distribution of that type and its tituli picti, where they are still preserved, it should be possible to say within fairly wide limits when it was exported in greatest quantity and when it ceased to be exported; these facts in turn will indicate prosperity and decay in Provinces or sub-areas of Provinces<sup>(6)</sup>. This Chapter is a broad attempt to indicate a possible solution of the problem along these lines with reference to some of the forms found in Western Europe; but very much more evidence will be required in many instances before solutions generally acceptable can be obtained.

Before turning to deal with individual forms, however, it is impossible to ignore a recent theory on the dating of amphorae propounded by Dr. E. Pelichet (ZAK VIII (1946) pp. 189-202; "A propos des Amphores romaines trouvées à Nyon"). His theory of amphora-chronology is based on rim-sections, but he acknowledges that his conclusions cannot suffice to found definite scientific principles and that many other detailed studies will be necessary to obtain a complete and exact chronology (ibid., p.191). Referring to Dressel's plate of amphora (C XV Tab. II) he says, "La lacune essentielle du tableau de Dressel réside surtout dans le fait d'avoir ignoré le rôle joué par les lèvres des vases, qui ont varié

avec le temps. Si les pauses et les divers organes n'ont pas beaucoup changé au cours de l'époque romaine, les lèvres ont été l'objet de modes qui permettent d'en tirer des données chronologiques" (ibid.,). He does not make it clear what he means by the statement that the bellies and various other portions of amphorae did not change much during the Roman epoch, but he goes on to say that by comparing finds from closely-dated sites, general shapes, graffiti, the methods of forming the letters on the stamps and the positions of the handles, he has been able to follow the development of rim-sections and obtain several precise dates (p.194). However, he does not give the evidence for this on the grounds that it is too detailed, and until this evidence is published it is impossible to accept such a precise dating as "Nyon Type 46 possesses rim sections which indicate manufacture between B.C. 7 and A.D. c.53." (p.193). Ideas contrary to such precision [dating of amphorae have already been expressed in this dissertation (Introduction pp.3-4; supra p. 420), and on general grounds there does not seem to be any particular reason why rim-sections, as opposed to other parts of amphora-anatomy, should contain an element of chronological significance. The majority of the rim-sections illustrated on fig.19, 1-20, can be dated from the latter part of the first century to the middle of the second century, but the differences in section are large; similarly those illustrated on the same figure, nos.20-24, are almost certainly all first century B.C. or the early part of the first century A.D. in date, and again there is little comparison between nos.20-22 on the one hand and nos.23-24 on the other. There does not in fact appear to be any solid reason why rim-sections alone should offer a strict chronological table.

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FORM I (fig.1, 1 & pl. III)General description.

Long, slim neck with a well-marked point of departure from the shoulders; wide, upright collar-rim; handles almost straight and parallel to the neck and of ovoid, almost rectangular cross-section and joined to the neck just below the rim; belly almost parallel-sided for about two-thirds of the distance down from the shoulder: a fairly long base which widens out slightly towards the bottom of the spike, which is flat. Average height 47-52 ins.; normally of a red or brownish-red clay, sometimes with a white slip. A wine-amphora of Italian origin, in particular from the Falernan district of Campania and the Caecuban district of Latium.

Painted inscriptions show that the following wines were contained in this type:-

- AR(icinum?) [vinum] (C XV 4537-8)  
 CAE(cubum) " (C XV 4546; Plin.n.h.XIV,61)  
 FALE(rnum) " (C XV 4555 - dated B.C.102; 4561-2)  
 FAL(ernum) [vinum] VE(tus) (C XV 4560)  
 F(alernum)FAVS(tianum) [vinum] (C XV 4553)  
 FAL(ernum)MAS(sicum) " (C XV 4554)  
 FAVS(tianum) [vinum] (Bull. p.72)  
 HELVEOLVM [vinum] (Bull. p.55; Col. III 2,25; Cato de  
 r.r. XXIV)  
 OCCIANVM [vinum] (C XV 4584)  
 ? ? VINVM DIFFVSVM [est] (C XV 4539; dated B.C.13)

There were three main varieties of vinum Falernum according to Pliny (n.h. XIV,63) - "dry, sweet and light. Some people distinguish three vintages as follows - Caucinian growing on the tops of the hills, Faustian half-way up them, and Falernian at the bottom". Vinum Falernum et Massicum is mentioned by Martial (Ep. XIII,3).

Distribution (in addition to those from Rome already given).

Mt. Beuvray (abandoned in B.C.5). Here it was the commonest type (see Fouilles passim & Album, pl. XIX, figs. 1-2).

Celtic Camp at Basel (on the site of "die alte Gasfabrik"; camp destroyed about the middle of the first century B.C.) (ASA 1917 p.167; "Die gallische Ansiedelung mit Gräberfeld bei Basel", E.Major Basel (1940), Tafel IV, figs. 1-29; Ur-Schweiz Jahrgang VI (1942)pp.51-5).

Halterm Across the mouth of a potters' kiln, which was apparently built and used in the reign of Tiberius (Germania XVI p.113, Abb.2 and p.115). The main occupation of Halterm was in the late Augustan period, and the site was abandoned in A.D. 16 (Loeschke p.101 ff.).

Trier Dated around the Birth of Christ (TZ VII (1932) p.27, note 75, n.6).

Sitzerath (Trier. Jahresbericht I, Taf. V, 22).

Oberaden (Occupied c.B.C. 12-8)(Albrecht Taf. 52, fig.N)

Camp de Pommiers (Soissons)(Mem. soc. des. ant. de France 65 (1904-5); 66 (1906); O.Vauvillé's articles passim)

Gergovia (abandoned in Augustus' reign)(Fouilles p.58).

Corent (nr. Gergovia)(ibid.,)

Narbonne (Germania VIII p.80)

Alesia, St. Maunce-sur-Loire, La Cheppe (Marne), Mt. Chaté (nr. Boviolles), Chambles (Germania VII pp.8-16) Vesontio (A.Vaissier, "Les poteries estampillées dans l'ancien Séquanie," (1882)).

Welwyn (Belgic Burial Vaults)(probably second half of the first century B.C.)(Arch.63 p.4, fig.2).

Lexden Tumulus (nr.Colchester). A coin of Augustus dated B.C. 17 was also found in the tumulus, but it has been suggested that the latter should be dated to the period Cunobelinus-Tasciovanus (Arch.76, p.244 & p.256)

Stanfordbury (Belgic Burial Vaults)(Mid-first century A.D.?) (Arch.63, p.11 & fig.5).

Mt.Bures (Essex) (Shortly before the Claudian conquest ?) (Arch.63, p.8; Hawkes and Dunning, "The Belgae of Gaul and Britain", p.260)

Lindsall, Thaxsted, Trumpington (Fox, "Archaeology of the Cambridge Region", p.100)

London (2 exs.: BM: unp.: one illustrated pl.III)

Weymouth (Dorset Nat. Hist. and Ant.Field Club XI, p.88)

Colchester Total given as 46 assigned to Period I (c.A.D. 10-43) with rubbish survivals to A.D. 61- c.65 (Cam.Rep., Type 181, p.251; May, pl.LXIX, 343)

The period during which this form was manufactured was of considerable length, the earliest dated example being B.C.102. It is probable, however, that it was exported to the West, outside Italy, mainly from the middle of the first century B.C. to the end of the reign of Augustus. There may have been a trickle of export after that, or on the other hand the examples quoted above may be instances of long-term survival. On some sites - Chambles, St.Maurice-sur-Loire, La Cheppe and Mt.Chaté - amphorae of this form were the only Roman pottery found (Germania VII pp.8-16).

The majority of vessels of this type appear to have been unstamped. Those with stamps usually have them on the rim (See Albrecht Taf.52, fig.N & pl.III of this thesis), but sometimes on the neck and very infrequently on the shoulder, belly or spike. The stamp is normally a two-lettered one or a symbol such as a star or anchor or a combination of both;

it has been suggested that examples such as BC, BT, HD and HN may be explained by reference to obsolete praenomina (Bohn, *Germania VII* pp.8-16)<sup>(7)</sup>. There are examples of more expanded stamps such as C.SEX and P.SIS, and these present no difficulties. Bohn considered that these were later stamp types (*ibid.*), and as a general rule it does appear that stamps on this form became less abbreviated in the course of time.

#### FORM 2 (fig.1, 2-4)

This is a group of vessels which are similar in general appearance but which possess amongst themselves several minor variations. The group includes Dressel Form 2-4, Hofheim 73, Haltern 66, Pompeii 12 & 35 (C IV supp. Tab.I-III), Castra Praetoria 13 (Bull.Tav. VII-VIII), Colchester 182 & 182 b(?), Caerleon 79 & 80.

#### Description

A bead-rim or a bell-mouth; fairly narrow cylindrical neck with a well-defined break at the shoulders, except in the cases of Castra Praetoria 13, Caerleon 79 and to a lesser extent Caerleon 80; the handles are two-ribbed and form an 8-section, and are pushed up above the point of entry at the neck, except in the case of Caerleon 79 where they are lower and Caerleon 80 where they are at the same level; a well-marked break between the shoulders and the belly, except where the shoulders are missing; a short but massive spike which in some instances has a clay ball attached (Haltern 66, Hofheim 73, Colchester 182); although the clay ball is missing on Caerleon, the spike widens out towards its lower end; average height 35-43 ins. (exception is Pompeii 35 which is only 28 1/2 ins.). The material is normally of reddish colour with a yellowish or whitish slip, of a finely puddled variety and fairly soft.

Painted inscriptions on vessels of this group indicate

that they belonged to the genus of Central Italian wine-vessels.

VESVINI [vinum] (Pompeii; C IV 2557, dated A.D. 75). This referred to wine from grapes grown on Mt. Vesuvius. Pompeian wines are mentioned by Pliny, who considered that "their topmost improvement is a matter of ten years" (n.h. XIV, 70).

SVR(rentinum)FABIAN(um) (Pompeii; C IV supp. 5222), SVRR(entinum)FAB(ianum) (Pompeii; C IV supp. 5521, dated to A.D. 70), SVR(rentinum) [vinum] (ibid., 5560-61). These referred to wines from Surrentum on the southern edge of the Bay of Naples.

PROPERTIANVM [vinum] (Pompeii; C IV supp. 5524; 2 exs., one dated to A.D. 72)

COVM( ) [vinum] || VET(us) (ibid., 5537-41)

FAL(ernum) [vinum] (ibid., 5554)

POMPEI(anum) [vinum] (ibid., 5559)

ALLIANVM [vinum] (ibid., 5571)

COMMVNIANV(m) [vinum] (ibid., 5575)

MARIANV(m) [vinum] (ibid., 5579)

TIRON(ianum) [vinum] || VET(us)V and VI (ibid., 5581-2)

CONFVSV(m) [vinum] (ibid., 5584). Mau has suggested that this might have been a mixture of several wine types (ibid.,).

DE || [fundo?] SUPERIORE SINE.DEFRITO (ibid., 5588)

Defritum or defrutum was must boiled down to one half (Col. XII 20, 2; 21, 1; Varro ap. Non. p. 551; Plin. n.h. XIV, 80). "nam siraeum, quod alii hepsema, nostri sapatam appellant, ingenii, non naturae opus est musto usque ad tertiam mensurae decocto; quod ubi factum ad dimidiam est, defrutum vocatur" (Plin., ibid.,). It was used in place of honey (Plin., n.h. I, 100), and to strengthen wine (Cato de r.r. 24; Col. II

22, 4; XII, 37).

LEV( ) [vinum?] || VET(us)(ibid., 5590)

MAD( ) " VE(tus)(ibid., 5591)

MVL SVM (ibid.; Plin.n.h. XXXI, 95)

In addition amphorae of this group from Pompeii contained MIRRIS ? (ibid., 5743). If the reading of this inscription is correct, the vessel contained a medicinal liquid (Plin. n.h. XXIV, 154).

MOL(a)? (ibid., 5745). The expansion is doubtful.

The fact that this type of vessel was actually called an amphora (and not a cadus, seria, orca etc; see Ch. I) is proved by the painted inscription VINI AMPHORA APER(ta) on another Pompeian example (ibid., 5532). Dated Pompeian vessels range from A.D. 43 (or 47) to A.D. 72 (ibid., 5511, 13, 14, 18, 19, 21, 23-24).

ALB(anum) [vinum] (Rome; C XV 4531, dated A.D. 26). This was given as a third-class wine by Pliny (n.h. XIV, 64).

BENEV(entanum) [vinum] (ibid., 4544)

SVRR(entinum) [vinum] || CLOD(ianum) || NOV(um)(Rome; Bull., p.58). New Surrentum wine from the estate of Clodianus.

SVM || VETV(s)V || BAETER(rense?) (Rome; Bull. p.64).

In this last inscription the meaning of the first word is uncertain; it may have been a piece of clever advertising, grammatically incorrect and therefore the more likely to attract attention, and meaning "I am a five year old wine from Baeterrae", or it may equally have been an abbreviation of summun, a word used frequently on painted inscriptions (see C IV supp., Passim).

AMINEVM || VINVM VETVS (Rome; Bull. p.56).

A Campanian wine often mentioned by classical authors

(Col. III 9,3: Cato de r.r. VI,6; Plin.n.h. XIV, 21 seq.; Macrob. Sat. III 20,7). It also occurs on another painted inscription from the Monte Testaccio, where it is described as Amineum Campanum [vinum]. Pliny (ibid., 21) said that Aminaean wines were of the highest rank because of their "body" and long life; they were wines which undoubtedly improved with age.

V(inum) || VEIENTAN(um) (Rome; Bull. p.59).

Described by Martial as "solid dregs"(Ep. I 103,9; III,49).

LAVR(onense ?) (Rome; Bull. p.61).

"For choice quality the vineyards of Tarragon and Lauron and those of <sup>the</sup> Balearics among the islands challenge comparison with the first vintage of Italy" (Plin.n.h. XIV,71). Cantarelli used this in support of his theory that this inscription referred to wine from Lauron; it might equally, however, have indicated wine from Laurentum, situated on the coastal road south of Ostia.

VINI SIM(plicis ?) (Rome; Bull. p.46).

Compare Isidorus (Orig. XX 3,9): - "condatum vocatum quod non sit simplex, sed commixtione pigmentorum compositum"

Two examples of this particular type (Castra Praetoria 13) were dated A.D. 29 and 36 respectively (Bull. p.40). An instance of Dressel Form 2 was found at Augst with the stamp HOSTI and palm branch (Index n.681: ASA XXVIII(1926) Taf. XI, n.308 & p. 200 = pl. VII (extreme right) of this thesis); five other vessels with the same stamp have been discovered at Carthage (C VIII 22637,51) and they formed part of a mass of amphorae used to strengthen the earth-wall at Byrsa; the painted inscriptions on these were dated B.C. 43-15 (C VIII 22640, 1 ff.). The stamp HOSTI without palm branch has also occurred on a tile found in Campania (C X 8042, 58), and it was not unknown for bricks, tiles, dolia and amphorae to be produced in the same manufactory (cf.

G. Laecan<sup>i</sup>us Bassus, Index). The evidence on the whole, therefore, points to Campania and Latium as the areas of origin of this group of vessels; the minor variations can be most probably accounted for by reference to different techniques on different estates inside the main areas.

The form appears to have had a fairly long life. The Augst example can be assigned to the second half of the first century B.C., whilst those from Hofheim, Haltern, Auerberg in the Allgäu (Beitr. z. Anthr. u. Urgesch. Bayerns XVI, p.34), the Alteburg near Köln (BJ CXIV-V p.275), Unterkirchberg-Viana (Germania XII p.17, Abb.6), and Colchester fall within the dates provided by painted inscriptions from Rome and Pompeii (A.D. 29 and 36; 43 or 47 and 72; supra p.428). Another example from Pfünz (ORL 73 Taf. XI, 25), a site which was apparently founded towards the close of the 1st century A.D., and the Caerl<sup>e</sup>on vessels (dated c.A.D. 90 - 130; see Arch. 78 pp.186-7; these may have been secondary-use survivals), tend to indicate that some Central Italian wines were exported until the end of the first century at least. There is indeed a suggestion that there was some export of these wines even in the third century, since fragments of vessels of this type, though in an extremely degenerate form, were discovered at Niederbieber (Oelmann Type 77, Abb.47). Oelmann recognized this and referred his fragments to Haltern 66, Hofheim 73, Pfünz, Jagsthausen (ORL 41 p.55) and Cannstadt (ORL 59 p.68). It is extremely difficult to explain this isolated survival, since the latest suggested date from all the other known examples is c.A.D. 130, and there is little doubt that this vessel arrived at Caerl<sup>e</sup>on probably well before then, perhaps in Flavian times. It could be that the production of vessels of this form spread to South Gaul (~~Upper Gaul~~) and thence northwards along the Rhône and Moselle valleys. The Niederbieber fragments may then have been local copies

of what was originally a well-known Campanian form.

FORM 3 (fig.1, 26)

Description

Wide collar-rim and short neck; short, sharply-bent handles as in the globular type; very wide, long and almost parallel-sided belly with the greatest width near the base; wart instead of a spike; height 38-41 ins. Found mainly at Rome and Pompeii (Dressel Form 26; Castra Praetoria; Bull. Tav. VII-VIII, 7; Pompeii; C IV supp., pls. I, II).

Painted inscriptions indicate the following commodities:-

TAVR(omenitanum ?) [vinum] (C IV supp. 5563-68; 8 exs.)

DEF(rutum ?) || EXC(ellens)(ibid., 5585)

MOL(a ?)(ibid., 5746-48; 50-53: 55-57: 59). Bean-meal?

MOLN ? (Bull. p.183)

MOL(a ?) (C XV 4808-9)

OLIBARVM COLVMBARVM (C XV 4855)

The only other example of a vessel of similar shape known to the writer came from the Lindenhof, Zurich (Unp.; see pl. VIII of this thesis); in this case the body tends towards roundness in contrast to the parallel sides of the other vessels, but the other characteristics are present. It was dated to the Augustan period by Dr. E.Vogt (personal conversation with the writer). One of the Pompeian vessels was dated by a titulus pictus to the reign of Nero (C IV supp. 5517), whilst one of the Rome amphorae of this type had a Chi-Rho monogram painted on its body (C XV 4859).

FORM 4 (fig.1, 21-22)

Description

The main distinguishing feature is the extremely wide

mouth, sometimes with a single, sometimes with a double rim; handles immediately under or very close to the rim; the neck almost as wide as the body in some instances and omitted altogether in others (Pompeii; C IV supp. pl. I, fig.4; pl. III, figs. 43-44; Castra Praetoria; Bull. Tav. VII-VIII, figs. 15-16); a very long, slim body which tapers to a fairly long spike; average height 35-38 ins.

Painted inscriptions give the following commodities:-

CE(rasa ?) (Rome; Bull. pp.170-1)

CE(rasa ?) (Pompeii; C IV supp. 5543)

CE(rasa ?)VER(idia ?) (ibid., 5542)

CE(rasa ?)ALB(a ?) (C IV 2562)

MAL(a)CVM(ana)VIR(idia)(Rome; Bull. p.166: Col.X, 130)

MAL(a)CVM(ana) (ibid., p.168)

MAL(a) (ibid., p.169)

MAL(a) || CVM(ana)VET(us) (Pompeii; C IV supp. 5550)

MAL(a) || CVM(ana) (ibid., 5548; 5552)

VR(?) || CVM( ) (ibid., 5551)

[c] VMA( ) (ibid., 5553)

CVM( ) (ibid., 5546-47)

TAB ? SHP ? (ibid., 5544)

SHP (ibid., 5545)

G(arum)F(los)SCOMB(ri) || SCAVRI || EX.OFFICINA. SCAVR( )  
(ibid., 5694)

LIQ(uamen)F(ros) || EXCE(IIens) || SCOM(bri) (ibid., 5716)

Doubtful:-

C(erasa ?).P(ondo) || LXVI(C IV 2642)

This wide-mouthed form appears to have been used normally

as a container for fruit. For the packing and unpacking of such contents this type of mouth would be essential. The form as a whole fits extremely well a description of a vas given by Columella. "post hoc praeceptum locum et vasa idonea salgamis praeparari iubent..... vasa autem fictilia <sup>e</sup> vitrea plura potius quam ampla.... haec vasa dedita opera fieri oportet patenti ore et usque ad immum aequalia, nec in modum doliorum formata". The expansion of CER to cerasa was suggested by Cantarelli (Bull. p.170); it may have been on the other hand an abbreviation for cerinae i.e. waxed plums, since it is known from Pliny that they were stored in cadi. "Et haec autem et Persica et cerina ac silvestria ut uvae cadis condita"(n.h. XV 12,42).

#### FORM 5 (fig.1,18)

##### Description.

Fairly wide mouth and short neck; long, parallel-sided body: the handles are the most peculiar feature, appearing like small lugs from the belly just below the shoulders. Dressel considered the form was one of those used for fish-sauces.

Painted inscriptions give:

HAL(ex)	}	(Rome; Bull. pp.104-5)-
HALEX		

This, according to Pliny (n.h. XXXI, 95), was a very inferior type of fish-sauce prepared "ex inutile pisciculo".

Two of the characteristics of this form, the handles and the long, parallel sides, suggest that it may possibly have been of North African origin. Exactly the same characteristics appear on a Punic amphora found in Roman cemeteries at Carthage (Rev.arch. XXXIII, "Les Cimetières romains superposés de Carthage", p.85, fig.2)<sup>(8)</sup>. In this example, however, there is no neck or shoulder, the parallel sides

being carried straight on to the mouth. A similar type from Vindonissa is worth noting; the writer's opinion that it was probably a North African vessel was supported - admittedly without direct evidence - by Herr Dr. C. Simonett, Curator of the Vindonissa Museum, Brugg. (See fig. 20,2 for an illustration of this vessel).

FORM 6 (fig.1,38)

Description.

A very broad mouth with a heavy, overhanging rim or flange; handles very long and set immediately underneath the flange and following down very close to the neck to the almost non-existent shoulders; the handles are flat rather than round and have a wide elliptical cross-section; the greatest width of the belly is almost at the base; there is a well-defined return to a long, somewhat blunt-ended spike; approximate heights 33 to 39 ins.

Painted inscriptions give the following contents:-

LIQVAMEN ? PENVA(rium) (Pompeii; C IV 2596: *ibid.*, *supp.*, 5701; 5703)

OLIV(as) (Pompeii; EE I p. 166, n.199)

RVBR(um) [vinum?] VET(us). IIII (C IV *supp.* 5597)

VET(us) [vinum?] (*ibid.*, 5602)

LVM(pha) (Lympa)VET(us) || IIII (*ibid.*, 5605)

LVMP(ha) || A III A (*ibid.*, 5607)

LVM(pha)VET(us) || ^ III ^ (*ibid.*, 5610)

LYMPAE (*ibid.*, 5611-13: 15-17: 18 d.: 19-21)

LYMP(hae)VES(uvianae?) (*ibid.*, 5622-25)

LYMP(ha)VET(us) (*ibid.*, 5627-8)

CODITI ? VE(tus) (*ibid.*, 5629)

CODISA ? (or LIA?) $\widehat{VE}$ (tus) || EXCEL(lens) (ibid., 5630)

COD( )LLX?  $\widehat{VE}$ (tus) (ibid., 5631)

C...?LIX  $\widehat{VE}$ (tus) || EXCELL(ens) || SVMMA ||  $\overline{XXXX}$  (ibid., 5632)

COD( ) (ibid., 5633-34:36)

COD( )TING( )VET(us) (ibid., 5637)

CÖD( )M( ) ||  $\widehat{VE}$ (tus)EXCEL(lens) || PENVAR(ium) || SVMIV(m)  
(ibid., 5638)

LACCAT(um) || EXCELLENS || SVMM(um) (ibid., 5640)

LACCATV(m)TINCTVM ? (ibid., 5641)

LACCAT(um)ET TINC(tum)VET(us) (ibid., 5642) (the form of this vessel was doubtful)

LAC(catum) $\widehat{VE}$ (tus) || PENVAR(ium) (ibid., 5645)

LAC(catum)ARG( ) $\widehat{VE}$ (tus) || PENVAR(ium) || EXSCCELL(ens) (ibid., 5646)

G(ari)SC(ombri) [flos?] EX(cellens)V(etus) (Augst; ASA  
XXVIII Taf. XI, n.285)

COD( ) $\widehat{VE}$ (tus) (ibid.,)

COD( ) $\widehat{VE}$ (tus) (Rome: C XV 4732)

COD( ) $\widehat{VE}$ (tus) (Mainz, Strasbourg; ASA XXVIII, p.204)

FALERN(um) [vinum] (Argentorate II fig.372)

These inscriptions indicate very varied contents; with one or two exceptions, however, they seem to possess the common denominator of inferior quality. It is possible that the Falernian wine from Strasbourg and the finest, well-matured garum from Augst represent double-dealing on the part of merchants. Just as some German cutlery firms in the Hitlerian period stamped very inferior ware "Made in Sheffield", so some Roman merchants may have cheated the "provincials", who were perhaps not expected to know any better, by masquerading a cheap wine as best Falernian and

an inferior fish-sauce as finest garum.

Rubrum vinum, since it was not distinguished by a definite name, was probably a cheap, inferior variety, liquamen appears to have been a cheap fish-sauce, laccatum, it has been suggested by Dressel, was perhaps a herbal wine (C XV 4733: cf. Apul.de med. herb. IV, 12, Ed. Ackermann), whilst the suggested interpretation of the COD inscriptions as possibly referring to a spiced wine has been discussed elsewhere (see Ch. IV, "Amphora commodities"). Lympha was also a specially flavoured type of wine (cf. Plin.n.h. XIV, 102 ff.).

This form was probably of Italian origin, as is suggested by the large number occurring at Pompeii and by the inscription giving the contents as Vesuvian wine-type. It seems to have enjoyed a fairly long operational life. On one of the Augst examples the name of the producer of the contents? was given as N(umerii)AVR(elii)FILINI(=Philini), and Numerius was a very rare and old praenomen. It is also possible to see a variant of the form in Hofheim 72 and, to a lesser degree, in Haltern 69. There are two examples from Mainz dated to the first half of the first century A.D. (West. Zeitsch. XX (1901), pl. XVII & p. 334), whilst it is one of the most frequent types at Pompeii (see C IV supp. passim). It has been found at Caerleon (Type 78) where it was dated to the early second century (Arch. 78, p. 186; ACamb. 87, p. 329, n. 460 and "Excavations in Prysog Field", National Museum of Wales Publication, pt. III, p. 68, fig. 14). If this dating is correct, it can hardly be described as "Claudian" (ARB. s.v. amphora, type 2).

#### FORM 7 (fig. 1, 5 & 43)

##### Description.

Long, peaked handles; usually a bead rim; long neck; ovoid body not much wider than the neck; gradual mergeance

of the body into a strong, solid base; height varies between 33 and 39 ins. Taking the peaked handles as the main characteristic, the following variants can be included:-  
 Castra Praetoria 18 (Bull., Tav. VII-VIII.18), Augst (ASA (1926) XXVIII, Taf. XI, 310 & 323), Pompeii (C IV supp., pl. I-III, figs. 8, 13, 36-39, 41-42).

Pompeii Type 8 is dated by tituli picti to A.D. 52, 74?, 78 (C IV supp. 5512; 5526; 5529). It contained the following commodities:-

[vinum] CRET(icum)EXC(ellens)

" VET(us)MVLSVM (ibid., 5526)

LAVR(onense ? or -entinum?) [vinum] (ibid., 5558; EE I, p. 165, n.195)

RVBR(um) [vinum] VET(us)IIIII (C IV supp., 5596)

TRIFOLIN(um) [vinum?] (ibid., 5570)

G(arum?)F(los)F(lovis?) (ibid., 5668)

Distribution (in addition to those already mentioned)  
 Haltern (Type 67; Loeschke pl. XIII), Hofheim (Type 74; Ritterling 198 ff.), Mainz (dated first half of the first century A.D. See Westd. Zeitschrift XX (1901) pl. XVII, p. 334), Colchester (Type 184; within period A.D. 10-61 with rubbish survivals to A.D. c. 65; Cam.Rep.), Richborough (I, p. 95 & pl. XXII, 25; dated mid-first century), Wroxeter (BASoc. 1923-27 pl. XLV B, 2 & p. 291; associated with pottery of the early occupation i.e. A.D. 60-90), Caerlean (Arch. 78 pp. 186-7; "late survivals or relics of a mid-first century occupation, a possibility, however, which is not yet supported by substantial evidence"), and Unterkirchberg-Viana (Germania XIII (1929) p. 16 & Abb. 6; dated to the period Claudius-Nero).

#### FORM 8 (fig. 1, 7-9)

#### Description.

Wide mouth with everted rim; long handles set fairly close

to the neck, very broad and flat and with a central groove; lacking shoulders except at Hofheim; greatest width of belly at the lower end; a well-marked return to a fairly long spike; height varying between 31-37 ins.

Loeschke considered that this form was produced at Xanten, and that it was modelled on the Italian type 68 (Loeschke Type 69; pl. XIII & Abb. 37, 4-6 & 7-8). He adduced as evidence for this the material and technique of construction - which he compared with those of Xanten mortaria - the similarity in rim construction with other Xanten-produced pottery, and the shape of the handles. With regard to the latter he pointed out that in the case of Italian amphorae the handles consist of two very pronounced ribs giving a figure eight section, whereas in this case the two ribs are quite flat and have only a groove between them.

This theory is difficult to accept. In the first place not all Italian vessels have the figure eight section handles (cf. supra form 1). Secondly, the commodities contained in this form could hardly have been produced at Xanten. Thus a vessel of this type from Weisenau had the inscription OLEV... || EX DEER(utum) || PENVAR(ium) || EXCELLENS || C.RVTILL.SIMPLICIS (MZ IV (1909), p.21). Similarly amphorae of this or similar form from Rome have inscriptions indicating contents which could not have been produced on the banks of the north Rhine.

LARGARINVM || PENVAR(ium) (Bull. p.180). A type of fish-sauce? Bohn equated PENVAR(ius) with PENAR(ius) i.e. from the store (ASA XXVIII p.210).

MVR(ia) || EXCE(1lens) || FLOS (Bull. p.93)

GARVM (Bull. pp.79, 98-99, 101, 104; 8 exs. altogether)

MVRIA (Bull., p.104; a similar type dated A.D. 31 - ibid., p.40)

G(arum)F(los) written in ink, and on another portion of the same vessel in red paint:- LIQ(uamen)(CXV 4718). This vessel appears to have contained first garum and then liquamen since the ink was very much faded, whilst the paint - which had been applied by a different hand - was comparatively fresh. This suggests that liquamen was a similar commodity to garum i.e. a type of fish-sauce, as the vessel could hardly have been utilised for a wine after it had contained garum.

These inscriptions were on amphorae of Dressel Forms 7 - 9, which he believed normally contained fish sauces (C XV tab. II); the tituli picti are fully in accordance with this suggestion, to which added weight is imparted by the wider mouth of the form as compared with that of a wine-vessel. Obviously in the case of such a sticky commodity as fish-sauce a wide aperture was essential, not only to allow the liquid to flow, but also to ladle out the remnants still adhering to the bottom and sides.

Haltern has produced the earliest known examples of the form, whilst it is well-attested from Claudian sites e.g. Hofheim, where it was the commonest form of the slim-shaped varieties, and Colchester, where one example has been dated "not later than Claudian Colchester" (M.Rep. 1932 p.35). Forms 186 A and B from the latter site totalled 138 + and were assigned to the period A.D.c.10 - c.61 (Cam.Rep. p.252). Another example from Sheepen Farm was considered to be of Neronian date (Trans.E A Soc. XXII p.46, fig.1). The Weisenau vessel was dated A.D.c. 40-8 (see supra p.438), whilst the same type was found at Mainz just above pottery of the first half of the first century (MZ VIII - IX, p.26).

#### FORM 9.

#### Description.

Wide, well-modelled and everted collar-rim; loop handles

which, in cross-section, have a central rill; a gradual transition from neck to shoulders and body; fairly short spike normally plugged with a clay ball; the height varies between 32 - 37 ins.

Inscriptions give the following two very divers commodities:-

GARVM (Rome; Bull. p.99)

AMIN(eum) [vinum] (C XV 4533)

The earliest known examples occur at Mt. Beuvray (Album pl. XXIX, 10), Haltern (Loeschke, Type 70; pl. XIII), at the Alteburg and the Auerberg in the Allgäu (BJ 114/5 p.278; dated to the reign of Tiberius), and Colchester (Cam.Rep., Type 185 a & b; dated to the period A.D. c.10 - c.61). It has also occurred in early levels at Neuss (BJ 101 Taf.1, on the left), Mainz (Westd. Zeitsch. XX p.343 & Taf. XVII, 2-3), and in a quarry near to Weisenau which has been dated c.A.D. 40-80 (MZ VIII-IX p.128, nos. 1-4). On the other hand, what is clearly a similar form occurs at Caerleon (Type 81; Arch. 78, fig. 23,81), but this has been dated A.D. 130-60. It may be that this latter is an example of long-term secondary-use survival.

FORM 10. (cf.fig.1,30: pl.XII & XIII)

#### Description.

A cone-shaped body with deep external rilling; small standring, which is incapable of ~~the~~ supporting the vessel when charged with its commodity, small loop handles which fit closely underneath the rim and which have a deep central rill; a fairly small mouth.

No examples have been discovered with painted inscriptions.

#### Distribution.

Colchester (Cam.Rep. 188; unstratified)

Verulamium (unp.(?); pl. XIII; unstratified)

Chester (CNWSoc., XXXIII pl. XXX, 2; unstratified)

Ashstead(Surrey) (Surr.Arch.Collections XXXVII p.163 & pl.VI; suggested date early first century)

Cannstadt (ORL 59 p.68; not stratified)

Hermeskeil (Römisch-germanische Korrespondenzblatt IV (1911) p.85, Abb.50; dated to the second half of the second century).

Köngen (ORL 60 p.53,5 & Taf. VI, fig.41; 2 exs. dated c. A.D. 200).

Niederbieber Type 76 (Oelmann p.64 & Abb.45 & 46; this site was occupied from A.D. 190-260).

Nyon (illustrated by pl. XII of this thesis) (ZAK VIII (1946) p.193 & fig.5: not dated)

Saalburg (Jakobi p.420, fig.59, n.15; earth-fort period i.e. 89 - c.121)

Strasbourg (Argentorate II, Taf. XCIII, fig.R; undated)

Trier (TZ VII(1932) p.27, note 75, n.10, of probably 1st. c.date, with the stamp, G.G.E; *ibid.*, n.1, dated as a general type from the end of the first century to the fourth century; *ibid.*, n.4, of probably third century date; *ibid.*, n.2, dated second-third century).

Zugmantel (ORL 8, Taf.XVIII, fig.30; dated to the period Hadrian-Antonine).

Wiesbaden (ORL 31, p.119 & Taf. XIV, fig.32; dated to the period Domitian-Trajan)

Cf. also Heldenbergen (ORL 25, Taf. III, fig.36; undated).

The evidence as a whole suggests two possibilities with regard to this form. 1) that it was of Gaulish origin

2) that it was mainly produced and exported during the second century and the beginning of the third. However, a much more detailed survey of the evidence is indicated in order to draw more definite conclusions.

FORM 11 (fig.1,19-20; & fig.19,1-3;  
the globular amphora)

This is the commonest and most widely distributed of all amphora forms. There are minor variations within the generic form, but they do not appear to possess any chronological significance; they probably reflect differences of origin from sub-regions of the producing areas. The main characteristics of the form are the globose body - the diameter at the greatest width is approximately two-thirds of the total height -, the small, strongly-built and sharply-bent handles, the short, stubby neck and shoulders which merge in a single curve into the body, and the small wart at the base; the height varies from 25-31 ins.; the three main variations are:-

- 1) that in which the handles leave the neck in a downward curve towards the body (see ACamb., 91, p.246, fig.36 a.- an example from Caerleon; Curle pl. LII, fig.1; AA<sup>2</sup> XXIV, p.18 - an example from Mucklebank Turret; Caer Llugwy, pl. XVII, & p.49).

- 2) that in which the handles move upwards in a continuous curve before descending to the body; they form an almost perfect semi-circle (see Curle, pl. LII, fig.2; ORL 10, Taf. V, figs. 1 & 3 - an example from Kastell Feldberg; Jakobi, Taf. XXVIII, fig.2; Rom. Antiquities in the Mansion House, London (1873), pl. IV, fig.4; Oelmann, Type 78, Abb.48; ORL 31 p.118 - Wiesbaden).

- 3) that in which there is a pronounced "kick" upwards immediately after the handles leave the neck (see Bull., Tav.VII-VIII,11; Curle, pl. LII, fig.3; Miller pl. XXXVIII, fig.2; Macdonald & Paek, p.67; RCHM III, "Roman London", fig. 65,26 - an example from Great Alie Street, London).

The form as a whole was exported to the West from the beginning of the first century A.D. or earlier - it is attested at Colchester as early as Period I i.e. A.D. c. 10 - 43 - to at least the end of the second century, since it appears

at Niederbieber, occupied A.D. 190 - 260. (9)

It has been thought useful to include under this heading a brief discussion of tituli picti on globular vessels, since they contain much information of <sup>a</sup>valuable character; so far as is known to the writer none have occurred on globular amphorae found in Britain, a fact which <sup>may</sup> be wholly or partly due to the vagaries of the English climate; on the other hand might it not be that they have not been noticed immediately the sherd has been lifted from the soil and before the ink or paint has faded away? (10)

Painted inscriptions on globular vessels do not unfortunately preserve exactly the same sequence in all instances. (11) In every known case, however, there is a three line inscription immediately beneath the neck, written in large capital letters e.g.

1. X C I I
2. C. ANTONI. BALBI
3. CCXV (see fig. 21)

Dressel considered that the figures of the third line gave the weight in Roman pounds of the vessel's contents (BJ 95, p.68). However, it is more likely, as suggested already by Tenney Frank (JRS XXVII, p.72), that the first line gave the weight of the empty amphora and the third line the weight of the vessel and its contents. The second line, giving a name fully written out and in the genitive case, does not refer to the manufacturer of the amphora or the producer of its contents (See Dressel, *ibid.*), but to the merchant and ship-owner - perhaps best expressed by the French word, armateur - who bought the amphora and its contents in Spain, transported it to the market and sold at a profit. Such were S. Fadius Secundus and P. Olitius Apollonius, leading merchants of Narbo in the middle of the second century, who owned both ships and cargo, who bought in the producing areas and then sold in Italy, Gaul and

Britain (See p.447).

In addition to this three-lined inscription in capital letters, globular vessels normally possessed a second inscription in cursive script, which always occupied the same position below the handle to the right of the capital inscription and at right-angles to it; it consisted of several lines, not always in the same order e.g.

- a) 1. R XXXV CCIIS  
 2. Attianum Pontiani, Phil(eros)  
 3. acc(epit)Pius, Orfito et Prisco cos. (C XV 4174).
- b) 1. R. HISPAL.XX, CCXV  
 2. Capitonis. áá. Car( )  
 3. Imp. Comm. II et Vero (C XV 4366)
- c) 1. R.....CCVIS  
 2. Orfito et Prisco cos.  
 3. Lantrese Galli, XV  
 4. Modest(us), Veget(us) (C XV 3919)
- d) 1. R at(ad)Port(um) CCXIIS  
 2. Silvini X X Septuminus  
 3. Orfito et Prisco cos. (C XV 3976)
- e) 1. R Astigis arca.....  
 2. actus Agathephori et Memmia(ni), p(onderavit)  
 Atimetio  
 3. Domino n(ostro)et Sacerdo(te)cos. (C XV 4111)

These should probably be translated as follows

1. R(eceptum or -ecognitum) i.e. the amphora had been registered for the payment of dues at the Customs and Excise situated in Hispalis, Astigi or Corduba. Dressel thought that the latter names, where they occurred, referred to the places to which the amphora was to be consigned on the next stage of its journey (ibid., p.70). It would, however, be difficult to explain some of the inscriptions on this basis

e.g. FIG SCIM(nianum). Since the latter also produced amphorae and presumably their contents (see Index, n.582), it is hardly likely that it was to be the next stage of a journey. It would in addition be difficult to explain why the place-name always appears immediately after the barred R. Finally the expression " ad Port(um)" most probably indicated a municipal warehouse and not Portus Gaditanus as is suggested by Dressel (ibid., p.70). The first figures (as in examples a) and b)) gave the value of the contents viz., 35 and 20 sesterces respectively. The second group of figures in the first line repeated those given in the third line of the capital inscription, and thus indicated that the full weight of the vessel and its contents had been checked and found correct.

2. Frequently the name of an estate or locality occurred at the beginning of the second line e.g. Aelianum, Attianum, Severianum, Cornelianum, Fulvianum, Maximianum, and Subinianum (C XV s.v. tituli picti, passim), all of which were derived from nomina or cognomina, and Lantrese, Portense, Sacrense and Singiliense (ibid.,), which were probably derived from place-names. As Dressel has pointed out (ibid., p.71) these perhaps illustrated the contents of the vessels - which are never stated explicitly on globular amphorae - since the latter must surely have been indicated by some simple method; thus Fulvianum may possibly have referred to an oil which came from the fundus Fulvianus. The letters áá, ááá and áááá are enigmatical, but have been explained by Tenney Frank (JRS XXVI p.72) as an indication of the export duty paid i.e. 2,3 or 4 asses. If this is correct, it may still be asked why these symbols are omitted from so many inscriptions; the amount of the tax as well as the fact that it had been paid were surely items that could not be left out at the discretion of the certifying officer.

3. Next there was normally a personal name in the genitive case e.g. Capitonis, Pontiani, Galli. This appeared at

the beginning of the line if the descriptive adjective was omitted (see example e)). The people referred to were sometimes freedmen, sometimes slaves and sometimes women, and Dressel has suggested that they were actor<sup>es</sup> or procurator<sup>es</sup> of imperial estates (BJ 95, p.71). Tenney Frank, on the other hand, considered that "from the estate of Capito etc" (JRS XXVII p.72) was the correct translation. On the whole this appears to fit the facts better, as there appear to have been few imperial estates before A.D. 200. Usually there followed two names in the nominative case, and in every instance they were slave-names. Dressel was of the opinion that the words accepit before the first of these names and ponderavit before the second should be understood, so that these should be the names of the slaves who received and checked the weight of the vessel and contents. Lastly the date at which the vessel passed through these Customs formalities was frequently indicated by the names of the consuls.

In the 3rd century, and presumably after A.D. 196, the capital-letter inscriptions suffered a change; instead of the name of the owner-merchant, the phrase "Fisci rationis patrimoni provinciae Baeticae" or "Tarraconensis" was inscribed. This undoubtedly illustrates the Severan confiscation of South Spanish estates, and the control of South Spanish export trade by the State.

#### NOTES.

1) A Phoenician ship carrying amphorae B.C. c. 1580-1100 is illustrated by L.Klebs ("Die Reliefs und Malereien des neuen Reiches" Abb.144).

2) The use of the amphora also spread to the Black Sea Coast. Roman-type vessels have been dug up on the site of Myrmékie, three and a half kilometres north-east of Kerch, among the ruins of some cisterns "qui servait à l'époque

romaine au salage du poisson". They were dated to the late 3rd or first half of the 4th century (Sovietskaya Archeologiya VII Moscow-Leningrad 1941; French summary).

3) Variation in form is well illustrated by Dressel's plate (fig.1 of this thesis), fig.19, nos.23, 24, 28, 29, fig.20, pls. IV-IX, and XII-XIV.

4) Grenier, and to a lesser extent Dressel, were exceptions in that they did attempt to a certain degree to equate form with commodity (Déch.VI pt.II. Article Amphora; Annali dell'Instituto, L (1878), p.118 ff.).

5) This idea has been expressed before; "the shape of each amphora indicated its contents, and the number of congii, sextarii and heminae it contained" (P.Gusman "Pompeii" (London, 1900) p.231). Gusman, however, did not bring forward any definite evidence in proof of this contention, nor did he express it as a hypothesis; he simply stated it as a fact.

6) With the proviso, which should always be held in mind, that competition may have forced its products in another direction and the economic decline may not have been the only reason for the disappearance of a form from the west.

7) Dessau's Index XVII (III, p.922) gives only one example of B, the full expansion of which he is unable to supply, namely C.Fladius Ban.f. (ILS 7820). He has two examples of H i.e. Helvius Ecimarius Vitalis, obviously a Celt who did not know that Helvius was a nomen, and Herius, the father of C.Placentios Her.f. (ILS 3143). Cagnat (Cours d'Épigraphie Latine) gives only Hostus as an H praenomen, and has no example of B at all.

8) Similar "Punic amphorae" have been unearthed in Spain (Acta Arqueologica Hispanica III(1945), pl. XII,2 and pl. XI of this thesis).

9) For further discussion of this form see pp. 9 - 10.

10) Perhaps a close inspection of globular amphorae which have been thoroughly cleaned may reveal traces of such inscriptions; the application of a damp cloth to the surface will bring out quite distinctly any letters which may remain.

11) Tituli picti on vessels of Italian origin do not, on the whole, appear to have preserved any set sequence at all. They differed from those on globular vessels not only in this respect, but also in the fact that they frequently indicated the commodity contained in the vessel. They were normally on the neck; small rectangular patches of clay were raised up and smoothed out in order to receive inscriptions (see pl. V). Like those on globular vessels, however, they were normally in two parts, an upright portion and a portion at right-angles to the handle on the right (see pl. XV; an unpublished examples from the BM).

CHAPTER IIIUSES OF AMPHORAE AFTER EMPTYING.

It is well-known that the life of an amphora was not necessarily completed when the contents of the vessel had been consumed. On the other hand the variety of use to which empty vessels were put is not so well-known. Yet it is worth knowing, since it may at the least reflect cultural standards or religious practices; thus the suggested use of empty amphorae as pissoirs in the turrets and milecastles of Hadrian's Wall, and indeed the definite use of one inside a barrack room at Chester, does not indicate a very high standard of hygiene amongst the Roman soldiery; similarly the distribution of burial-amphorae throws light on a religious practice of southern and south-eastern British tribes and reveals a cultural affinity between them long after political affinities had disappeared.

There is one other point in favour of a discussion on this aspect of amphorae. Long-term survival has already been mentioned in the Introduction (p.2 seq.), where it has been pointed out that some forms must have survived for a considerable length of time and almost certainly for long after their original commodity had been consumed. In such instances it is likely that the vessels were used over and over again, probably being filled with local products. Yet it certainly happened extremely frequently that an empty vessel was not re-filled but was utilised for some completely different purpose. In the case of an amphora-burial where there are associated objects it is usually possible to give an approximate date for the burial as a whole, and therefore to the amphorae in particular; but where a vessel has been broken up to form material for building purposes it is not possible to say with certainty when it was in circulation with its original commodity; it is only possible to give a rough

terminus ante quem. By detailing, therefore, the post-emptying uses of amphorae, it should be possible to emphasise and underline the danger of using them too strictly as dateable objects. For example a stamped handle may have been used as part of the filling material for a re-building; it can be said, therefore, that the vessel represented by that handle arrived on the site before the re-building, but it is not possible to say when it arrived; the estate may have ceased to export twenty or even fifty years previously. Of course by obtaining sufficient termini where a stamp appears on sufficient well-attested sites it is possible to date within reasonable limits, but it is useless to use an isolated find such as this to push forward the date of a particular stamp. Suppose a stamp can be dated approximately by tituli picti and site distribution to A.D. 80 - 130. If it is then found in a sealed level which can be dated to say A.D. 150 - 80 there is no occasion to alter the original dating; it may require some re-consideration, but definite alteration can only come when a reasonable number of the same stamp has been found in levels of the latter date. In other words it is essential to point out that the rate of secondary use-survival of these vessels - as opposed to primary use - and rubbish-survival - was very much higher than that of any other pottery, and that this must be taken into account when using them for dating purposes<sup>(1)</sup>.

On the other hand an isolated find of a stamp which is the latest object in a sealed level may be of value in the sense that it could lead to a reconsideration of the date of the associated objects. The dating of the defences to the south of the east gateway of Brough-on-Humber affords an illustration of this.

There the defences of Period I have been dated to c. A.D. 110 (Corder (1936) pp.8-11), but it was later pointed out that several sherds from the rubbish pit beneath the rampart and under the stone bottoming had Hadrianic or even Antonine

parallels (Corder (1937) p.30), and that a date early in the third decade of the second century seemed now to be required for the earliest defences of the town (ibid., p.31). Yet the latest object found - an amphora handle with the stamp F SCIMNIANO, which came to light in a clay-filled pit beneath the spread of clay that underlay the gravel path i.e. presumably the intervallum road (ibid., (1936) p.11) - was perhaps not taken sufficiently into consideration in determining the date of these defences.

This stamp is dated by a titulus pict<sup>us</sup> from the Monte Testaccio to A.D. 161 (C XV 4350); it has also been found at Niederbieber (occupied A.D. 190 - 260). Now the painted inscription gives an absolute date; that particular vessel must have passed through the Customs and Excise in Baetica in A.D. 161. Further, it must have reached Niederbieber - always assuming that the dating of this site is correct - for primary-use after A.D. 190. These two dates themselves are sufficient to suggest that the figlina was in operation during the second half of the second century. Nor are the known occupation dates of any of the other find spots of the stamp at variance with this ( see under letter S, Index). It was found associated with early third century pottery at Norton Disney in Lincolnshire; Corbridge also adds weight to the suggestion since its seven examples could not have reached the site in Hadrianic times when it was not occupied.

Since the Brough example was found beneath the intervallum road, the latter must be later, and probably some years later, than the arrival of the stamp there. If then it is accepted that the operational life of this figlina fell within the second half of the second century, then the intervallum road and so the defences of Period I must also be assigned at the earliest to those years. Town walls, which were an expensive item, could only be built with Imperial permission and only when the real necessity for them arose; it might be suggested that the real necessity in this case was the Brigantian revolt

of A.D. 155 - 8. If the building of the earliest defences at Brough can be connected with this event, it follows that the Stone walls of Period II might be connected with the events following A.D. 196. At the very least the occurrence of this amphora-stamp in such a position suggests a firm and definite reconsideration of the other evidence<sup>(2)</sup>.

### 1. AMPHORA - BURIALS

Such burials probably had on the whole a religious significance; they contained, or they represented, the wine, and perhaps to a lesser extent the oil, required by the deceased in after-life. On the other hand their frequent use can also be partly attributed to the fact that they were cheap and easily accessible containers for the ashes and sometimes the bodies of the dead, but even in this respect there must have been a subconscious desire to supply or symbolise the goods of this world. Thus most cremation burials in amphorae contained, in addition to the ashes, grave-goods such as bowls and glassware.

It is possible to distinguish four types of amphora-burial. Firstly there are those which are best exemplified by the Belgic burial-vaults at Welwyn, Stanfordbury, and Mt. Bures in Essex<sup>(3)</sup>. Here the amphorae were inserted filled with wine, six at Stanfordbury and Mt. Bures and probably the same number at Welwyn, although only five were rescued from the vault. In each case also there were twin sets of fire-dogs, interpreted by Piggott as "twin-hearths for the prince and his noble guest in the future world" (Antiquity 85 (1948) p.22). These must indeed have been the burials of some of the wealthiest people of South-eastern Britain<sup>(4)</sup>, since only such people would have been able to afford the importation of choice Campanian wines (see Ch.2 "Form and Chronology" Form 1). The Welwyn burials also represent the earliest known amphora-burials in Britain; the custom was brought with them by the Belgae when they invaded Britain from Gaul in the first century

before Christ. The use of the same type of amphora i.e. the long, slim variety for burial purposes was widespread in Gaul during this century and before, revealing a merging of La Tène and Italian civilisations<sup>(5)</sup>.

Secondly there are the burials in which the same type of vessels has been used, but from which the wine had previously been consumed; in its place were the ashes and sometimes other grave-goods. It was obviously too expensive, except in the case of persons of the highest rank, to leave the wine for other-worldly consumption; it served a more worldly purpose and the symbolism was deemed sufficient. Mt. Beuvray was full of such burials; whole rows and beds of cinerary amphorae were found distributed all over the site e.g. "Two enormous blocks of granite facing south, and three to the north, were in position and marked the limits of the ancient enclosure of stones ..... Thirty-five amphorae ..... were piled there in disorder ..... They were still filled with ashes, burnt bones and some objects, the most characteristic of which were a bronze button, a silver, enamelled plate.....(and) some polishers" (Fouilles p.161). Examples in Britain have been found at Aston Clinton (Buckinghamshire)(Records of Bucks. IV p.147) and midway between Welwyn and Knebworth (Trans. East Herts. Arch. Soc. III p.32).

The third type of burial, which was the commonest in Britain, involved the use of globular or South Spanish amphorae. In some instances the vessels simply contained the ashes, and the remainder of the grave-goods were laid in separately; in others the top had been broken or chiselled off in order to introduce grave goods as well as the ashes. Sometimes the upper part of the vessel was replaced, but frequently a cover of stones was used instead. This type of burial persisted throughout the first and second centuries and into the third century. Nevertheless, as the distribution map of amphora-burials reveals (fig.32), it remained almost wholly confined to the areas

occupied by the Cantii, Catuvellauni, and Trinovantes. It is indeed a remarkable example of a cultural affinity persisting long after political affinities had passed away.

Lastly there was the straightforward use of an amphora as a coffin for an inhumation burial. No examples of this type have been found in Britain, and they are not very common elsewhere. They were used in this fashion for the burial of paupers in Italy (Prop. IV 5,73), whilst an illustration of such a burial is given in the Not.d.scavi for 1881, p.30.

List of British Amphora-burials.

1. Kent

a) Provenance not given. Part of the Gibbs Bequest (1870) to the BM. Only the rim broken off (Unp.: BM).

b) Broughton Monchelsea. Two examples but no details given (~~ibid.~~, p.78).  
Proc.Soc.A.Lond.

c) Bridge. Portions of large amphorae found in three tumuli (Arch. Cantiana XV p.312). This sounds like a Type I Burial.

d) Buckland (nr.Dover) No details given (Proc.Soc.A.Lond. XVIII p.78).

e) Canterbury. 1) Globular vessel (South Spanish) stamped SFE (See Index)(VCH Kent III p.76)

2) "Amphorae found at Canterbury used in burials" are mentioned but no details given (Arch. Cantiana IV p.31).

f) Green Street Green, Darent. A globular vessel (South Spanish) containing calcined human bones (Proc.Soc.A.Lond. XVIII p.77).

g) Lower Walmer. Globular vessel with the top broken off and not replaced. A Samian bowl with the stamp PRISCVLINVS FE(cit) was found inside (?) the amphora. Early second century? (JBBA VII p.260 = Arch. Cantiana XXV p.8, where it is incorrectly described as a seria).

h) Maidstone:- Roman cemetery. Two globular vessels containing cremated deposits, with the upper portions removed and large apertures cut symmetrically in each were found; one of the apertures was squared (7 1/2 ins. sides), and a square glass jug with the ashes inside, was introduced into the amphora. The other vessel had a circular aperture in order that a large round glass vase might pass through it. (Arch. Cantiana XV p.77-8 and fig.10).

i) Ospringe:- Roman cemetery. 7 examples ? An amphora was found from which the neck and handles had been removed to adapt it for its funerary purpose; the aperture had been covered with a red brick or tile (Arch. Cantiana XXXVII pp.87-91); a further half dozen such amphorae found (ibid.,).

j) Pegwell. A globular amphora with a glass bottle, a Samian dish and an urn containing calcined bones (VCH Kent III p.162).

k) Nr. Sandwich. From the dimensions given (27 ins. by 22 ins.) a globular vessel with burnt bones and an urn (Arch. Cantiana IV p.31 and VCH Kent III p.144).

l) Southfleet. The top of the neck broken off from a globular (?) vessel (Archaeologia 14 p.37 & pl.VI).

m) Wingham:- Roman villa. "A large amphora was found containing a beautiful and perfect Samian bowl" (Arch. Cantiana XV p.356).

## 2) London Area: -

a) Provenance not given: Globular type with the neck and upper part of the body removed (C.R. Smith. Catalogue of Antiquities in the Lond.M., p.14).

b) Bank Station: "Fragment of a large amphora, the neck and handles of which had been removed to form a cist or coffin for the interment" (Royal Commission on Hist.Monuments England III Rom.Lond. p.155: Now abbreviated to RCHM). Prob-

ably of mid-first century date.

c) Near Epsom: were found the "contents of three burials after cremation... In each case the containing vessel was a globular amphora, the upper part removed to admit the cinerary urn of glass or pottery, and then replaced as a cover" (Ant.J IV p.275). Dated end of the first century or beginning of the second.

d) Goodman's Field: "Large amphora into the lower part of which a large hole has been knocked. It was found in Mansell Street and is said to have contained a burial but details are lacking" (RCHM p.41 & pl. XIII B, fig.10 ?).

e) Great Alie Street: "A burial group consisted of 1) an amphora of coarse red ware with neck and handles in position but separate from the body to admit 11) a dark grey urn containing burnt bones and covered by 111) a dark-grey dish. The urn resembles Wroxeter (1913) Type 60 dated "late 1st & early 2nd c." and the group is probably of early 2nd c. date." (RCHM p.159 & fig. 65,26) A globular vessel.

f) Liverpool Street: Two urns found inside a globular amphora, the neck of which had been cut off and then replaced. Suggested date c.A.D. 150 - 250 (RCHM p.159).

g) Moorfields (Blomfield Street): "A wooden cist, about 18 ins. square, was found, covered by an amphora reversed and with the neck removed." There were two urns inside and one was similar to Richborough Type 28 dated mid- or late 1st c. (RCHM p.161).

h) Old Ford and Bow: An amphora of buff ware containing burnt bones. Given as "Probably not later than the beginning of the 2nd c." (RCHM p.164 & fig.67,44).

i) Old Kent Road: "A seria (i.e. globular amphora) about 5 ft. in circumference was found, within which was an urn or calcined bones" (JBAA, XXXIII p.335).

j) Southwark: A small carrot-shaped amphora had been included amongst the grave-goods, which consisted of a dagger, an iron trident and a vase of St.Rémy ware (County Archaeology (Methuen), Surrey, p.142). Early first century? This type of amphora was probably enclosed together with its contents (perhaps some special commodity such as honey or dates?), and so might be classed as a Type I Burial.

k) Whitechapel: "A very globose seria (i.e. a globular amphora) with pointed base, 22 1/2 ins. in diameter, the upper part of which was removed to admit an olla containing fragments of calcined bones" (Gentleman's Magazine April 1836 p.371).

### 3) Hertfordshire:-

a) Baldock: A globular amphora with the neck and handles removed, and the aperture covered with a fragment of pottery. Dated c.A.D. 140 - 80 (JBAA XXXVIII pl.II).

b) Between Knebworth and Welwyn: A complete amphora three-quarters full of dry, brown dust. Height 2 ft. 4 ins. and greatest diameter 11 3/4 ins. (Trans. East Herts. Arch. Soc. III p.32).

c) Welwyn: Belgic burial-vaults. Probably late first century B.C. (for details see Proc.Soc.A.Lond. XXIV pp.3-4 and Arch. 63 p.3).

### 4) Essex:-

a) Colchester: 1) Globular (?) vessel (2 ft. in height and about 20 ins. in diameter)(JBAA III p.175), 2) Sheepen. A globular amphora contained everything except one flagon for which there had not been room inside. "The top of the amphora had been cut off with a chisel to admit the grave furniture." Dated c.A.D. 190 - 210 (for the full details of the grave-furniture see Colchester M.Rep. 1935 pp.18 - 26).

(The grave-group in situ is illustrated *ibid.*, fig.4 = pl. XIX of this thesis.)

b) Bartlow Hills: A globular vessel filled with earth, ashes and small fragments of bone (Arch. 26 pl. XXXIII, fig. 7 and JBAA XIX p.251 & pl. III, fig.7). The latest object was a coin of Hadrian.

c) Heybridge: Burial amphorae found together with a patella and a bronze jug (Arch. 63 p.28).

d) Lexden Tumulus: Same type of amphora as the Welwyn examples, and probably a Type I Burial (Arch. 63 p.3 note 2).

e) Mt. Bures: Two groups of three amphorae each with their necks lying on the cross-bars of two fire-dogs. This was a Type I Burial (Collectanea antiqua II pp. 25 - 28; a plan of the excavation showing the relative position of the remains is included).

#### 5) Suffolk:-

a) Hawkedon: A globular vessel with the neck and handles removed (approx. 26 ins. in height and 20 ins. in diameter) (Proc. Suffolk Institute of Archaeology VI p.8).

#### 6) Buckinghamshire:-

a) Aston Clinton: An amphora of the long, slim variety filled with burnt wood and earth. It is not certain that this was a burial vessel (Records of Bucks. IV p.147).

b) nr. Cop Hill, Long Crendon: The upper part of a globular amphora was discovered here in 1824; it contained burnt bones. (Gentleman's Magazine June 1831 p.580 and JBAA XXXIII p.336). Probably second half of the first century.

c) Wavenden Heath: An amphora of the long, slim variety was found together with several urns of different forms and sizes, containing bones and ashes and samian ware (D. and S

Lysons Magna Britannia I p.24 & fig.4).

7) Bedfordshire:-

a) Shefford: A burial amphora which contained a ball of pitch (VCH Beds. II p.13).

b) Stanfordbury: A Type I Burial in two oblong vaults. Samian vessels with the stamps SILVIVS and OF.COE were included in the burial (Collectanea antiqua II p.30 & pl.XI, fig.1: Arch. 63 p.11 & fig.5: VCH Beds. II p.14). Probably last quarter of the first century.

8) Berkshire:-

a) Newbury: A globular burial vessel found in a peat bog (VCH Berks. I p.215).

b) Thatcham: A globular amphora. (VCH Berks. I p.215).

9) Cambridgeshire:-

a) Chesterford: An amphora minus its neck and handles with the bones of a bird inside. Not necessarily a burial vessel. (Suffolk Institute of Archaeology VI p.10)

b) Foxton: A crater of Xanthus and platters of Belgic ware were found in an amphora. Probably a cremation burial and Augustan in date (Archaeology of the Cambridge Region. Sir C.Fox p.101).

c) Hay-Hill Tumulus (West of Cambridge): Here was found "a rude stone slab, covering the mouth of an amphora.... within the amphora was a black terra-cotta vase of elegant form, half-filled with human bones; also two other smaller vessels of red terra-cotta with handles" (Arch. XIX p.61). (Given as from Lord's Bridge, Barton in "Archaeology of the Cambridge Region," Sir C. Fox p.101).

d) Haslingfield: A cremation burial in a globular amphora (Proc.Soc.A.Lond. II<sup>3</sup> pp.36 & 77 : Archaeology of

the Cambridge Region, Sir C. Fox pl. XXII, fig.3).

e) Lindsell: An amphora of the Welwyn type was discovered here together with burnt bones and ashes (JBAA I p.269: Archaeology of the Cambridge Region, Sir C. Fox p.101).

f) Quint's Hill, Old Warden: The cremation burials here were associated with two iron hoops - evidently the remains of a situla - and two earthen urns of large size with long handles "almost certainly amphorae of Italo-Greek type" (Archaeology of the Cambridge Region, Sir C. Fox p.98). These were early Iron Age burials, probably of Type I.

g) In addition amphorae of Italo-Greek type have been found at Thaxsted, Dam Hill, Trumpington and Jesus Lane, Cambridge, and these may have been used in burials (Archaeology of the Cambridge Region, Sir C. Fox p.101).

#### 10) Miscellaneous:-

a) Barrow-on-Soar, Leicestershire: A complete globular amphora found together with five glass vessels, two metal lamps, a lachrymatory and two other pots (Leicester Archaeological and Architectural Soc. III p.225 and pl. IV).

b) Attingham (nr. Wroxeter): An amphora-burial in an enclosure of large stones (VCH Shropshire I p.241).

c) Lincoln: A globular amphora, in which was an olla 9 ins. in height; the neck and handles of the vessel had been removed and not replaced (JBAA XXXIII p.336: Arch. 12 pl. XIV).

d) York: An amphora had been cut in two, and probably been used for sepulchral purposes (Handbook to the York Mus. (1891) p.96).

e) Catterick: A globular amphora was found inside a vault; it was stamped II Aurelii Heraclae (See Index). Almost certainly a burial vessel (Yorkshire Archaeology (Methuen)p.148).

f) Wickhambreux: "A seria (= globular amphora) 24 ins. high and 22 ins. in diameter,..... in which were deposited two small earthen pots, one being ornamented with a white pattern, and containing calcined bones" (Gentleman's Magazine June, 1794 p.501).

## 2. AMPHORAE USED FOR SANITARY PURPOSES.

It appears to have been a fairly common and widespread practice to utilise empty amphorae as pissoirs. Their employment as such at Rome is mentioned by Macrobius (Sat. III 16,5); at Pompeii they were placed at street corners and then removed full of urine for use by the fullers of the city; amphorae used by them were found for example in the buildings of Eumachia (RE s.v. amphōra cols. 1969-76: Della Corte "Pompeii" (1927) p.47f.). The vessels were normally adapted for this purpose by breaking off the neck and handles. On the other hand where the vessel has been used as a straightforward convenience and the contents have been allowed to drain away, the neck, handles and upper portion of the body were sometimes retained in preference to the lower half; they were placed upside-down in sandy or light, easily-drained soil, the mouth acting as a drain.

It might be as well to take the opportunity afforded by this last observation to digress slightly and discuss a point which has been raised with me in personal correspondence (with M.R. Hull, Curator, The Colchester and Essex Museum, Colchester). It has been suggested that one reason why so many stamped handles, or the upper portions of amphorae including the stamps, are found, in contrast to complete amphorae with stamps, was that the ~~stamps~~<sup>latter</sup> were trade-marks; that, in order to prevent cheating i.e. filling some empty, stamped vessel with inferior liquid and selling it under that trade-mark, the upper portions and particularly the

stamps were broken off after the original commodity had been consumed. There may be something in this point - although we have no direct evidence for it - but it obviously is not the whole answer. In the first place the number of complete vessels with stamps has been underestimated; admittedly there are not many in Britain, but there are some, including several in the British Museum. In Switzerland, however, to give as an example a country the Museums of which have been visited by the writer, they are numerous at Geneva, Vidy-Lausanne, Lausanne, Avenches, Nyon, Basel and Windisch, and definitely too numerous to be exceptions or evasions of some law requiring the breaking-off of the stamped portion to prevent re-use and re-sale under false pretences. Secondly it should be pointed out that most amphorae had such narrow necks that the upper portions would have to be removed to ensure a complete emptying of the commodities which were not particularly liquid; fish-sauces and pickled fish for example would both necessitate such action. Thirdly the method of manufacture of some vessels, whereby the upper portion was soldered on to the lower, ensured that there was a weak spot approximately at the base of the handles. Thus any rough handling after the protective covering had been removed (see Ch. IV Miscellaneous) (Presumably this would only be removed after emptying) would frequently result in a fracture at this point and the separation of the two components<sup>(1)</sup>. Fourthly if an amphora was thrown into the rubbish pit after emptying, it would be a natural action to break up such a bulky object before disposal; again the upper portions and the handles would be the most easily broken portions. Lastly, and this is perhaps the most important consideration, the secondary uses of amphorae - in burials, as pissoirs and for the uses enumerated below - almost always involved the breakage of the vessels, usually into the two component parts of 1) neck and handles 2) body and spike. On the whole, therefore, it is not necessary to look for some legal

aspect which demanded the breakage of vessels after the primary commodity had been consumed, in order to explain the lack - in Britain at any rate - of complete, stamped examples.

The use of amphorae for sanitary purposes on Hadrian's Wall and at Chester.

The frequency with which globular amphorae have been found in milecastles and turrets of the Wall suggests that, outside the forts, these were the main instruments of sanitation employed by its garrison; on the other hand it may be that in some instances the lower halves of globular vessels were utilised as primitive cooking vessels.

1. Housesteads M/C<sup>37/</sup>(AA<sup>4</sup> XI p.114)

"Against the west wall of the building and to the north of the south doorway on the outside, were four flags set on edge so as to form an enclosure about 1 foot square and 9 ins. deep; a fifth flag formed the bottom. The object of this is not clear; it may have been used to support an amphora of the tall cylindrical type" and note 16 *ibid.*, "This suggestion is due to Mr. Birley: he points out that it may also be the explanation of a similar object found at Chapel House M/C." It is almost certain that this construction was used to support an amphora but hardly one of the tall cylindrical type; the common form at the period of milecastle construction was the globular or South Spanish. So far as is known to the writer, no amphorae of the tall cylindrical type have been found on the Wall. It is also fairly certain that if an amphora was originally set into the construction, it was used as a pissoir, although there is one example of a globular vessel being used in a milecastle as a (~~sanitary~~) primitive cooking utensil (see below under M/C 79).

2. Chapel House M/C<sup>9/</sup>(AA<sup>4</sup> VII p.157 & pl.XLVII, fig.2)

"Outside the doorway, midway between the wall and the kerb on the south side, was a small structure of flags set on edge that may have been intended to hold one of the posts of a porch."

This refers to a stone building inside the M/C, set back 3'6" from the road and on the west side of the M/C. The doorway of this building is the one referred to. This again is a doubtful example, but Mr. Birley himself, who conducted the excavation of this milecastle, has suggested it was possibly used to support an amphora.

3. M/C 50 TW (High House) (CW<sup>2</sup> XXXV p.225)

"At the extreme southern end of this side (the west), however, a dolium (= a globular amphora) had been set in a circle of stones, from which a neat covered drain led through the south gate (fig.7). This arrangement is very like the similar drain in the north gate of the Antonine Fort at Bar Hill, and doubtless served as a lavatory, in the various senses of the word. Only the smashed remains of the dolium were found, insufficient to show whether it had a hole pierced in it, as might be expected, to drain off the contents."

4. Mucklebank Turret<sup>446/</sup> (AA<sup>2</sup> XXIV p.16)

"In the north-east corner of the turret were found the broken remains of a large amphora, of which the neck and both handles were perfect. The mark on one of the handles was QMCCAS (Now in the Black Gate Museum, Newcastle-on-Tyne: should read QMCCCAS:- see Index and Fig.15,15). It had not been employed for holding any liquid, as two small irregular holes purposely made near its base rendered it unfit for that purpose. Possibly it may have been employed as a receptacle for the rations of the guard who occupied the turret."

5. Limestone Bank Turret<sup>296/</sup> (AA<sup>3</sup> IX p.61)

" Not far within the doorway against the east wall of

the turret were the remains of an amphora carefully set in fine yellow clay which was packed round with whin cobbles. The neck and handles of the vessel were missing, and the rest badly smashed by the stones fallen from the wall above; a roofing-stone had fallen right into and through the lower half, which, however, retained its shape being held in position by the clay. No doubt the vessel served to store the drink of the sentries stationed in the turret."

6. Willowford Turret East<sup>480</sup> (CW<sup>2</sup> XXVI p.442 &448)

Several fragments of amphora sides were found (p.448). Two hearths were found at Period III level (p.442). Is it possible that one of these was used to support an amphora?

7. Willowford Turret West<sup>480</sup> (ibid., p.445)

"Amphora:- several fragments representing at least two vessels and a handle of a third (?), 5 inches long, with stamp SER...." Globular, South Spanish, vessels (see Index for stamp).

8. Willowford, Bridge Tower (ibid., p.505)

An amphora neck of the globular type found associated with 2nd century pottery, north of the wall and east of the Abutment.

9. Appletree Turret<sup>500</sup> (CW<sup>2</sup> XXIX p.306)

"The interior awaits excavation but just inside the west wall lay five large pieces of dolium (= a globular amphora).

10. Appletree 50 b.T.W.Turret (CW<sup>2</sup> XXXV p.234)

"With the hearth were associated fragments of a dolium (= a globular amphora).

11. Chester

a) Hunter Street site IX (CNWSoc. XXVII p.70)

A globular amphora found with its upper portion cut away at the shoulder and the remaining pieces lying together,

with the base embedded in the sand floor of room 2, at the north-west corner, close by the tiled hearth. The stamp of the XX Legion was on one of the hearth tiles.

b) Legionary Barracks (Unp.)

The upper portion of a globular amphora found inside a barrack room, neck downwards and filled with stones or pebbles. (Information from Dr. I.A. Richmond. See pl.XVII).

There is only one further example from Britain of this use of an empty amphora [known to the writer]; that came to light on a villa site in Norfolk. "In the external angle, between the east wall of the alcove and the corridor north wall, was found the lower point of a small amphora, of somewhat unusual shape, with a turnip-shaped body ending in a long point. The highest part of the vessel preserved was some 6 ins. below the level of the gravel, which had been disturbed; but it is probable that when placed in position it was flush with the surface, or if the vessel was used complete, about 10 ins. above it. The interesting feature of the vessel was that the extreme tip of the long point had been broken off, leaving a small hole at the bottom of the hollow tube. This passed through a layer of gravel into the porous, undisturbed sand beneath. Its arrangement and position in a corner of the gravel yard suggest its use as a place of convenience" (Norfolk Archaeology XXIV p.123 & pl. X,B).

Whilst the evidence is not entirely conclusive that all the vessels found in the milecastles and turrets of the Wall were used as pissoirs, there are reasonable general grounds for believing that this was the case; presumably they had to have some form of sanitation, and, since it would not have been worth while to provide them with stone latrines as in the forts, amphorae were an obvious and cheap means of filling in the gap. In any case it is a point to look for in any future excavations, not only in the Wall area, but also

on sites away from forts and towns.

### 3. MISCELLANEOUS.

#### a) As a primitive cooking apparatus.

Dr. I.A. Richmond's excavation of Milecastle 79 during the early summer of this year (1949) produced an example of this (pl. XVIII). The inside showed definite signs of burning and it had definitely not been used for sanitary purposes. Similar examples have been noted at Pompeii (Bullettino dell' imperiale istituto arch. germanico XVI p.332).

#### b) For paving and structural purposes.

Fragments of amphorae were common enough to have been used for these purposes at Warrington (May p.61). There was even an amphora-floor. "Underneath (a patch of rude pavement) was a double layer, 2 feet 6 ins. long by 1 foot 4 ins. wide, of fragments of amphorae evenly and closely laid..... it may be remarked that broken amphorae have been frequently employed for structural purposes in this locality" (Trans. LCHSoc. LII (1900) p.29). This appears to have been a fairly widespread use; amphorae used as drainpipes, or broken up quite small and mixed with lime and used as a floor covering in the huts of Gaulish oppida have been noted by Bohn (Germania IX p.78; "Amphorenschicksale") and Déchelette (mém. soc. éduenne, 1904 pp.58-60). They have also been discovered pushed into each other to form the framework of a vault or water conduit (Déch.VI pt.II Ch.XVI p.614; they were also used in the vaulting of the Amphoren-Keller" at Augst; see ASA XXVIII (1926) p.198); they were even used - without previous reduction to fragments - in the construction of walls e.g. the wall of Byrsa at Carthage (Delattre Bull. arch. 1894) and an early wall of the Church of St. Pierre at Geneva "La figure 2 (= the globular type, the commonest at Geneva) représente la coupe de l'une de ces cruches, la

seule trouvée en place; l'examen de cette pièce démontre qu'avant d'être employée dans la construction, elle avait servi d'amphore, et le col, de même que les anses, avaient été coupés pour rendre propre à sa nouvelle destination" (ASA XXX p.150). Walters notes that " in the circus of Maxentius a number of large amphorae were found embedded in the vaulting and upper part of the walls, arranged neck downwards and with their axes inclined obliquely to the wall (Middleton "Remains of Ancient Rome"II p.56). All are now broken, but they illustrate the ingenious method in which the upper parts of the arches supporting the rows of seats were lightened." ("History of Ancient Pottery" London (1905) II p.457). A final example can be given from the Castra Praetoria area of Rome, where from three to six rows of amphorae were laid one on top of another with a layer of fine earth between each deposit; it appeared that they had been utilised thus to form a damp course in some construction (Bull.della comm.arch.commun. di Roma 1879 p.193). (7)

c) As water-butts or buckets.

1) The Roman fortified villa at Norton Disney (Lincs.)

"The large drainage ditch on the south of the basilican block was filled in an outdoor paving of rough concrete placed on top. At the west end of this large drainage ditch an amphora (pl.XL, fig.1), of which the neck and handles were missing, had been placed directly beneath the eaves of the corridor roof. Possibly this served as a water-butt, since a large storage jar set in clay was found in a similar position at 8<sup>a</sup> (Ant.J.XVII p.152).

2) A globular amphora was found at a depth of 38 feet in the well of the fort at Bar Hill; it had probably been used as a well-bucket (Macdonald and Park p.66). Jacobi inferred the same use at Saalburg (p.421).

3) The use of globular amphorae as water-containers was suggested in the case of the fort of Zugmantel. Between 70

and 80 examples of such vessels were found there and an exceptional lack of natural water containers was noted (ORL 8 Appendix pp.197-8).

d) Various uses.

1) Cato recommended the use of an amphora for bleaching salt; "break off the neck of a clean amphora" (de r.r. LXXXVIII).

2) As flower-pots.

The bottom halves of spiked vessels were dug into the ground in the shops of the flower-dealers at Pompeii (RE s.v. Amphora cols 1969 seqq.)

3) As money-chests.

A large amphora was discovered in the 19th century at the Roman villa on Castle Hill, Whitton, Ipswich, which was said to have contained a great quantity of Roman coins (Suffolk Archaeological Institute XXI p.242) (See also Justin. XXXII 4: Gracch.or.frg.Gell.XV 12,4: Nep.,Hann. IX,3: Iust. XXXII 4,4).

4) For acoustic purposes.

Seneca alludes to this practice when he speaks of the voice of a singer falling upon a dolium (Quaest.Nat.IV,19: cf.Pliny n.h.XI,270); amphorae were also used in this manner (Walters p.457).

5) As containers for chalk and lime or other materials.

a) "near a Roman house at Marienfels stood an old amphora "mit gelöschtem Kalk (quicklime), der wohl für besonders feine Arbeit dienen sollte" (R.Bodewig "Römische Gehöfte zwischen Limes und Rhein", Mitt.für nassauische Altertumsk. 1906 p.143; cf. Vitruvius, de architect.VI,6).

b) In 1729 labourers found three amphorae in a row "a little inclining", 18 ins. below the surface, at Westmill, Lemonfield, Hertfordshire. They were pale red, 40 ins. long, pointed at the bottom, narrow-necked, two-handled and

full of dust and chalk" (VCH Herts. IV p.169).

c) In a house at Pompeii, where the finds suggested that some sort of mosaic work had been in progress, half an amphora was discovered full of Mosaiksteinchen; such finds were apparently common at Pompeii (Bull.dell'imp. inst.arch.germanico XVI p.332).

6) As store-cupboards.

Amphorae have been found fairly frequently with squarish holes cut into the side (see pl. XVI, extreme right). It has been suggested to me by Dr.C. Simonett, Curator of the Vindonissa Museum, Brugg, Switzerland, that vessels with such apertures were used as "Kühlschränke". The writer saw several examples in Switzerland, particularly at Windisch and Augst. They have also been noted at Pompeii. (Bull. dell'imp.inst.arch.germanico XVI p.332).

7) As a war-weapon.

"Cn.Scipio bello navali amphoras pice et taeda plenas in hostium classem iaculatus est"(Ps.Frontin.strat.,IV 7,9).

8) As boundary-marks.

"si vero pali lignei pro terminis dispositi sunt..... ant vertices amphorarum defixi" (Sic.Flacc.grom.p.142).

NOTES.

1. Normally speaking pottery has only primary use-survival and rubbish-survival; amphorae, on the other hand, in perhaps the majority of instances had a third or intermediate type, which I have called secondary <sup>use</sup> ~~(use)~~ survival <sup>i.e. survival</sup> for use after the commodity had been consumed.

2. Admittedly the occurrence of a single stamp might be regarded as somewhat flimsy evidence upon which to base the alteration of a highly important dating sequence. Yet it is a fundamental law of archaeology - so far as it can be said to have such laws - that it is the latest object

found which dates the upper limit of a sealed level.

3. For the Welwyn burials see Proc.SocALond. XXIV p.4 ; the details of the Stanfordbury and Mt.Bures examples are given in Collectanea antiqua II p.30 & pl.XI, fig.1 & pp.25-28.

4. The Stanfordbury burial is later than the others, and can be dated approximately to the last quarter of the first century A.D.

5. The custom may have spread from Italy itself. Dolia, for example, which presumably had the same significance religiously-speaking as amphorae, have been discovered in very early tombs in Rome near the Temple of Antoninus and Faustina, in the Forum. They contained smaller vessels with incinerated remains, and the depth at which they were found showed that the date was probably near that of the traditional epoch of the founding of the city (Classical Review XVI pp.476-7). Examples of early burial vaults in Gaul, which included amphorae , are those at Arras, where four were found in a line and 33ft. apart. "In each pit was a bronze ewer, and amphorae placed upright in the corners, 4ft. in height " (Arch. 63 p.12).

6. In many instances the handles were also made separately and added to the body afterwards ; in any case they were the weakest point on an amphora and were, therefore, very liable to break away with age and rough usage.

7. It is interesting to note that the present-day inhabitants of the valley of the R.Guadalquivir between Cordoba and Seville use Roman amphorae in a similar fashion, as bonding-courses in river and flood walls( AJ LVI p.256).

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AMPHORA - BORNE COMMODITIES

The amphora, like the modern bottle, was used as a container for a great variety of goods. Indeed most of the consumable goods, in the economic sense of the phrase, of the Mediterranean region were apparently stored or transported in it. Yet it seems to be implied by the majority of Reports which mention amphorae that they rarely contained anything except wine and occasionally oil; but this implication is hardly justified when the following list of commodities is taken into consideration. To dissipate this widespread misconception is indeed the main purpose of the list, but at the same time it will act as a rough guide and aid in the deciphering of any tituli picti found on vessels in Britain.

1. WINES

A fairly comprehensive list of these is given in the Corpus (XV 4529-4654). To this might be added:-

- a) PICCATVM || VINVM || EXCELL(ens). Pompeii (EE I n.204).
- b) VESVINVM [vinum] || VET(us).III. Pompeii (C IV supp.5603).
- c) COMVN(ianum?) [vinum?]. Pompeii (C IV supp. 5576).
- d) LVM(LYMPHA?)VET || IIIIA . Pompeii (C IV supp. 5607:5609-11:5622-25).

e) COD(?) ( ) VE(tus). Augst (ASA XXVIII p.204). Considered by Bohn to have been some form of special wine, perhaps a "fruit cocktail" made by an infusion of wine on fruit. Normally the letter O is small in comparison with the C and D; the inscription has occurred frequently at Pompeii (see C IV supp. 5629:5633:5637). It is possible that it should be interpreted as COND(itum), being a case where nasal elision has led to the disappearance of the N,<sup>(1)</sup> This suggestion is strengthened by the fragmentary inscription from Windisch, CONDTINGVET (see fig.23), which could be expanded perhaps to COND(itum)TINC(tum) [vinum] VET(us).<sup>(2)</sup>

f) SVRRE(ntinum)PERV(etus). Windisch (Vindonissa)(ASA XXVIII p.205).

Very old matured wine from Surrentum (see Plin.n.h.XIV 22, 38,64: Col.III 2,10: Cf. C IV 5521,5522,5525,5562: XV 4740).

g) MES(opotamium) [vinum ?] Windisch (ASA XXVIII p.205).

A Sicilian wine? (See Déch.VI pt.II s.v. Amphora commodities: cf. Pompeii inscriptions: C IV 2602-3).

h) LACCATV(m) || EXCELLENS || SVMM(um), LACCAT(um)ET TINC(tum) VET(us) and LACCATV(m)TINCTVM(?). Pompeii (C IV supp. 5640-2: 5646: EE I n.268).

Perhaps a variety of milk-wine?

i) VIN(um) || CAESIANVM. Pompeii (C IV supp.5516).

j) VINVM || OLIIIVVM. Pompeii (EE I n.230).

See also Ch.II "Form and Chronology" for wine inscriptions related to types.

## 2. Oil and Olives.

a) OLIVAS || COLONBARES

b) OLIVAS SA [1] ITAS

c) OLIBARVM COLVMBARVM, Rome (C XV 4803-4: 4855).

d) OL(eum or -ivas)A(lbanum or - lbas) Vechten(ASA XXVIII p.208).

e) OLIVA || NIGRA || EX DEFR(uto) Windisch (ASA XXVIII p.208).

Black olives as opposed to "white" i.e. green olives. The latter were normally qualified by the words dulcis or exdulci, as in OLIVA ALBA DVLCIS (Pompeii, C IV 2610 and Rome, C XV 4802). The black olives had been soaked in the defrutum or defritum (from deferveo), which was second or third-rate wine must (Pallad.r.r. XI,18) viz., unfermented or sweet wine (Cf. Pompeii, C IV supp. 5588: Chiavenna, C V 8111,1: Mainz, MZ 1909 p.121).

f) Carbonised olives were found inside an amphora from Avenches (Switzerland)(ASA 1874 pp.494 & 580).

g) Olivas conditas (Col. XII 49,2,4,6 : 50,2).

3) Fish-sauces and salted fish.

a) Garum. This appears to have been a Spanish speciality. It was a very refined and aromatic condiment prepared from the insides of small fish, which had been salted, exposed to the sun for several days and then filtered. It was a highly prized sauce used with all types of dishes and it was extremely expensive e.g. first-class garum cost 1000 sesterces for 2 congi (Plin.n.h. XXXI 93-95).<sup>(3)</sup>

Examples:- 1) G(arum)HISPA(num). Augst (ASA XXVIII p.202). Pliny (ibid.,) mentions Carteia (nr. Gibraltar) and Carthage Spartaria (Cartagena) as the premier Spanish production places.

2) G(arum)SC(ombri) (Rome: C XV 4705), G(arum)SC(ombri) [f(los)] EX(cellens)VE(tus) (Old. first-quality herring garum; Augst: ASA XXVIII p.202:cf. Plin.n.h. XXXI 94: Martial XIII,102), G(arum)SC(ombri)F(los)PVTEOLANI (Rome: Bull.p.103), G(arum)F(los)SCOM(bri) || SCAVRI (Naples: Bull.dell'imp.instit.arch. germanico XIX p.186), GARVM SOCIORVM (Pompeii EE I n.189), GAR(um). POMPEIAN(um) (Rome: C XV 4686).

b) Muria. Probably an inferior and cheaper variety of fish-sauce than garum. Muria dura is mentioned as a preservative for vegetables (Col.XII,7). Cf. in this respect the French saumure (=salt & muria) i.e. an extremely salted and aromatic water used for preserving fish and vegetables.

Examples:- MVR(ia)HISP(ana) (Augst: ASA XXVIII p.203), MVR(ia)ARG(uta)EX(cellens)FLO(s) (Windisch: specially piquant fish-sauce?: ASA XXVIII p.206:cf. Pallad.3,25:4,40), MVRI(a) (Rome: C XV 4729). (see also Martial VI,92 "Thais smells worse... than an amphora poisoned by putrid fish-sauce": XIII,103).

c) Salted fish. Spain exported salted mackerel and tunny-fish, and it seems reasonable to assume that they were conveyed in amphorae (Plin.n.h.IX,49: Mart.XIII,40: Strabo III 2,6: see also Xen.Anab.V 4,28). Cf. the painted inscription THAMNI(?) from Windisch, which may have referred to tunny (ASA XXVIII p.207: see also Col.XII 7,2).

#### 4. Fruits and dried fruits.

MAL(a)CVM(ana)VIR(idia). Rome (Bull.p.166).

MAL(a) || CVM(ana)VET(us). Pompeii (C IV supp.5550).

CERASA. Rome (Bull.pp.170-71).

CE(rasa)VER( ). Pompeii (C IV supp. 5542).

CER.ALB(a). Pompeii (C IV 2562)(See also Plin.n.h. XVI 30,104: "cherries can be stored in cadi like olives").

Grapes (Col.XII 16,3: Plin.n.h. XIV,17).

Plums, peaches and damsons.

"Both the nut-plum, the peach, the wax-plum and the wild plum, if stored in cadi will prolong their life until the next harvest"(Plin.n.h.XV 12,42).

"Pointed jars (testa)of dried damsons" (Mart.V,18).

Figs. Syrian figs stored in round, conical jars (vas) are mentioned by Martial (XIII,28): "Figs are packed in cadi in the city of Ruspina" (Plin.n.h. XVI 21,82)(See also Col. XII 7,1).

Dates. Carbonised dates were found in a peculiar shaped amphora, greyish-black in colour and with deep rilling (fig. 20,4); it suggested to the writer the small carrot-shaped vessels (Cam.Rep.Form 189) in form and appearance. (See ASA 1874 p.494 & p.580).

5. NUTS. (Not.d.scavi 1881 323,10).

6. PEPPER. (ibid.,)

7. BEANS. FAB(ae) [amphora] || XI Windisch (ASA XXVIII p. 207).

LENTILS. (Bull.d.Inst. (1883) 225,9).

8. HONEY "And bring forth from the red cadus his golden honey" (Mart. I, 55).

MEL.THYM.IMVM. Pompeii (C IV supp. 5741).

MELLA. Pompeii (C IV supp. 5742).

Fragmentary painted inscription on a sherd from Windisch:  
MEL) || P(ondo)CLXXV (fig.22).

(See also Il. XXIII,170: Hor., Epod., II,15: Cic.Verr. III, 183).

9. GRAIN, FLOUR etc.

Rostovtzeff's suggestion that amphorae contained grain has been considered incorrect (RE XIII col. 139); but inscriptions and finds from Pompeii have proved the correctness of his thesis. Many amphorae have been discovered there filled with flour and corn and with the inscriptions, SILIGO GRANII and E CICERA (wheat flour and chick-pea flour) ("Pompeii" P.Gusman London (1900) p.243).

MOL(a?) (coarse meal or flour). Rome and Pompeii (C XV 4808-9: C IV supp. 5745-48; 5750-53; 5755-7; 5759).

POL(enta?) (Barley-groats) or POL(len?) (fine flour). Rome (Bull. p.176).

10. UNGUENTS. Lomentum (used as a skin-cleaner or cold cream?). Pompeii (C IV 2596-7: 5737-8).

"Dum misit nardum in amphoram" (Plaut.Mil. 823).

11. HAIR-REMOVER. psilothrum. Pompeii (C IV 2613-4).

12. MILK. (Aristot. h.a. III 16,5)

This does not necessarily apply to Roman amphorae.

13. WATER. (Poll.X, 30: Plaut.Cas. 121: Cels. III,20).

14. VINEGAR. Martial mentions an Egyptian amphora containing vinegar (XIII,122).

15. URINE. (Plin.n.h. XVII,259: Pallad., IV 10,3).

16. MEDICINES.

Laxative wine (Cato de r.r. CXIV-CXV). Medicine for curing dyspepsia and strangury; also guaranteed to clear out tapeworms provided the patient, in addition to taking the medicine, climbed a pillar, jumped down ten times and walked about (ibid., CXXVII).

17. HALEX(ALEC?). Rome (Bull. p.104-5).

Alec was a fish-sauce, but it is not certain the inscription referred to this.

18. MIRRIS? Pompeii (C IV supp. 5743).

MIRRIS || GAVIAE. Pompeii (EE I n.253).

These inscriptions probably referred to myris i.e. a herb used for medicinal purposes (Plin. n.h. XXIV,154).

19. LARGARINVM || PENVARIVM. Rome (Bull.p.180). A sort of fish-sauce?

20. LIQUA || MEN. Rome (C XV 4714, 4716).

LIQ(uamen ?)FL(os) || EXCEL(lens) Rome (C XV 4719).

LIQ(uamen) || ANTIA(tinum) || EXC(ellens) Rome (C XV 4712).

LIQVAMEN(?) PENVA(rium?) Pompeii (C IV 2596).

A type of fish-sauce ?

21. POTTERS' CLAY ?

An almost unbelievably large deposit of 1,350,000 amphorae was discovered in Turin. They were all upside down in one or

two layers and with their necks sealed by rough bungs of raw clay. They were full of very finely washed and levigated clay (Bull.dell'comm.arch.comm.di Roma 1879 p.193).

NOTES.

1) This suggestion was made to me by Mr. R.P.Wright, University College, Durham University, who emphasised that it was only a suggestion.

2) Of course, this reading of the inscription by the writer may be incorrect, although Herr Dr.C. Simonett, Curator of the Vindonissa Museum, Brugg, was inclined to consider it a correct interpretation of a difficult calligraphy.

3) A recipe for the making of garum is given in the "Breviarum Rufi Festi" (Ed.Förster 1874 p.23). "Sume pisces minores salsos aut si salsi non fuerint, saliantur pauco sale. et mitte ex illis sextarium unum et de bono vino sextarios tres et coque in aero vase usque dum duae partes consumantur et tertia remaneat. tum cola per saccum usque ad claritatem et refrigera. tum mitte in vitream ampullam et utere."

CHAPTER VMISCELLANEOUS

Method of manufacture and sealing; transport of amphorae; retail of commodities; Experiments.

Since the majority of amphorae were probably manufactured on the estates which also produced their contents, it follows that complicated and possibly expensive methods were not used; solidity, transport-worthiness, cheapness and fitness for use as a container of the intended commodity were the main factors taken into consideration. Some were turned entirely on the wheel as is shown by the internal and external potters' rills; others were probably hand-thrown, perhaps being formed around a rope core. In some instances, however, they have obviously been made in two or more pieces, with the upper portion of neck and shoulders carefully worked and then later "soldered" on to the less carefully worked body and spike. This is particularly applicable to some globular vessels. "It was interesting to note", said Curle, "how they (globular amphorae) had all been originally made in two pieces, the neck and shoulders in one, the bottom in the other. In the interior, at the point of junction, the marks of the potters' fingers kneading together the soft edges were very evident" (p.268). Macdonald and Park noted the same feature on globular vessels found at Bar Hill "the bodies appear to have been moulded on the inside by hand, and on the outside by the aid of a piece of wood. The neck and handles are much more carefully made, and have been attached subsequently whilst the clay was still soft"(p.70).<sup>1</sup>

After stamping - presumably with a die made of clay, gypsum, wood or metal (see Walters "History of Ancient

Pottery" II, p.439) - and then firing, they had to be coated with some substance in order to make them liquid-tight, as it was obviously uneconomic to incur the expense of glazing. As long ago as 1872 Roux noticed that the porous clay of amphorae could not hold liquids; he pointed out that some vessels from the Schutthügel still preserved a greenish-white coating, which contrasted strongly with the reddish or grey material of the interior (ASA 1872 p. 315), but it was left to Dr. Fröhlich to discover its true nature (see below).

The mouths appear to have been sealed by plugs of clay wood or cork<sup>2</sup>, and then possibly plastered over with some substance such as pitch, clay or gypsum, so as to exclude the air. There is no direct evidence for the fairly widely-held theory that the peculiar shaped vessels illustrated on fig. 19, 25-26 were amphora-stoppers, a theory which was frequently expressed to the writer whilst on the continent<sup>3</sup>.

When completed they were normally placed in a storage-cellar, either leaning against the walls (as in the case of the Welwyn burials; see supra p.452) or with their spikes dug into the soft earth or sand. A large amphora-cellar, with many vessels in situ, has been found in Rome; in this instance the vessels were approximately one-third buried in the floor (fig.26). Alternatively they were stacked in tiers (in cuneis<sup>um</sup>) on specially-made racks (Thes.Ling.Lat. s.v. Amphora).

When removed from the cellar for immediate consumption of the contents, they were presumably placed in a metal tripod stand or wooden base (see ZAK VIII (1946), p.200 fig.13). For transport over long distances three methods at least were used. The Augst wall-painting shows two men carrying a globular vessel suspended from a long pole (pl. XX); an object which appears to have been used as a metal suspension rod, though the external arms of which ropes

could be looped for attachment to the amphora-handles, has also been discovered at Augst (unp.). Another wall-painting from Pompeii illustrates exactly the same method of human transport (fig.24). Secondly, carts were possibly the main means of land transport over distances too great for human beings to undertake. Two large amphorae on a two-wheeled cart drawn by mules are shown by fig.25; the vessels and figures are not Roman, but the method was used in the Mediterranean region, and it seems safe to assume that it was in widespread use for internal transport in the Roman Empire, particularly where there was a lack of navigable water. Thirdly, there was water-transport itself. Undoubtedly this was the chief means of exporting these cumbersome and heavy vessels from the producing areas to the western markets. Thus it was possible to deliver South Spanish amphorae to the Rhine valley entirely by water, except for the stretch between the Saône and the Moselle. The best evidence for this comes from the Neumagen Monuments, which picture ships laden with straw-covered vessels, piled together in the form of a pyramid and held together by a form of trellis work (See pls. XXI-XXII & TZ 1932 (Jahrgang 8), "Römische Denkmäler vom Weinbau an Mosel, Saar u. Ruwer").

When the amphorae had reached their destination, the retail of their contents assumed various forms. Obviously, in some instances the complete vessel was sold. One method of pouring wine from such a heavy container is portrayed on a Pompeian wall-painting. An amphora is lying across a stone base - which acted as a fulcrum - and is held midway down the body by a winged figure. Another winged figure is kneeling in front of its mouth and steadying the vessel with one hand; the other hand holds the cup ready to receive the wine (Bull. dell. imp. inst. arch.germ., 1886 p.83). In other cases it seems that the vessel was "tapped" like the beer barrel. At Silchester fragments of the sides of globular vessels were found to have been pierced and afterwards plugged with lead.

It has been suggested that these drill holes were for the purpose of introducing a tap for drawing off the liquids they contained, and that they were plugged in order to fit the vessels for some secondary use (Guide to the Silchester Collection, Reading 1927, 7th Ed., p.37).

The retail of wine direct from dolia to amphorae is illustrated by a relief now at Ince-Blundell Hall (See Bull. dell'imp.instit.arch.germ. XXVI, p.280 & Abb.3, p.281). The scene is set in a large wine dealer's shop. The wine is contained in dolia embedded in the floor, whilst filled amphorae are being carried away. A prospective purchaser stands at the lower right tasting a glass of wine for proof. At the top right is the office with the proprietor sitting at his table, which is strewn with money. In his left hand he holds a manuscript, and he has a clerk with a book of accounts (?) in attendance. In the centre two slaves are busily filling an amphora from a dolium. Wall paintings from Pompeii illustrate other methods. One shows an ox-skin filled with wine on a cart; the vendors are filling an Italian type of vessel from the skin, whilst another of the same type is resting against the wheel of the cart (fig. 27). Another shows a cart laden with leather bottles, a type of container which would be most suitable for the sale of small quantities (see Déch. VI pt. II, Ch.XVI p.601, note 3). A gravestone from Jünkerath (Trier M.) portrays a woman holding up a small cylindrical vessel to a cylindrical pipe with a funnel-shaped aperture, and this was presumably intended to illustrate the retail of wine (TZ 1932 p.30). A bas-relief from Til-Châtel (Dijon M.) depicts the interior of a wine shop; a young man holds up a jug under the counter and the wine is poured through a funnel from above; the funnel itself fits into the counter (fig.28). Finally an illustration from the Neumagen Monuments shows a man pouring wine <sup>or</sup>oil (?) from a globular amphora into a bucket-

shaped container (pl. XXIII).

Experiments on Amphorae.

Experiments on the material of amphorae in order to prove origin or to ascertain the method used to make them liquid tight have been carried out over some considerable period of time. Thus Collet in 1918 subjected the material of vessels from Mt. Auxois to microscopic analysis, and concluded that they were of Italian origin; "C'est sûrement en Italie et avec les argiles provenant de la décomposition de ces roches du Vésuve et des volcans éteints du Latium, que ces amphores ont été fabriqués" (Pro Alesia, 1918, pp.189-90). Following this particular line of enquiry the writer carried out certain experiments<sup>4</sup> also with a view to determining origin. Portions of stamped vessels from Corbridge were used in the first instance. They were all from globular vessels and had stamps which had been found in South Spain. Later these were compared with a) fragments from unstamped globular vessels and b) fragments from vessels of Italian origin. The results, unfortunately, from the expert geological view were unsatisfactory, although to the layman there did appear to be fairly well-defined groups. In the meantime further experiments of a different nature have been undertaken, but the results of these are not yet available. The writer is convinced that it would be worthwhile to continue on these lines since amphora-materials can be fairly widely classified. Thus the majority of globular vessels have a buff exterior and a greyish-red core, whilst the brick or tile-red of many Italian vessels is unmistakable.

It might also be possible in some favoured instances to determine what the contents of an amphora were. Whilst heating a globular vessel for the purpose of rapid drying, during the course of excavations at Chester, a fatty substance oozed out at various points on the surface and also

from the fractured edges. Subsequently fragments of other vessels were similarly treated, but only one yielded the same result. The expert report on these substances stated that there were two products "a heavy oil of fatty character, and.....a calcium salt of a fatty acid", the latter being considered also oleic. It was suggested that this might have meant a free oleic acid in the original oil i.e. probably olive oil which had become neutralised by reaction with either calcium bicarbonate or free lime. But the important point is that it was possible to isolate oil, which suggests that future experiments on freshly unearthed vessels might yield similar results (See CNWSoc., XXXIII (1939) p. 104).

Finally there have been experiments on specially favoured vessels i.e. in the sense that they had been uniquely preserved, from the Schutthügel at Vindonissa; these were carried out by Dr. L. Fröhlich and reported by him in 1925-26 (See "Gesellschaft Pro Vindonissa", Jahresbericht 1925-26 pp.9-10; "Über die Abdichtung der Amphoren"). He realised that amphora-clay was fairly porous and certainly not watertight. By experiments it was proved that amphora-sherds could absorb up to 14 % of their dry weight in water, and since they were not originally glazed there must have been a convenient method of making them liquid-tight for long journey over great distances. The Schutthügel, because of the chemical substances generated inside it, helped to solve this problem. Fröhlich found several amphora-spikes which contained a compact, resinous mass firmly adhering to the clay. This was found to be partly soluble in wine spirits and almost completely soluble in Benzol, and he considered it to be probably pine resin. Certainly the application of some sort of pitch or resinous coating was a simple, straightforward operation which could be carried out when the vessels had cooled slightly after the extraction from

the kilns. In this connection it is interesting to note that an Italian vessel has been found in Britain with patches of pitch still observable on its inner surface. The preservation of the latter in this case, however, was almost certainly due to the fact that the vessel had been immersed in sea-water for possibly fifteen centuries (Dorset Nat. Hist. & Ant. Field Club, XI p.90).

### N O T E S

1. Other examples of this method have occurred at Silchester, where it was considered that the mouth-pieces had been made separately and then joined to the neck (May p.162), and at Saalburg where the upper half had been carefully worked and the handles made separately and pushed subsequently into the walls of the vessels by means of a plug or <sup>1</sup>come (Zapfen)(Jacobi p.421).

2. Plin. n.h. XVI 13,34 - "this bark (of the cork-oak) is used.....for the bungs of cadi".; Bull.dell.comm.arch. comm.di Roma 1879 p.193, where the find of astronomical numbers of vessels at Turin, all sealed by rough bungs of raw clay, is described; Macdonald RWS<sup>2</sup> p.454 - "an example of a bung that might have fitted such an amphora (a globular example) was found at Castlecary (fig.57). It is well cut out of some coniferous wood and has been carefully made, being provided with an ornamental bronze cap to which is attached a bronze ring"; fig.19, 28 of this thesis:- an amphora(?) from Sturry, Canterbury (unp.) found with a wooden bung in situ.

3. See also Argentorate II Taf. XCII, figs. A-H, and ZAK VIII (1946) p.200, fig.13, c & d.

4. The experimental method used was as follows:-

a) Crush a fragment without grinding and sieve through a 60 mesh b) wash in water c) wash in dilute hydrochloric

acid in an evaporating dish and then boil for 5 minutes, stirring all the time (this dissolves all the carbonates and most of the iron oxides) d) wash with water again and allow to dry e) place approximately 1/2 gramme of the dry powder in a separating funnel and cover with Bromoform with at least 1 inch of clear depth. Allow it to settle for approximately 1 hour. f) run off the minute settled fraction on to filter paper, wash gently with water and dry g) place on a microslide for examination.

CHAPTER VI  
THE RELATIVE IMPORTANCE OF THE PRODUCING AREAS.

Perhaps the most important controversy connected with the amphora-borne trade of the western portion of the Roman world has been that which has concerned itself with the respective contributions made to this trade by the producing areas viz., Italy, Spain, Gaul and North Africa. The detailed study of amphora-stamps - and to a lesser extent amphora-inscriptions - does throw some light on this problem. It is possible to indicate roughly on the positive side the contribution made, as well as the period of greatest intensity of that contribution, by some of the producing areas. On the negative side it can be said that other areas did not, at any time, contribute the majority of these amphora-borne commodities, but unfortunately it can not be said, purely from the study of the stamps and inscriptions themselves, exactly how much they did contribute. Only researches on the spot, and possibly further excavations with such definite aims in view, can hope to solve this problem.

If it is accepted that Dressel Form I and other forms closely allied to it originated from Italy and that the globular form was South Spanish, then it is possible to deduce certain generalisations about the trade in the commodities they contained. On the whole it can be stated with reasonable certainty that Italy was the chief supplier of amphora-borne goods to Western Europe - excluding Spain - <sup>(1)</sup> during the first century B.C., and to a lesser extent during the first half of the first century A.D. The commonest form occurring in untold thousands in Gallic oppida and in a lesser degree in princely burials in Britain (see Ch.3, p.452), is precisely Dressel Form I, which inscriptions prove with almost mathematical certainty originated from the central Italian districts of Campania and Latium, and especially from the widely-famous wine-producing areas of Falernum and Caecubum (See Ch.2, Form 1). Bohn has already discussed the evidence for the extent of the pre-conquest trade in wine from Italy to Gaul, although he does

not make the point that the areas mentioned above were the chief exporting districts at that period. In addition to the literary evidence (Caes. de B.G.II,15; IV 2,3; Diod. V 26,3; Cic.pro.Font. IX,9), he has pointed out that at the Camp de Pommiers (Soissons), there were plenty of amphorae of this form, and almost nothing else Roman. In short that Italian wine-amphorae were, in some areas at least, the first visible signs of the impact of Roman material civilisation on unconquered Gaul. On all similar sites in Gaul which have been excavated, such vessels were usually the commonest objects found. Mt. Beuvray is perhaps the best example since it has been excavated with some degree of thoroughness; there this form occurred in remarkable numbers, and the majority had obviously been imported well before B.C.5, since they had been utilised for burial and structural purposes. (See Germania VIII pp.8-16: "Die ältesten Amphoren in Gallien"; Ch.2, Form 1 for a list of sites).

Oxé, in an article which commented upon and added to the evidence brought forward by Bohn, was somewhat cautious about certain aspects of this trade. Whilst recognising that certain stamps of the second and first centuries B.C. referred to high-ranking Romans, he argued that it was questionable whether such people were connected with the wine-trade, that the amphorae bearing their stamps may have been used for private needs and then have passed into the hands of merchants at a later stage (See Germania VIII pp.80-2; "Die ältesten römischen Amphoren am Rhein und in Gallien"). He also pointed out that amphorae tended to have a prolonged life and that vessels with such stamps could have been sent to Gaul and up the Rhine several decades after they had been produced (ibid.,).

The validity of the first of these arguments can be questioned. In the first place the stamps referred to the owners of the estates which produced the commodities, and if the latter were intended for purely private consumption

why was it necessary to put stamps on at all? Secondly, there is plenty of other evidence - apart from the names given by Oxé - that high-ranking Romans did enter the wine, and probably oil<sup>(2)</sup> and fish-sauce trade. The occurrence of stamps on vessels from Imperial estates, as well as of those on amphorae from the estates of people of consular rank, is too frequent to indicate anything less than their participation in such trade (See Index s.v. Imperial Stamps and distribution map, fig.29). It must, after all, have been an extremely lucrative proposition, and one which people in positions of power were hardly likely to ignore altogether. Oxé's second argument has considerably greater force; the longevity of amphorae has already been discussed in this thesis (Introduction pp.2-4), but even in this connection the general weight of the evidence, both literary and archaeological, points to a greatest intensity of trade from Italy during the first century B.C. The size and intensity of the Italian wine-trade to Gaul during this century is well illustrated by the 24,000 amphora-spikes found during the course of dredging operations in the R. Saône near Chalon (Germania IX p.79).

But very early in the first century A.D., South Spain began to replace Italy as the main exporter of amphora-borne commodities. The decay of Italian agriculture and viticulture is well attested. The Caecuban vineyard had disappeared by the time of Pliny<sup>(3)</sup>, who also pointed out that the reputation of the Falernian district was passing out of vogue at the same period through the fault of paying more attention to quantity than to quality<sup>(4)</sup>. Columella began his work on agriculture by a general statement on the exhausted soil of Italy<sup>(5)</sup>. Spanish fecundity, on the other hand, was praised on all sides. The absolute necessity and blessing of humanity, olive oil, brought wealth and fame to the Spanish producers (Plin. n.h. XV 3,8), and the majority of the exportable surplus came from Baetica (Justin., XLIV, I; Col., 8,5; Strab. III

2,6; Ausonius Ep. XXV; Mart. XII,63). Baetica was also the flourishing centre of viticulture in Spain<sup>(7)</sup>, and had an imperial viticultural expert assigned to it (C II 2029), and large quantities of Spanish wine, according to Strabo, were shipped to Rome (III 2,6). The most highly prized garum in the Roman world came, according to Pliny, from New Carthage, where garum sociorum was produced (n.h. XXXI, 93)<sup>(8)</sup>. Spanish merchants dealing in these goods sent representatives abroad, whilst middlemen went to live and conduct their trade in important cities of the Empire. Inscriptions from Rome mention "negotiator<sup>n</sup>es olearii ex Baetica", a "mercator olei Hispania ex provincia Baetica" and a "corpus negotiatorum Malacitanorum" (C VI 1625 b.; 1935; 9677); a "diffusor olearius ex Baetica" operated from Lyons, the great emporium of the Rhône valley (Insc.antiq.de Lyon Boissieu p.207 n. XXXIII), whilst another found profitable occupation at Arles (C XII 714). There were also wine dealers, perhaps of Spanish origin, at Lyons (Riese 2116; 2450-1).

Nor was Spanish export of the surplus resulting from this fertility shortlived. Justin said of Spain that it was "fertile in all kinds of fruits of the earth, so that it supplies abundance of everything, not only for its own inhabitants, but for Italy and the city of Rome" (XLIV,1). Three hundred years later it was said of it that "it exports oil, liquamen .....sufficient for all the earth" (Expositio Totius Mundi, 59).

The archaeological evidence as a whole confirms the massive literary evidence as to the outstanding fertility of South Spain. Just as the Italian exporting districts began to decay, so the Spanish exporting areas began to blossom forth with an overwhelming surplus. The comparatively early period at which this vast economic change took place has not been noted hitherto. Collingwood described the globular amphora as a typical second century vessel (ARB.

s.v. Amphora Type 5); this may be correct in the sense that it is, almost without exception, the only type found on second century sites, but it is misleading all the same. The significance of the Augst wall-painting has already been pointed out (Introduction p.3), whilst the occurrence of a typical globular vessel, together with early forms of Italian origin, in the Castra Praetoria district of Rome adds weight to the hypothesis suggested by the Augst evidence (Bull.Tav. VII-VIII fig.11). But the main support for this hypothesis comes from Colchester. There the globular type was found in Period I levels i.e. A.D.c.10-43, whilst its fragments from Period III onwards were quite innumerable (Cam.Rep. pp.252-3: see also Ch.2. pp.442-6). In brief, it can be maintained that South Spanish vessels made their appearance on sites in Western Europe not long after the beginning of the first century A.D. From that time onwards, although there was still a trickle of trade from Italy, the process was rapidly accelerated until, in the middle of the second century at the latest, Baetica and Tarraconensis had captured the western markets more or less completely<sup>(9)</sup>. It can be safely said, at least so far as Britain is concerned, that any excavations involving the mid-second century levels of a site, if they produce any amphora at all, will produce only South Spanish ones.

The enormous extent of South Spanish trade is attested by the very large numbers of globular vessels, both stamped and unstamped, found on western sites, by the gigantic mass of the Monte Testaccio itself - it is largely composed of globular amphorae - and by the proportionately large number of stamps which can be assigned to Baetica and Tarraconensis. The value of the Monte Testaccio as evidence has already been recognized. Dressel, who was in a position to speak with authority since he carried out the 19th century excavations on it, was convinced that the majority of its vessels originated from Spain, and in particular, from the two provinces mentioned above<sup>(10)</sup>. It has also been recognized by Van

Nostrand who has said "The proof of Spanish export to Rome most impressive in sheer bulk is the Monte Testaccio" (Tenney Frank p.184). Equally the most impressive testimony of Spanish export to other parts of the West is the sheer bulk of globular vessels found on its excavated sites.

To what extent was this trade in the hands of private enterprise? The archaeological evidence tends to support the view that it was mainly in such hands until the time of the Severi. Exactly how much of it formed part of the annona militaris may never be known, although different views on this aspect have been expressed in the past. Van Nostrand has attacked Rostovtzeff's suggestion that both groups and individuals engaged in the oil trade were partly controlled by the state, and that the oil exported to Rome was either a tax in kind paid by imperial estates in the provinces. He has rightly pointed out that the inscriptions on amphorae most favourable to this thesis - those which include the phrase "fisci rationis patrimoni provinciae Baeticae" or "Tarraconensis" - are all dated post A.D. 200, and he concluded that "it seems more probable that in the first two centuries.....free competition prevailed" (Tenney Frank p.198)<sup>(11)</sup>. There is one piece of evidence which might be put forward in favour of some form of state regimentation in the middle of the second century, but it is by no means conclusive. That is an inscription to a Sextus Iulius Possessor, who was appointed sometime during the years A.D. 161-69 imperial procurator of the Baetic valley ("ad ripam. Baetis"), and assistant in the inspection of African and Spanish oil (C II 1180). Van Nostrand has suggested he might have been simply a government inspector of the quality of oil, just as in the United Kingdom Customs and Excise officials test beer for specific gravity, although the brewers are not under State Control (Tenney Frank p.199).

It may be that a portion of the Spanish export before A.D. c.200 represented the annona. West has suggested that

a distinction ought to be made - though on what grounds is not clearly stated - between the Monte Testaccio vessels and those found elsewhere in Western Europe, the former mainly representing the payment of the annona and the latter the result of private enterprise (L.C. West Roman Spain p.16). But whatever the real position was with regard to taxation in kind, there is no real evidence for state control before the end of the second century.

Apart from the evidence supplied by the "fisci" inscriptions (above p.442), amphora-stamps on globular vessels are indicative of small-scale private enterprise during the first two centuries A.D., because of very large number which only give the tria nomina of different persons.<sup>(12)</sup> On the other hand there must have been, at least amongst some of the people who controlled the amphora-trade from Baetica, an extremely close and highly integrated relationship. The similarity of the stamps connected with the firm of Aurelius Heracla and Son, the occurrence of F. Scimmiano and L. Iunius Melissus on the same vessels, and the frequency with which abbreviations such as Sals, Riv, Sae and Med are repeated in different stamps all point to the conclusion that there was probably both backward and forward integration. To judge by the painted inscriptions from the Monte Testaccio which are dated, the period of greatest intensity of this trade under private enterprise conditions lay between the years A.D. 140-65 (C XV s.v. Tituli picti). These same inscriptions also suggest that Corduba, Astigi and Hispalis were the central clearing-houses of the Baetis valley for amphora-borne produce, and it is worth noting that Astigi lay approximately halfway between the other two cities, and on the main road connecting them<sup>(13)</sup>. The archaeological evidence for the replacement of private by State control after the Battle of Lyons has already been given (See Index, n.152).

It is when one turns to discuss the relative importance

of Gaul - and in particular of Gallia Narbonensis - in this trade that a lack of direct archaeological data is revealed, in contrast to its reasonable abundance in the case of Spain. Within the writer's experience, it is impossible to assign with certainty any particular type of vessel to Gaul, although there is some evidence that one or two forms were Gaulish in origin (see Ch.2 "Form and Chronology"). Nor has the name of any Gallic city as yet been discovered amongst the inscriptions on amphorae from the Monte Testaccio or elsewhere, whereas the names of at least eight cities of Spain have been noted<sup>(14)</sup>.

This does not necessarily mean that Gaul was a non-producer and non-exporter of wines and other consumable goods. For one thing the cask appears to have been the usual Gaulish method of transporting wine, as opposed to the amphora which was the Mediterranean receptacle par excellence. Pliny distinguished the use of casks as native to the people who lived in the Alpine region (n.h. XIV 27,1), and to his observation might be added that it would be natural to use this method wherever there was an abundance of wood and a lack of suitable clay<sup>(15)</sup>. Secondly, Gaul could not enter the market so far as wine was concerned until comparatively late, because there was an interdiction on its production in the interests of the Italian producers (Cic.de Rep.III 9,16), and this was renewed by Domitian circa A.D.92. That this did not prevent some production of Gaulish wine is certain; it is probable that it was not too strictly enforced, particularly when the Italian industry decayed and was unable to supply existing demands, since it is in the reign of Tiberius that we first hear of "vinum Allobrogicum" (Cels.IV,12). Bohn has already indicated this, but he was of the opinion that there were no Gaulish vineyards in the 1st Century B.C. (Germania VIII pp.8-16). Stähelin has been even more definite on this question. "Doch schon," he says, "unter Tiberius (A.D.14-37) begann, ganz parallel mit der Verdrängung

der Italienischen Keramik durch das in Gallien selbst hergestellte Geschirr, die südgallische Weinproduction der italienischen ernstliche Konkurrenz zu bereiten" ("Die Schweiz in römischer Zeit" Ed.2 p.408). Unfortunately some of the evidence he uses in favour of this statement cannot be accepted. He quotes in support the two vessels found at Vindonissa with the stamp "Belliccus fecit Vas(ione?)". If the expansion is correct these certainly were of South Gaulish origin, but their dating is not secure (see Index, n.178; Herr Dr. C. Simonett, Curator of the Brugg Museum was unable to say with assurance that they belonged to the first half of the first century). Further, another stamp quoted in support of this theory, AGRICOLAE, was of South Spanish origin, if the globular form is accepted as indigeneous to that region, and in any case Agricola's period of operation appears to have been confined to the second rather than the first half of the first century (See Index, n.49)<sup>(16)</sup>. Stähelin also appears to assign the amphorae found at Nyon and Geneva to South Gaul, whereas the overwhelming majority of them were of Italian or South Spanish provenance (ibid.,)<sup>(17)</sup>.

The discussion of the part played by South Gaul has long occupied the stage, Hirschfeld, Bohn, Stähelin, Cantarelli and Héron de Villefosse have supported the view that it was a major factor in supply. Under the title "Instrumentum domesticum", Bohn said "Dressel omnes ex Hispania Romam et in reliquas partes imperii occidentales advectas esse contendit (C XV p.492), Hirschfeld copia eiusmodi amphorarum in Gallia repertarum motus dubitat de origine Hispanica magnamque earum partem ex Gallia meridionali Romam invectam esse putat (C XII p.700)" (C XIII p.35). Bohn agreed with Hirschfeld partly on the grounds that so many Gaulish names appear on amphora stamps, and he gave a list of such names (ibid.,); but this ~~(last)~~ does not withstand a close analysis. Apro(nios?) need not refer to a Gaulish name, but could be expanded to

Apro(nius or -disius); the name, Aprodisi, occurs on an amphora from North Italy, and, since one of the Gaulish examples was found at Mt. Beuvray, there are prima facie grounds for saying it was of Italian origin as most of the vessels found there were of Dressel Form I type. Aquit( ) could be expanded to A. Quintilius (see n.114). Baramasi? was almost certainly of South Spanish origin since the example seen by the writer was on a globular vessel. Graius E (F?) could be a mortarium stamp, as several others further down in the list are (see below). It should perhaps be mentioned here that Hübner not only misread stamps, but also hopelessly mixed up amphorae with mortaria. It is possible that he never actually saw all the stamps in question, but relied on the versions and interpretations supplied to him by others; Bohn in turn relied on Hübner for a portion of his list. May it not also be that Hirschfeld misread some examples and mixed his amphorae and mortaria? In any case readings of both types of stamps require a certain amount of skill and experience, and one can't help feeling that perhaps the latter was missing, and that both were relegated to a relatively minor and insignificant position in the minds of some of these scholars. To return to Bohn's list. Gennilo was an uncertain reading and could be an example of the stamp, Cennhisp; it is also not certain that Sani. should be expanded to Sani(illus). Why not S.A( )NI( ) as one of several alterations? Similarly Tat( ) (?)Alvius could have been the abbreviation for T.A( )T( ), (?)Alvius [servus]. Urappus f. may have been a misreading for Urittipus (n.1635), and the latter (also included in Bohn's list) was almost certainly of South Spanish origin, since all the examples known to the writer were on globular vessels. The stamp Ed( ) quoted by Bohn was actually ED, so that it could equally have been Eb( ). Cirexons seems to fit in better with the group of stamps beginning with the letters C.I.R (see n.329). Andon( ), Divic( ), Sannus and Solini are probably mortarium

stamps, whilst Cricir of, Docius and Sollus f. definitely are such stamps. Apart from the mistrust engendered by these weaknesses in the list, what is there left? Less than twenty-five names of Gaulish origin - not all of these are certain - to which might be added Odotus, Cotobisum(?) and Bellicus. Nor does it necessarily follow that because an amphora has a stamp with a Gaulish name the vessel and its contents were produced in Gaul. Many could be the names of slaves or vilici who worked on estates outside Gaul. Perhaps in some instances the names of the estate owners were also on the vessels, but have since been lost or separated when they were broken. In brief there is not very much to be said for this list of names as evidence for any large-scale Gaulish trade. It is in any case an extremely tiny list when compared with the total of 1750 plus stamps included in this Index, most of which appear to have originated from South Spain.

There is one other piece of archaeological evidence which has been put forward in the past in support of trade from South Gaul to Rome. Héron de Villefosse noticed that there were certain painted inscriptions on Monte Testaccio amphorae which included the names of Roman citizens who definitely lived in Gallia Narbonensis. Thus the name, S.Fadius Secundus, occurs on at least twenty-five vessels, three of which are dated to A.D. 149 and one to A.D. 154 (C XV 3863-73), whilst that of P.Olitius Appollonius was found on a two sherds (C XV 3974-5). Now both these men were leading citizens of Narbo in the middle of the second century; they were seviri augustales and had obviously made their money in trade (C XII 4393: an inscription set up in honour of S.Fadius Secundus and dated A.D. 149; 4406- an inscription also found in the forum at Narbo in honour of P.Olitius Appollonius)<sup>(18)</sup>. De Villefosse on the basis of this evidence said that we must believe that many of the Monte Testaccio amphorae were transported from Narbonensis to Rome filled with Gaulish products (Mém.soc.nat.des antiq.

de France (1914) LXIV; "Deux armateurs narbonnais" p.167). He summed up his view by saying "Il est évident qu'en parlant des rapports commerciaux des provinces avec Rome.... Dressel a fait à la Gaule, et en particulier au port de Narbonne, une place véritablement trop étroite et trop modeste, pour ne pas dire absolument nulle" (ibid., p.180).

There can be no doubt, however, that he misinterpreted this evidence. Some of the inscriptions which included these names were on vessels which also had stamps, and the latter were South Spanish in origin e.g. DOMS and SNRGR (see Index nos. 525 + 1537). As Tenney Frank has already pointed out, S. Fadius Secundus and the others concerned were merely transporting Spanish goods from Spain to Rome. They were the shippers who presumably purchased the vessels in Spain and then transported them to Rome where they were re-sold at a profit (JRS XXVII p.76; "A Note on Roman Commerce"). Bearing the whole weight of the evidence in mind, we must agree with Tenney Frank when he says, "There can be little doubt that most of the produce carried in the Monte Testaccio jars originated on private estates in Spain, that the jars were marked at the Spanish Customs Offices, and that the contents were bought, shipped and sold by private shippers, who were not controlled by the State except for the payment of customs' dues" (ibid., p.77).

One other source, the literary, has been used in the past to prove a large South Gaulish trade to Rome. Cantarelli mainly utilised this in an attack on Dressel's theory of Spanish superiority (Bull. dell'comm.arch.comm.di Roma XLIII; "Il Monte Testaccio e La Gallia," p.42 seqq.). In particular he quoted "vinum picatum" and "vinum Baeterrensum" (Mart.XIV, 107; Plin.n.h. XXIII,1: XIV 8,68). But he failed to make the point that these authors normally refer to these wines in an ironical and derogatory sense. Thus Pliny says, "It is believed that the people of Vienne alone sell their wines

flavoured with pitch.....for a higher price, though out of patriotism they only sell it among themselves" (XIV 6,57), and that," the importance of the wine of Beziers does not extend outside the Gallic provinces" (ibid., 8,68)<sup>(19)</sup>. Martial complains that his host drinks the best wine, whilst he gets only must ripened in Massylian smoke. He even refers to the latter as "deadly poison"! (Ep.III, 82; X,36).

On the other hand there were wines and other commodities of South Gaul which were noted, and some of which found their way to Rome. A vine was grown around Vienne which produced of itself a flavour of pitch (Plin.n.h. XIV 3,18). Another vine, discovered at Viviers, had blossoms which withered in a day, and it was eventually grown, according to Pliny, throughout the Province of Narbonensis (n.h. XIV 4,43)<sup>(20)</sup>. Antibes produced an inferior type of fishsauce (muria). "I confess I am the daughter of the Antipolitanan tunny. If I had been mackerel (i.e. garum) I should not have been sent to you," is Martial's somewhat ironical reference to this South Gaulish product (Ep. XIII; Amphora muriae). Two amphorae from Rome had inscriptions referring to South Gaulish wines, one of which was five years old wine from Béziers, whilst the other was white wine from the same place (C XV 4542-3). Finally, there is an inscription from Rome which mentions a "L.Iulius Fuscus Aquensis, olearius" (C VI 9717) i.e. a native of Acquae Sextiae who dealt in oil. Of course he may have been dealing in Spanish oils; his compatriots transhipped the latter from Spain to Rome (supra p.490), and he may have formed part of the organization at the receiving end.

On the whole, the evidence in favour of a large Gaulish trade is slight. Some of it may have disappeared irrevocably since the cask and not the amphora was the native method of storing and transporting commodities. Yet if there had been abundance and a large surplus for export, it may ~~be~~ legitim-

ately<sup>be</sup> asked why Gaul had to import so many thousands of globular i.e. South Spanish amphorae. There can only be one answer; there was not a surplus for export; Spain had the only real surplus and she had it to such an overwhelming degree, that she swamped the markets of the west and eventually captured them altogether.

Finally, what was the position of Britain with regard to Mediterranean goods? The two most striking aspects indicated by the archaeological evidence are the early period at which Britain began to import Italian amphorae, and the extent to which the trade eventually penetrated beyond the occupied area.

The evidence for the early spread of amphorae in South and South-Eastern Britain has already been discussed (Ch.2, Form 1; Ch.3 s.v. Amphora-burials), To this should be added that supplied by the excavations at Maiden Castle, Dorset (XII Rep.R.C.SocA Lond.). When the Belgae spread westward at the beginning of the first century A.D. into what is now the County of Dorset, they took Roman amphorae with them (ibid., p.57). Two small sherds were also noted in levels assigned to the last quarter of the first century B.C. (ibid., p.116; see also p.241). These were probably from Italian vessels, and it is interesting to note that an amphora of Dressel Form 1 was discovered in shallow water off Weymouth, together with small vases and other vessels of the same ware. It has been suggested that these finds represent the remains of a wreck, perhaps of a ship on its way to the Roman landing-place at Radipole (Dorset Natural Hist. and Antiquarian Field Club XLIV (1923) p.41).

But more striking than this aspect of trade to Britain is the extent to which Roman influence as represented by amphorae spread to remote districts to the north of the military zone and well away from Roman roads and camps. Globular vessels - from the description supplied by Curle - have been found in

Constantine's Cave in East Fife near to Fife Ness (PSA Scot., XLIX p.241). Other amphorae of type unknown have been discovered on the southern shore of the Firth of Forth at Sea-cliff in East Lothian (ibid., LXIV p.288), at Broch of Bow, Midlothian (ibid.,), at Lyne, Peebleshire (PSA Scot., XI(1901) p.184), and at Grange of Conan, Angus, the latter being the most northerly point at which traces of this type of vessel have been noted (ibid., LXVI p.287). Those from Constantine's Cave were, in Curle's opinion, second century importations; it is more than likely that the others were also, and that none of them belonged to the Agricolaan era of expansion, although this would be difficult to decide without examination of the pieces concerned<sup>(21)</sup>. In any case the Fife Ness examples alone are of great significance as illustrating the far-flung economic empire of South-Spanish producers. It is almost certain that they, as well as the others, were transported by sea along the east coast route, and it is noteworthy that all the examples were found on sites within easy reach of that route.

One final point remains to be discussed. What happened to Britain so far as Mediterranean goods were concerned when the Severi confiscated South Spanish estates after the Battle of Lyons in A.D. 197? Did Britain, as part of its punishment, have to forego these goods altogether?<sup>(22)</sup> It has been suggested to me<sup>(23)</sup> that Aquitania supplanted Baetica as the chief exporter of wines to Britain in the third century, and that wooden casks, all trace of which has disappeared on most sites, were used rather than amphorae. It is possible to demonstrate a connection between York and Aquitaine in wine-dealings in the early third century from the dedication to Tutela Bonifida erected by Marcus Aurelius Lunaris, a sevir augustalis of the coloniae of York and Lincoln, after his safe sea-passage from York (JRS XI pp.101-7). Dr. Richmond has also pointed out that Silchester produced wine-casks made of silver fir and strongly suggesting trade with Bordeaux

(Ant.J.XXVI (1946) p.9). So far as York was concerned, he is of the opinion that the third century was one of its peak periods of prosperity and that "the wine-trade with Aquitaine must have continued one of the steadiest trades of all, whether in good brands for wealthy civilians and officers or in cheaper varieties for the army, of whose daily rations it formed part" (ibid., p.10). The supply of wine to Britain from Aquitaine in the third century does not enter within the scope of this dissertation; its significance, however, lies in the fact that it supports the thesis that Spanish supplies ended towards the latter part of the second century, and that Baetican supplies, under strict State control, <sup>were</sup> ~~was~~ diverted to other parts of the Empire, mainly to Rome itself.

#### NOTES.

(1) It is not known to what extent Italy supplied Spain during the first century B.C. Certainly amphorae of probable Italian origin have been found in Spain (See the Inventory of the "Museo de Loringniano" p.117 & pl.XXXIII); one must suppose that there was some trade in that direction, especially in first-class Italian wines.

(2) Wine was not the only commodity exported from Italy in the first century B.C. Pliny informs us that "Cn.Pompeius III cos. oleum provinciis Italiam misisse" (n.h. XV 1,1).

(3) "antea Caecubo erat generositas celeberrima in palustribus populetis sinu Amyclano, quod iam intercidit incuria coloni locique angustia, magis tamen fossa Neronis quam a Baiano lacu Ostiam usque navigabilem incohaberat" (n.h. XIV 8,61).

(4) "Secunda nobilitas Falerno agro erat et ex eo maxime Faustiano; cura culturaque id coegerat. exolescit haec quoque culpae potius quam bonitati studentium" (n.h.XIV 8,62).

(5) "Saepenumero civitatis nostrae principes audio culpantes modo agrorum infecunditatem, modo caeli per multa iam tempora noxiam frugibus intemperiem; quosdam etiam praedictas querimonias velut ratione certa mitigantes, quod existiment ubertate nimia prioris aevi defatigatum et effatum solum nequire pristina benignitate praebere mortalibus alimenta" (de r.r. I,1).

(6) Corduba was more prolific than Venafrum and no less perfect than Istria in the production of oil, according to Martial (Ep. XII,63). Another of his phrases - "Baetis, with thy hair wreath<sup>d</sup> with the olive crown" (ibid., 98) - expresses perhaps more clearly than any other the preeminent position enjoyed by the Baetis valley in the production of oil.

(7) "We store wine from .... the districts of Baetica and Gaul" (Col. I,20). But Tarraconensis also held a high position in wine-production, Martial placing its wine as second only to that of Campania (XIII, 118).

(8) Martial also praised this fish-sauce. "Receive this proud sauce, made of the first blood of a mackerel still breathing, an expensive gift" (XIII, 102).

In addition Pliny mentioned a noted salt-fishery at Saxetanum in Baetica (n.h. XXXII, 53).

(9) It is impossible to say at this stage how far it suffered competition from Gaul and North Africa; what evidence there is with regard to Gaul is discussed below. North African amphorae - if the vessels so designated did originate from there (see Ch.2, Form and Chronology) - are, so far as is known to the writer, non-existent in this country and extremely rare in Switzerland. Perhaps the major portion of North African surplus went to Rome, and that only a trickle managed to find its way elsewhere; this is suggested to a certain extent by the distribution map of G. Caristanus Fronto, T. Helvius Basula and others (fig.29), which indicates

that they had estates both in Italy and North Africa. There may even have been a slight continuance of trade from Central Italy into the second or even the third century (see Ch.2, Form 2).

(10) "Von weit grösserer Bedeutung (than the fact that Monte Testaccio was built up gradually through the centuries and was not the result of some sudden catastrophe) ist für uns die Tatsache, dass der Testaccio aus Bruchstücken von Amphoren besteht, die fast alle aus Spanien, vornehmlich aus den Provinzen Baetica und Tarraconensis, zur Verproviantierung der Hauptstadt während der römischen Kaiserzeit verschickt worden sind" (BJ 95 p.67).

(11) See also Tenney Frank "Economic History of Rome" p.462, where the same conclusion is expressed - "it is probable that the imperial procurators had few agricultural estates to manage in this province Spain before the time of the Severi" :the hypothesis that there was little tendency towards great latifundia in Spain, even though the growth of the olive-oil industry must have meant the rise of capital-istic farming, has been expressed elsewhere (RE XVI col.1996).

Tenney Frank has also pointed out that the State would not tax its own products, whereas Spanish amphorae with tituli picti normally include the symbols áá, ááá etc., which can only refer to an Excise tax. He has explained the large size of the offices found in the Piazza of the Corporations behind the theatre at Ostia, by the suggestion that they must have included offices for local guilds of all types and that they were used as a campus for the Thermae and the town in general (JRS XXVII pp.73-75). That Spanish goods were taxed is also proved by an inscription from Ostia, which mentions a tax of 2 1/2 % on them (C XIV 4708).

(12) There is not a shred of evidence for the view expressed by Haverfield that "many of the stamps on amphorae and pelves were probably "bogus", having no definite significance, but merely intended to lend an air of general respectability

to commonplace ware" (Macdonald and Park p.70 note 1). He has in any case missed the whole point of an amphora - in itself made roughly and cheaply, but containing a valuable commodity produced by the man whose name the stamp represented.

(13) The writer has already expressed these views elsewhere (AA<sup>4</sup> XXVII p.116).

(14) The name Astigi occurs 95 times, that of Corduba 45 and that of Hispalis 35 times.

(15) The Neumagen and Cabrières d'Aigues monuments, which have been dated mid-second to mid-third century, show transports loaded with casks (Déch. VI p.II p.603 note 3). Jullian also commented "The Gauls invented the art of preserving wine in casks" (XI p.295).

(16) Bohn made the same assumption that Agricola worked in South Gaul (ASA XXVI p.91).

(17) The writer has seen both collections. Most of the amphorae were of the globular form.

(18) There were other members of these families interested in this trade e.g. P.Olitius Faustus, whose name occurs on a Monte Testaccio inscription dated A.D. 149 (C XV 3976), S. Fadius Anicetus mentioned on six inscriptions, five of which are dated to A.D. 149, but one of which includes the name of the city of Corduba (ibid., 3856-61), and S.Fad.Paonis on one inscription (ibid., 3862). In addition the genitive plural, Fadorum, occurs once (ibid., 3874), and this presumably refers to a family undertaking.

(19) To this might be added Pliny's comment "The Raetian and Allobrogian grapes . . . . ., which are famous at home but not worth recognition elsewhere" (n.h. XIV 4126).

(20) Reference has already been made to Vinum Allobrogicum (supra p. 494 ).

(21) It is hardly likely that Italian exports reached so far north. The first century B.C. was the period of greatest intensity of Italy's export (see p. 487 supra). The early spread of South Spanish competition has already been commented upon (supra p. 489), and by the Agricolan period the majority of amphorae were, in any case, probably from Spain. The approximate total of different stamps found in Britain and given in the Index is 460, whilst the grand total of stamped examples is approximately 960; the overwhelming majority of these appear to have originated from Spain.

(22) See stamp n.152 (II Aurelii Heraclae).

(23) By Dr. I.A. Richmond.

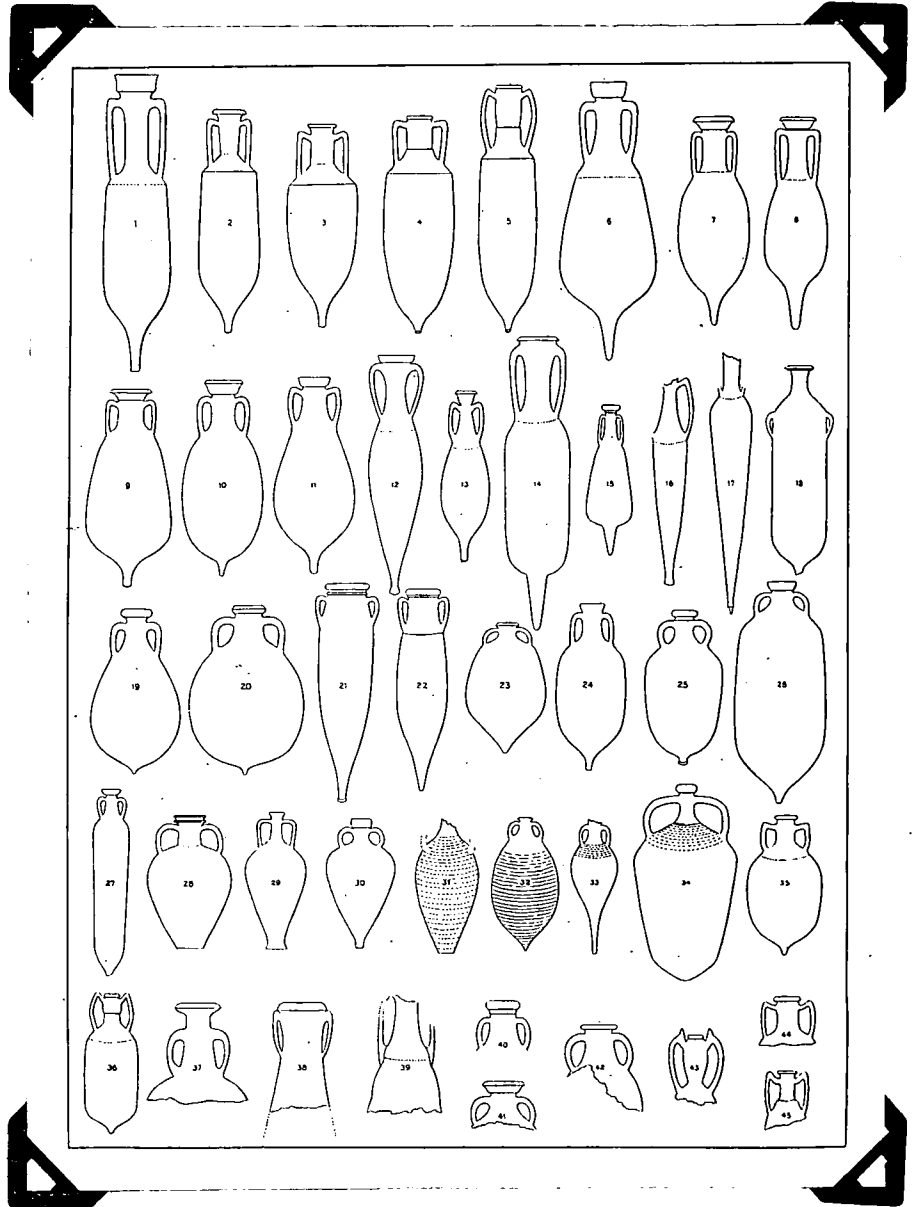
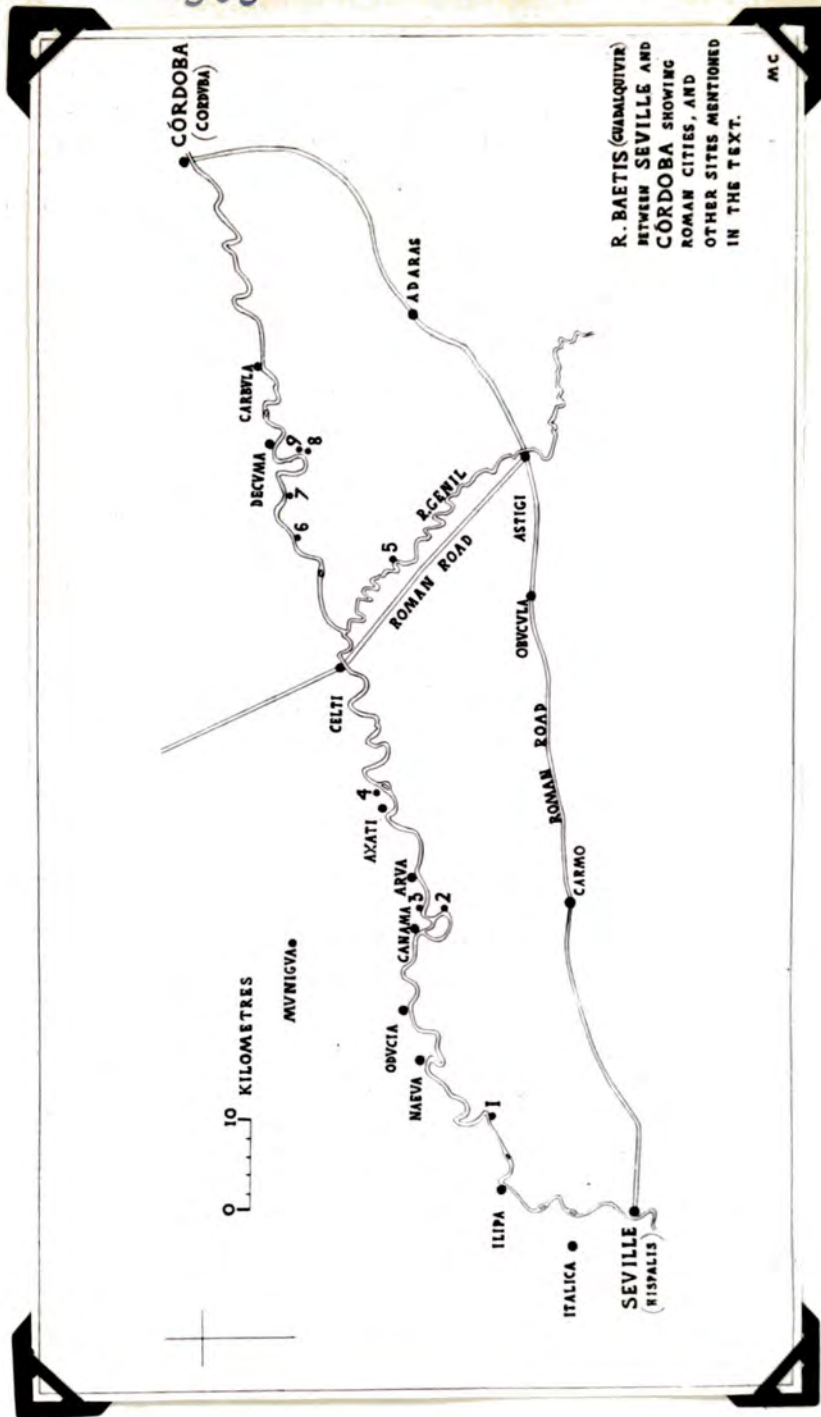


Fig.1. Amphora Forms according to Dressel  
(C XV tab.II).



R. BAETIS (GUAMLOQUIVIR)  
BETWEEN SEVILLE AND  
CÓRDOBA SHOWING  
ROMAN CITIES, AND  
OTHER SITES MENTIONED  
IN THE TEXT.

M.C.

Fig. 2. Map of the R. Baetis valley showing the chief Roman towns and other sites mentioned in the text.  
1. = Villar de Brenes. 2. = Juan Barba. 3. = Hoyos de San Sebastian. 4. = Las Huertas del Rio. 5. = Malpica. 6. = Castillejo. 7. = La Corregidora. 8. = La Dehesilla. 9. = Estrella de la Torrentera.

FACSIMILES (Figs.3-18).

All are half-scale except in those instances where, in the original works, they have been reproduced under a millimetre or inch scale; even in such cases, however, it is clear by comparison with the half-scale ones that they are not excessively exaggerated from such a scale. Those to which this comment applies are noted under each figure.

The majority of these facsimiles are unpublished. This applies in particular to all the Swiss examples except those from Geneva, and in some cases these are from my own rubbings and not from Deonna's figures, all the Corbridge stamps (though these will appear in the next volume of *Archaeologia Aeliana* XXVII), all those from York, many of the Richborough stamps and most of the London ones.

The references to those already published have not been repeated here as they are all included in the text. The only exceptions to this occur in the relatively isolated cases where a stamp has been published in the Corpus and its facsimile elsewhere or where more than one example of the same stamp from one site is extant.

## Fig.3.

1. GM.
2. Mt Beuvray.
3. Geneva(ASA XXX (1928) fig.2,1).
4. Corbridge.
5. Corbridge.
6. Corbridge.
7. Corbridge.
8. Corbridge.
9. London.
10. Saalburg(SJ VIII Taf.V, fig.60).
11. Richborough.
12. Corbridge.
13. Zugmantel.
14. Colchester(Hay).
15. Colchester(M.Rep.).
16. Housesteads.
17. GM.
18. Silchester.
19. Corbridge.
20. Wiesbaden.
21. Silchester.
22. York.
23. Schleithelm.
24. Solothurn.
25. Arbon(Switz.).
26. Corbridge.
27. Leicester.
28. Mt Beuvray.
29. Corbridge.
30. Bregenz.
31. Bregenz.
32. Mt Beuvray.
33. Mt Beuvray.
34. Silchester.
35. Avenches.
36. Mainz
37. Strasbourg.
38. Ober.Florstadt.
39. Bregenz.
40. Geneva.
41. Caerwent.
42. Mainz.
43. Colchester.
44. Mainz.
45. Mt Beuvray.
46. York.
47. Zugmantel.
48. Aldborough.
49. Colchester.
50. Southwick.



Fig. 3. Facsimiles (except n. 50 which is from a photograph).  
 Sc.  $\frac{1}{2}$  (except for nos. 2, 14, 28, 32, 33, 45, 49 & 50 which  
 are approximately one half).

## Fig. 4

- |                     |                        |
|---------------------|------------------------|
| 1. Balmuildy.       | 36. Mt Beuvray.        |
| 2. Augst.           | 37. Caerleon.          |
| 3. Silchester.      | 38. Fins d'Annecy.     |
| 4. Geneva.          | 39. Corbridge.         |
| 5. Nyon.            | 40. Windisch.          |
| 6. Corbridge.       | 41. Bingen.            |
| 7. Silchester.      | 42. Vidy-Lausanne.     |
| 8. Mt. Beuvray.     | 43. GM.                |
| 9. Windisch.        | 44. Ilkley.            |
| 10. Richborough.    | 45. Geneva.            |
| 11. GM.             | 46. Mainz.             |
| 12. Avenches.       | 47. Windisch.          |
| 13. Niederbieber.   | 48. Avenches.          |
| 14. Windisch.       | 49. Richborough(imp.). |
| 15. Hengistbury Hd. | 50. Richborough(imp.). |
| 16. Silchester.     |                        |
| 17. Windisch.       |                        |
| 18. Avenches.       |                        |
| 19. Colchester.     |                        |
| 20. Hewstead.       |                        |
| 21. Richborough.    |                        |
| 22. Windisch.       |                        |
| 23. Windisch.       |                        |
| 24. Windisch.       |                        |
| 25. Windisch.       |                        |
| 26. Vidy-Lausanne.  |                        |
| 27. Nyon.           |                        |
| 28. Zugmantel.      |                        |
| 29. BL.             |                        |
| 30. Mt Beuvray.     |                        |
| 31. Zugmantel.      |                        |
| 32. Colchester.     |                        |
| 33. Bonn.           |                        |
| 34. Basel.          |                        |
| 35. Arentsburg.     |                        |



Fig. 4. Facsimiles. Sc.  $\frac{1}{2}$  (except for nos. 8, 30, 36 & 38).

Fig. 5

1. Colchester (May).
2. Richborough (I p. 84, n. 1)
3. Colchester (II. Rep. 1935 p. 13, fig. 2).
4. Mainz (Abb. 28, fig. 6).
5. Caerleon.
6. Geneva (ASA XXX p. 205, fig. 2).
7. Corbridge.
8. Corbridge.
9. Colchester.
10. Richborough.
11. York.
12. Nyon.
13. Arentsburg.
14. Silchester.
15. Windisch.
16. GM.
17. Bregenz.
18. Colchester.
19. Ilkley.
20. Silchester.
21. Aldborough.
22. Mainz.
23. Nyon.
24. Bregenz.
25. Strasbourg.
26. Geneva.
27. GM.
28. Aldborough.
29. Kapersburg.
30. Solothurn.
31. Geneva.
32. Mainz.
33. Wroxeter.
34. Corbridge.
35. Aldborough.
36. S. Shields.
37. BM.
38. Corbridge.
39. Colchester (May).
40. Richborough.
41. Augst.
42. Newstead.
43. Wroxeter.
44. Corbridge.
45. Yverdon.
46. Housesteads.
47. Corbridge.
48. Olarben.
49. Zugmantel.
50. London.



Fig. 5. Facsimiles. Sc.<sup>1</sup>/<sub>2</sub> (except for nos. 1, 9, 21, 28, 35, 39 & 50).

## Fig. 6.

1. Haltern.
2. Old Kilpatrick.
3. Fins d'Annecy.
4. Wroxeter.
5. Old Kilpatrick.
6. Vidy-Lausanne.
7. Geneva.
8. Augst.
9. Mt Beuvray.
10. Stockstadt.
11. Silchester.
12. Colchester.
13. Baden.
14. York.
15. Richborough.
16. Verulamium.
17. Mainz.
18. Marienfels.
19. Richborough.
20. Hengistbury Hd.
21. Newstead.
22. London (BM).
23. Wroxeter.
24. Wroxeter.
25. London.
26. Windisch.
27. Colchester (Cam. Rep.).
28. Colchester (H. Rep.).
29. Mt Beuvray.
30. Nyon.
31. Colchester.
32. London.
33. Wroxeter.
34. Wroxeter.
35. St. Cergues.
36. Corbridge.
37. Carlisle.
38. Mainz.
39. Colchester.
40. Arentsburg.
41. Wroxeter.
42. Avenches.
43. Nyon.
44. Richborough.
45. Vidy-Lausanne.
46. Basel.
47. Corbridge.
48. Arentsburg.
49. Wroxeter.
50. Mt Beuvray.



Fig. 6. Facsimiles. Sc.  $\frac{1}{2}$  (except for nos. 3, 9, 29, 31, 50).

## Fig. 7.

- |                            |                  |
|----------------------------|------------------|
| 1. Corbridge.              | 36. Avenches.    |
| 2. Silchester.             | 37. Richborough. |
| 3. Rome.                   | 38. Newstead.    |
| 4. Mt Beuvray.             | 39. London (BM). |
| 5. Lugano II.              | 40. London (GM). |
| 6. Corbridge.              | 41. Mt Beuvray.  |
| 7. Housesteads.            | 42. Richborough. |
| 8. Saalburg.               | 43. Avenches.    |
| 9. Richborough.            | 44. Colchester.  |
| 10. Mt Beuvray.            | 45. London (BM). |
| 11. Corbridge. (unp.).     | 46. Hofheim.     |
| 12. Housesteads.           | 47. London (GM). |
| 13. Richborough.           | 48. Richborough. |
| 14. Brecon Gaer.           | 49. Aldborough.  |
| 15. Avenches.              | 50. London (GM). |
| 16. Hofheim. (Ritterling). |                  |
| 17. Richborough.           |                  |
| 18. Hofheim (Ritterling).  |                  |
| 19. Vidy-Lausanne.         |                  |
| 20. Geneva.                |                  |
| 21. Colchester.            |                  |
| 22. Augst.                 |                  |
| 23. Windisch.              |                  |
| 24. London (BM).           |                  |
| 25. Zugmantel.             |                  |
| 26. Newstead.              |                  |
| 27. Saalburg.              |                  |
| 28. Xanten.                |                  |
| 29. Geneva.                |                  |
| 30. Kapersburg.            |                  |
| 31. London (BM).           |                  |
| 32. Strasbourg.            |                  |
| 33. Silchester.            |                  |
| 34. Richborough.           |                  |
| 35. Zugmantel.             |                  |



Fig.7. Facsimiles. Sc.  $\frac{1}{2}$  (except nos.3,4,41 & 49).  
N.3 is from a drawing in the Corpus.

## Fig. 8.

- |                     |                       |
|---------------------|-----------------------|
| 1. Augst.           | 37. London (GM).      |
| 2. Saalburg.        | 38. Windisch.         |
| 3. Colchester (EM). | 39. London (GM).      |
| 4. Basel.           | 40. Mt Beuvray.       |
| 5. Fins d'Annecy.   | 41. Colchester.       |
| 6. Wroxeter.        | 42. Yverdon.          |
| 7. Richborough.     | 43. Köln-Müngersdorf. |
| 8. Richborough.     | 44. Vidy-Lausanne.    |
| 9. Hofheim.         | 45. Arentsburg.       |
| 10. Mainz.          | 46. Wimpfen.          |
| 11. Vidy-Lausanne.  | 47. Arentsburg.       |
| 12. Corbridge.      | 48. Corbridge.        |
| 13. Richborough.    | 49. Corbridge.        |
| 14. Augst.          | 50. Cannstadt.        |
| 15. Windisch.       |                       |
| 16. Solothurn.      |                       |
| 17. Wroxeter.       |                       |
| 18. Corbridge.      |                       |
| 19. Avenches.       |                       |
| 20. Colchester.     |                       |
| 21. Wroxeter.       |                       |
| 22. Richborough.    |                       |
| 23. Richborough.    |                       |
| 24. London (GM).    |                       |
| 25. Richborough.    |                       |
| 26. Geneva.         |                       |
| 27. Colchester.     |                       |
| 28. Housesteads.    |                       |
| 29. Corbridge.      |                       |
| 30. Corbridge.      |                       |
| 31. Augst.          |                       |
| 32. London (EM).    |                       |
| 33. Aldborough.     |                       |
| 34. Silchester.     |                       |
| 35. Bingen.         |                       |
| 36. Zugmantel.      |                       |



Fig.8. Facsimiles. Sc.<sup>1</sup>/2 (except for nos.5, 20, 27, 33. & 40).

## Fig. 9.

- |                             |                          |
|-----------------------------|--------------------------|
| 1. Zugmantel.               | 37. Corbridge.           |
| 2. Arentsburg.              | 38. Mainz.               |
| 3. Strasbourg.              | 39. Ems.                 |
| 4. Windisch.                | 40. Corbridge.           |
| 5. Geneva.                  | 41. Zugmantel.           |
| 6. Caerhun.                 | 42. Geneva.              |
| 7. Corfe Mullen.            | 43. Avenches.            |
| 8. Colchester.              | 44. Viāy-Lausanne.       |
| 9. Geneva.                  | 45. Windisch.            |
| 10. Mt Beuvray.             | 46. Chester.             |
| 11. Corbridge.              | 47. Mainz.               |
| 12. Verulamium.             | 48. Kastell Heddersdorf. |
| 13. Avenches.               | 49. Avenches.            |
| 14. Chesterholm.            | 50. Eregenz.             |
| 15. Corbridge.              |                          |
| 16. London (Black Gate M.). |                          |
| 17. Richborough.            |                          |
| 18. Verulamium.             |                          |
| 19. Mainz.                  |                          |
| 20. London (BM).            |                          |
| 21. Colchester.             |                          |
| 22. Verulamium.             |                          |
| 23. Corbridge.              |                          |
| 24. Verulamium.             |                          |
| 25. York.                   |                          |
| 26. Colchester (BM).        |                          |
| 27. Oberaden.               |                          |
| 28. Arentsburg.             |                          |
| 29. London.                 |                          |
| 30. Strasbourg.             |                          |
| 31. Lincoln.                |                          |
| 32. Richborough.            |                          |
| 33. Richborough.            |                          |
| 34. Verulamium.             |                          |
| 35. Corbridge.              |                          |
| 36. Corbridge.              |                          |



Fig.9. Facsimiles. Sc.<sup>1</sup>/<sub>2</sub> (except for nos.2,10,28).

## Fig.10.

1. Silchester.
2. London.
3. Wroxeter.
4. Richborough.
5. Turgi (Switz.).
6. Colchester.
7. Windisch.
8. Windisch.
9. Newstead.
10. Vidy-Lausanne.
11. London (GM).
12. Avenches.
13. Avenches.
14. London (BM).
15. Geneva.
16. Silchester.
17. Geneva.
18. Avenches.
19. Fins d'Annecy.
20. Mainz.
21. Carlisle.
22. Chesterholm.
23. Windisch.
24. London.
25. Neuss.
26. Black Gate II.
27. Manchester.
28. Wroxeter.
29. Yverdon.
30. London (GM).
31. Baden (Switz.).
32. Richborough.
33. Richborough.
34. York.
35. Caerleon.
36. Köln-Müngersdorf.
37. London (BM).
38. London (BM).
39. Hofheim.
40. Stanmore.
41. Newstead.
42. Verulamium.
43. London (GM).
44. Windisch.
45. Avenches.
46. London (BM).
47. Cannstadt.
48. Colchester.
49. Mainz.
50. Benwell.



Fig.10. Facsimiles. Sc.  $\frac{1}{2}$  (except for nos.6,19 & 48)

## Fig. 11

- |                   |                  |
|-------------------|------------------|
| 1. Arentsburg.    | 37. Richborough. |
| 2. Wroxeter.      | 38. Saalburg.    |
| 3. Windisch.      | 39. Corbridge.   |
| 4. Bregenz.       | 40. Strasbourg.  |
| 5. Windisch.      | 41. Silchester.  |
| 6. Augst.         | 42. Welzheim.    |
| 7. Fins d'Annecy. | 43. Geneva.      |
| 8. Chester.       | 44. Avenches.    |
| 9. Neuss.         | 45. Windisch.    |
| 10. Silchester.   | 46. Mt Beuvray.  |
| 11. Colchester.   | 47. Windisch.    |
| 12. Geneva.       | 48. Bregenz.     |
| 13. Geneva.       | 49. Richborough. |
| 14. Neuss.        | 50. Augst.       |
| 15. Windisch.     |                  |
| 16. Augst.        |                  |
| 17. London(BM).   |                  |
| 18. Windisch.     |                  |
| 19. Windisch.     |                  |
| 20. Windisch.     |                  |
| 21. London(BM).   |                  |
| 22. Colchester.   |                  |
| 23. Arentsburg.   |                  |
| 24. Mt Beuvray.   |                  |
| 25. Marienfels.   |                  |
| 26. Corbridge.    |                  |
| 27. London(GM).   |                  |
| 28. Cadder.       |                  |
| 29. Marienfels.   |                  |
| 30. Colchester.   |                  |
| 31. Strasbourg.   |                  |
| 32. Corbridge.    |                  |
| 33. Ilkley.       |                  |
| 34. Mt. Beuvray.  |                  |
| 35. Wroxeter      |                  |
| 36. Windisch.     |                  |



Fig. 11. Facsimiles. Sc.  $\frac{1}{2}$  (except for nos. 1, 7, 11, 22, 23, 24, 30, 34 & 46).

Fig.12.

- |                    |                    |
|--------------------|--------------------|
| 1. Edinburgh M.    | 37. Richborough.   |
| 2. Corbridge.      | 38. Nyon.          |
| 3. London.         | 39. Fins d'Annecy. |
| 4. Richborough.    | 40. Colchester.    |
| 5. Avenches.       | 41. Corbridge.     |
| 6. York.           | 42. Carlisle.      |
| 7. Mt Beuvray.     | 43. Wroxeter.      |
| 8. Mt Beuvray.     | 44. Kapersburg.    |
| 9. Windisch.       | 45. Colchester.    |
| 10. Geneva.        | 46. Hofheim.       |
| 11. Mt Beuvray.    | 47. Windisch.      |
| 12. Strasbourg.    | 48. Geneva.        |
| 13. Wiesbaden.     | 49. Augst.         |
| 14. Nyon.          | 50. Avenches.      |
| 15. Bregenz.       |                    |
| 16. Geneva.        |                    |
| 17. Basel.         |                    |
| 18. Bregenz.       |                    |
| 19. Black Gate M.  |                    |
| 20. London(GM).    |                    |
| 21. London.        |                    |
| 22. Weymouth.      |                    |
| 23. Mt Beuvray.    |                    |
| 24. Windisch.      |                    |
| 25. Wroxeter.      |                    |
| 26. Geneva.        |                    |
| 27. Cannstadt.     |                    |
| 28. Carlisle.      |                    |
| 29. Geneva.        |                    |
| 30. London(GH).    |                    |
| 31. Avenches.      |                    |
| 32. Arentsburg.    |                    |
| 33. Mainz.         |                    |
| 34. Vidy-Lausanne. |                    |
| 35. Brecon Gaer.   |                    |
| 36. Avenches.      |                    |



Fig.12. Facsimiles. Sc. <sup>1</sup>/<sub>2</sub> (except for nos.7,8,11,22,23, 32,39 & 40).

Fig.13.

1. Richborough.
2. Wiesbaden.
3. Nyon.
4. Lenzburg(Switz.).
5. Avenches.
6. Windisch.
7. Bern.
8. Corbridge.
9. Windisch.
10. Avenches.
11. Colchester(M.Rep.).
12. London(BM).
13. Mainz.
14. Augst.
15. York.
16. Geneva.
17. Geneva.
18. Hofheim.
19. Fins d'Annecy.
20. Fins d'Annecy.
21. Carlisle.
22. Richborough.
23. Avenches.
24. Windisch.
25. Newstead.
26. Vidy-Lausanne.
27. Xanten.
28. Colchester(M.Rep.(1935)).
29. Avenches.
30. Leicester.
31. Augst.
32. London.
33. Wroxeter.
34. Carlisle.
35. Leicester.
36. Solothurn.
37. Kastell Heddersdorf.
38. Avenches.
39. Geneva.
40. Ilkley.
41. Kastell Echzell.
42. Windisch.
43. Wroxeter.
44. Zugmantel.
45. Strasbourg.
46. Silchester.
47. Windisch.
48. Oberwinterthur.
49. Colchester.
50. Solothurn.



Fig.13. Facsimiles. Sc.<sup>1</sup>/<sub>2</sub> (except for nos.19,20 & 49).

Fig. 14.

- |                         |                  |
|-------------------------|------------------|
| 1. Colchester.          | 37. Windisch.    |
| 2. Colchester.          | 38. Windisch.    |
| 3. Silchester.          | 39. London (GM). |
| 4. Wroxeter.            | 40. Bregenz.     |
| 5. Hofheim.             | 41. Butzbach.    |
| 6. Avenches.            | 42. Corbridge.   |
| 7. Dépt. de l'Oise.     | 43. Windisch.    |
| 8. Richborough.         | 44. Windisch.    |
| 9. London (GM).         | 45. Wroxeter.    |
| 10. Windisch.           | 46. Slack.       |
| 11. Avenches.           | 47. Wroxeter.    |
| 12. Richborough.        | 48. Walheim.     |
| 13. Olten (Switz.).     | 49. London (GM). |
| 14. Avenches.           | 50. Richborough. |
| 15. Richborough.        |                  |
| 16. Mumrills.           |                  |
| 17. Wiesbaden.          |                  |
| 18. Windisch.           |                  |
| 19. Geneva.             |                  |
| 20. Ilkley.             |                  |
| 21. York.               |                  |
| 22. Windisch.           |                  |
| 23. Silchester.         |                  |
| 24. Lenzburg (Switz.).  |                  |
| 25. Geneva.             |                  |
| 26. Vidy-Lausanne.      |                  |
| 27. Richborough.        |                  |
| 28. Windisch.           |                  |
| 29. Corbridge.          |                  |
| 30. Augst.              |                  |
| 31. Wroxeter.           |                  |
| 32. Fins d'Annecy.      |                  |
| 33. Colchester.         |                  |
| 34. Richborough (unp.). |                  |
| 35. Windisch.           |                  |
| 36. Geneva.             |                  |



Fig.14. Facsimiles. Sc.  $\frac{1}{2}$  (except for nos.7 & 32).

## Fig.15.

- |                        |                  |
|------------------------|------------------|
| 1. Augst.              | 37. Colchester.  |
| 2. Windisch.           | 38. Augst.       |
| 3. Avenches.           | 39. Windisch.    |
| 4. Bregenz.            | 40. Avenches.    |
| 5. Butzbach.           | 41. Et Beuvray.  |
| 6. Avenches.           | 42. Windisch.    |
| 7. Dépt. de l'Oise.    | 43. London(GM).  |
| 8. London(GM).         | 44. London.      |
| 9. Augst.              | 45. Bern.        |
| 10. London(BM).        | 46. Avenches.    |
| 11. Xanten.            | 47. Richborough. |
| 12. Roskopf.           | 48. Richborough. |
| 13. Corbridge.         | 49. London(BM).  |
| 14. Niederbieber.      | 50. Avenches.    |
| 15. Mucklebank Turret. |                  |
| 16. Wimpfen.           |                  |
| 17. Corbridge.         |                  |
| 18. Papcastle.         |                  |
| 19. Corbridge.         |                  |
| 20. Strasbourg.        |                  |
| 21. Corbridge.         |                  |
| 22. Arentsburg.        |                  |
| 23. London(GM).        |                  |
| 24. Richborough.       |                  |
| 25. S. Shields.        |                  |
| 26. London.            |                  |
| 27. Bregenz.           |                  |
| 28. Avenches.          |                  |
| 29. Mainz.             |                  |
| 30. Wroxeter.          |                  |
| 31. Richborough.       |                  |
| 32. Hengistbury Head.  |                  |
| 33. Solothurn.         |                  |
| 34. Colchester.        |                  |
| 35. Arentsburg.        |                  |
| 36. Richborough.       |                  |



Fig.15. Facsimiles. Sc.  $\frac{1}{2}$  (except for nos.7,22,35,41).

## Fig.16.

- |                       |                        |
|-----------------------|------------------------|
| 1. Richborough.       | 37. Chester.           |
| 2. Windisch.          | 38. Wakering.          |
| 3. Avenches.          | 39. London (GM).       |
| 4. Windisch.          | 40. Avenches.          |
| 5. Avenches.          | 41. Corbridge.         |
| 6. Avenches.          | 42. Corbridge.         |
| 7. Augst.             | 43. Corbridge.         |
| 8. Augst.             | 44. Augst.             |
| 9. Windisch.          | 45. Windisch.          |
| 10. York.             | 46. Colchester (EM).   |
| 11. York.             | 47. Saalburg.          |
| 12. Avenches.         | 48. Augst.             |
| 13. Augst.            | 49. Neuss.             |
| 14. Windisch.         | 50. Lenzburg (Switz.). |
| 15. Frankfurt.        |                        |
| 16. Augst.            |                        |
| 17. Avenches.         |                        |
| 18. Geneva.           |                        |
| 19. Corbridge.        |                        |
| 20. Caerwent.         |                        |
| 21. Leicester.        |                        |
| 22. Brecon Gaer.      |                        |
| 23. Colchester.       |                        |
| 24. Lincoln.          |                        |
| 25. Strasbourg.       |                        |
| 26. London (GM).      |                        |
| 27. Wroxeter.         |                        |
| 28. York.             |                        |
| 29. Black Gate II.    |                        |
| 30. Corbridge.        |                        |
| 31. Ilkley.           |                        |
| 32. Geneva.           |                        |
| 33. Windisch.         |                        |
| 34. Caerhun.          |                        |
| 35. Richborough.      |                        |
| 36. Seengen (Switz.). |                        |



## Fig, 17.

- |                  |                        |
|------------------|------------------------|
| 1. Wiesbaden.    | 37. Fins d'Annecy.     |
| 2. Newstead.     | 38. Augst.             |
| 3. Richborough.  | 39. Dietikon (Switz.). |
| 4. Basel.        | 40. Richborough.       |
| 5. Windisch.     | 41. Windisch.          |
| 6. Windisch.     | 42. Windisch.          |
| 7. Basel.        | 43. Mainz.             |
| 8. Geneva.       | 44. Nyon.              |
| 9. Richborough.  | 45. Colchester.        |
| 10. Avenches.    | 46. Avenches.          |
| 11. Southend.    | 47. Silchester.        |
| 12. Windisch.    | 48. Richborough.       |
| 13. Avenches.    | 49. Frick (Switz.).    |
| 14. Avenches.    | 50. Windisch.          |
| 15. Corbridge.   |                        |
| 16. Colchester.  |                        |
| 17. Colchester.  |                        |
| 18. Windisch.    |                        |
| 19. Augst.       |                        |
| 20. Bregenz.     |                        |
| 21. Corbridge.   |                        |
| 22. Corbridge.   |                        |
| 23. Corbridge.   |                        |
| 24. Wroxeter.    |                        |
| 25. Richborough. |                        |
| 26. Augst.       |                        |
| 27. Okarben.     |                        |
| 28. Augst.       |                        |
| 29. Strasbourg.  |                        |
| 30. Zugmantel.   |                        |
| 31. London (GM). |                        |
| 32. London (BM). |                        |
| 33. Corbridge.   |                        |
| 34. Windisch.    |                        |
| 35. Richborough. |                        |
| 36. Windisch.    |                        |



Fig.17. Facsimiles. Sc. <sup>1</sup>/<sub>2</sub> (except for nos.37 & 45).

Fig.18.

- |                     |                 |
|---------------------|-----------------|
| 1. Augst.           | 37. Basel.      |
| 2. Bregenz.         | 38. Basel.      |
| 3. Wroxeter.        | 39. London(BM). |
| 4. Binchester.      | 40. Basel.      |
| 5. Augst.           | 41. Augst.      |
| 6. Windisch.        | 42. Corbridge.  |
| 7. Richborough.     | 43. Corbridge.  |
| 8. Windisch.        | 44. Corbridge.  |
| 9. Colchester.      | 45. Windisch.   |
| 10. Avenches.       | 46. Corbridge.  |
| 11. London(GM).     | 47. Corbridge.  |
| 12. London(GM).     | 48. Augst.      |
| 13. Arentsburg.     | 49. Windisch.   |
| 14. Old Kilpatrick. | 50. Geneva.     |
| 15. London(GM).     |                 |
| 16. Geneva.         |                 |
| 17. Chester.        |                 |
| 18. Ilkley.         |                 |
| 19. Arentsburg.     |                 |
| 20. London(BM).     |                 |
| 21. Llantwit Major. |                 |
| 22. Corbridge.      |                 |
| 23. Corbridge.      |                 |
| 24. Arentsburg.     |                 |
| 25. Corbridge.      |                 |
| 26. Corbridge.      |                 |
| 27. Corbridge.      |                 |
| 28. Corbridge.      |                 |
| 29. Little Chester. |                 |
| 30. Strasbourg.     |                 |
| 31. Rome.           |                 |
| 32. Rome.           |                 |
| 33. Rome.           |                 |
| 34. Strasbourg.     |                 |
| 35. London(BM).     |                 |
| 36. Augst.          |                 |



Fig.18. Facsimiles. Sc.<sup>1</sup>/<sub>2</sub> (except for nos.9,13,19,24, 31,32,33).

Fig.19 Scale:- figs.1-3 -  $\frac{1}{8}$ , fig.27 -  $\frac{1}{12}$ ,  
remainder -  $\frac{1}{4}$ .

1. Globular ; stamped QMCCAS ; Black Gate M.,  
(unp.). From Mucklebank Turret.
2. Globular ; stamped C.I↑B ; Black Gate M.,  
(unp.). Provenance not known.
3. Globular; stamped L.I.T ; BM.,(unp.).
4. Globular ; stamped S.L.T.SAXIFERRI ; Geneva  
(unp.).
5. Globular ; stamped FELICIS ; Geneva  
(unp.).
6. Globular ; stamped PONT M ; Geneva  
(unp.).
7. Globular ; stamped BROC ODV; Vidy-Lausanne  
(unp.).
8. Globular ; stamped SATVRNINI; Avenches  
(unp.).
9. Globular ; stamped SCALENSIA GEME;  
Vidy-Lausanne (unp.).
10. Globular ; stamped QCC; Geneva(unp.).
11. Globular; stamped PORLAR; Vidy-Lausanne  
(unp.).
12. Globular ; stamped POR...; Vidy-Lausanne  
(unp.).
13. Globular ; stamped SCALENSIA; Vidy-Lausanne  
(unp.).
14. Globular ; stamped L.V.TROPHINI; Vidy-  
Lausanne (unp.).
15. Globular ; stamped VIR II; Corbridge  
(unp.).
16. Globular ; stamped L C SOL; Geneva  
(unp.).
17. Globular ; stamped II IVNI MEL||ISSI ET  
MELISSE; Augst (unp.).
18. Globular ; stamped FIG MSP; Avenches  
(unp.).

Fig.19(ctd)

19. Amphora similar to PL.VI, extreme right; stamped OC (letter C retro.); Vidy-Lausanne (unp.).
20. Dressel Form 1 ; stamped with the symbol X ; Basel (Gallische Ansiedelung, Major, Taf.IV, fig.5).
21. Dressel Form 1 ; stamped SESTI; Basel(ibid., fig.26).
22. Dressel Form 1 ; stamped OIS(?); Basel(unp.).
23. Amphora illustrated PL.XVI, centre top; stamped SEX DOMITI; Basel(unp.).
24. Similar vessel to 23; stamped SECVNDI; Augst (unp.).
25. 26. So-called Amphora-stoppers; Augst(unp.).
27. Amphora(?) from the Tessin dated by Dr.Simonett to post A.D.350; formed part of an inhumation burial (Monographien zur Ur-u.Frühgeschichte der Schweiz, III p.195, Abb.166)
28. Amphora(?) with a wooden bung in situ; Sturry, Canterbury (unp.).
29. Peculiar-shaped amphora ; stamped TVP; Augst (unp.).

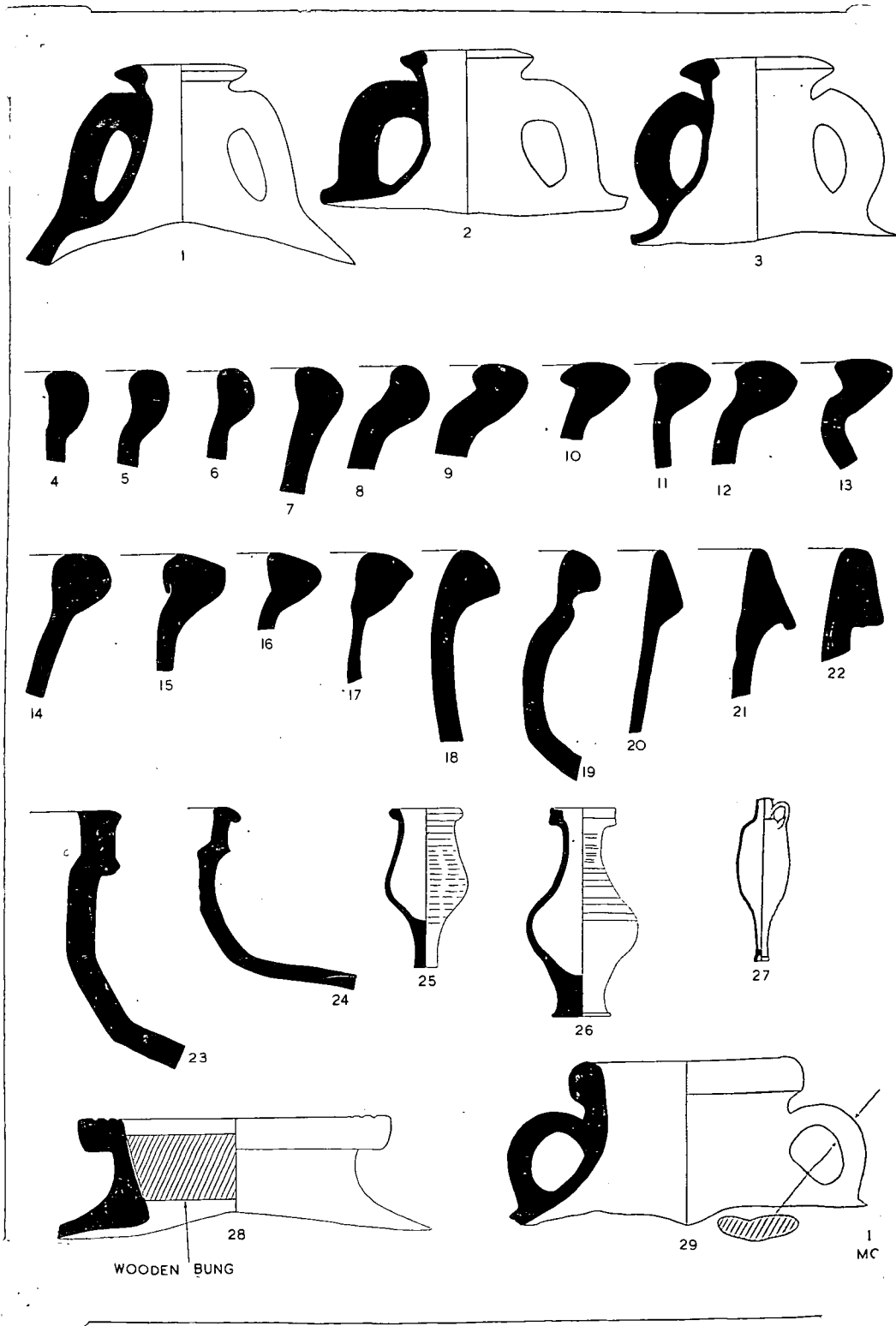


Fig. 19

Fig. 20

1. Peculiar-shaped Amphora from Yverdon (Switz.);  
of greyish-black material, and stamped  
MACRINVS in hollow letters (unp.).
2. North African (?) Amphora from Vindonissa ;  
stamped TA(?)PK(?) (unp.).
3. South Gaulish (?) Amphora from Avenches;  
stamped SILVINVS F (unp.).
4. Rilled Amphora in greyish-black material from  
Avenches ; contained a number of dates when  
found ; Cf. Carrot-shaped vessels of brick-  
or tile-red material (unp.).

546.

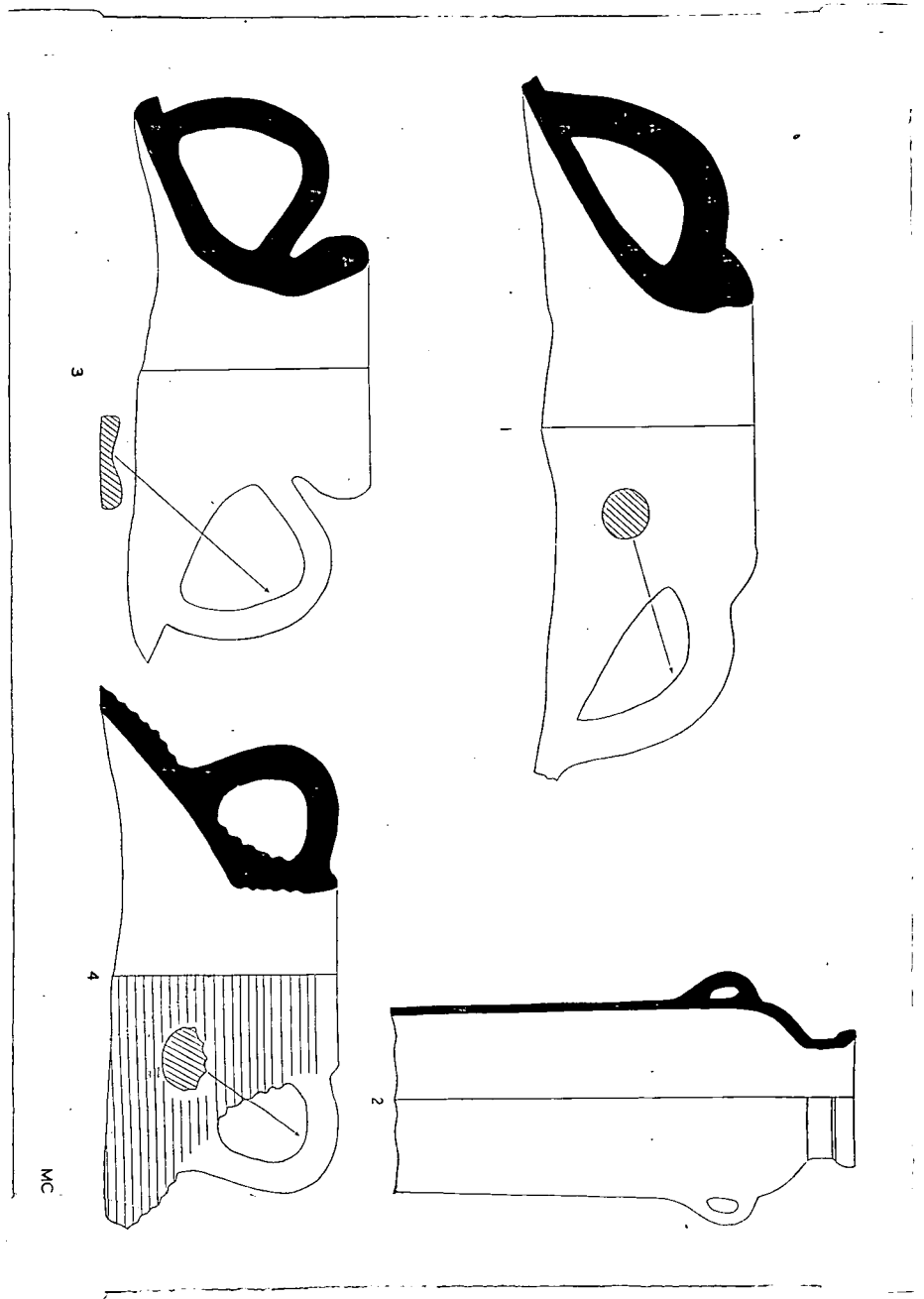


Fig.20. Sc.<sup>1</sup>/4.

547.



TYPICAL South  
Spanish globular  
amphora,  
showing  
titulus pictus.

Fig. 21

After Dressel (Ann. dell'Inst. di corr. arch.,  
I (1878)).

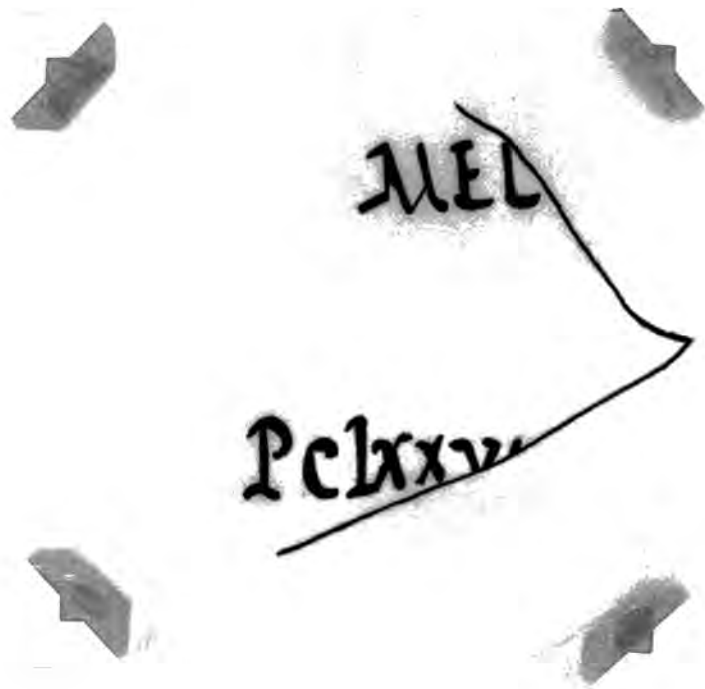


Fig. 22

Painted inscription from Vindonissa (unp.).

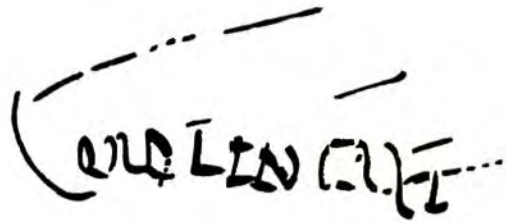

  
 VINDONISSA

Fig. 23 Painted inscription from  
Vindonissa (unp.). COND( )SIMP( )VEE( )?



Fig. 24 Wall-painting from Pompeii showing  
one method of transport (Billiard, "La vigne  
 dans l'antiquité", fig. 70).

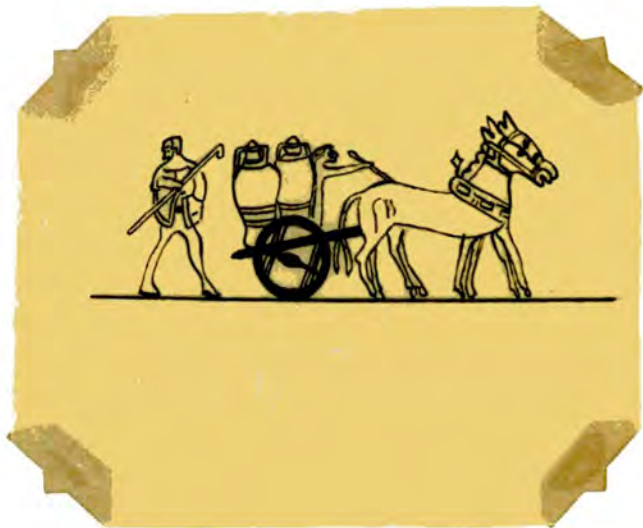


Fig.25 Amphorae loaded on a cart  
 (Dict. des ant.grecques et romaines I,  
 s.v.Amphora, fig.285) (Daremberg-Saglio)



Fig.26 Amphora cellar found at Rome (ibid., fig.280).

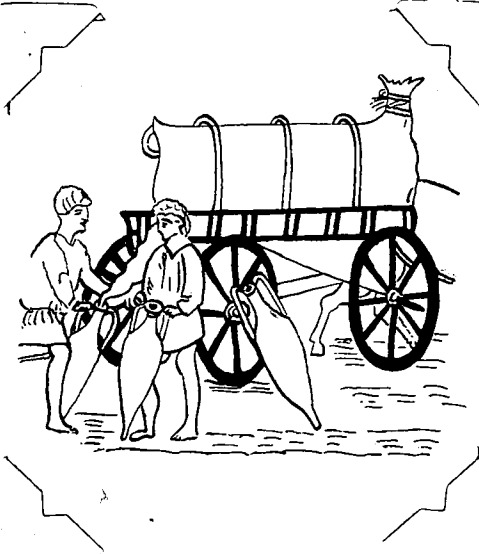


Fig.27 Wall-painting from Pompeii showing Amphorae being filled from an ox-skin <sup>ported</sup> trans~~port~~ on a cart (Dict.des ant.grecques et romaines, I, s.v.Amphora, fig.286).

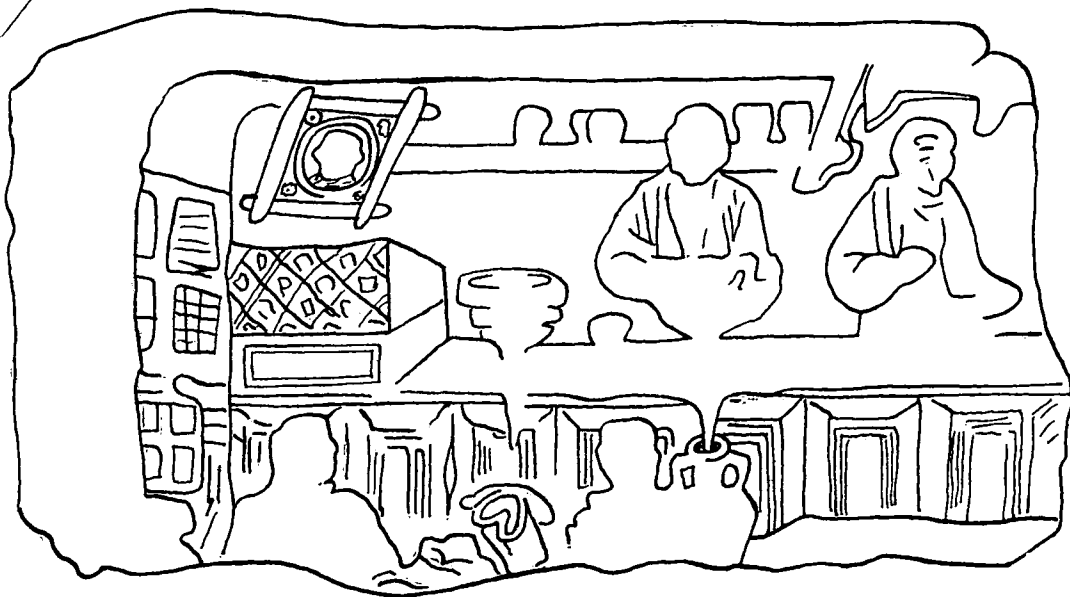


Fig.28 Sepulchral Bas-relief showing retail of wine into an Amphora (Collect.Ant., VI ; an engraving from the original(Hôtel-de-Ville,Dijon)by C.Roach Smith).

Red lines indicate probable routes. The figures in brackets give the number of examples.

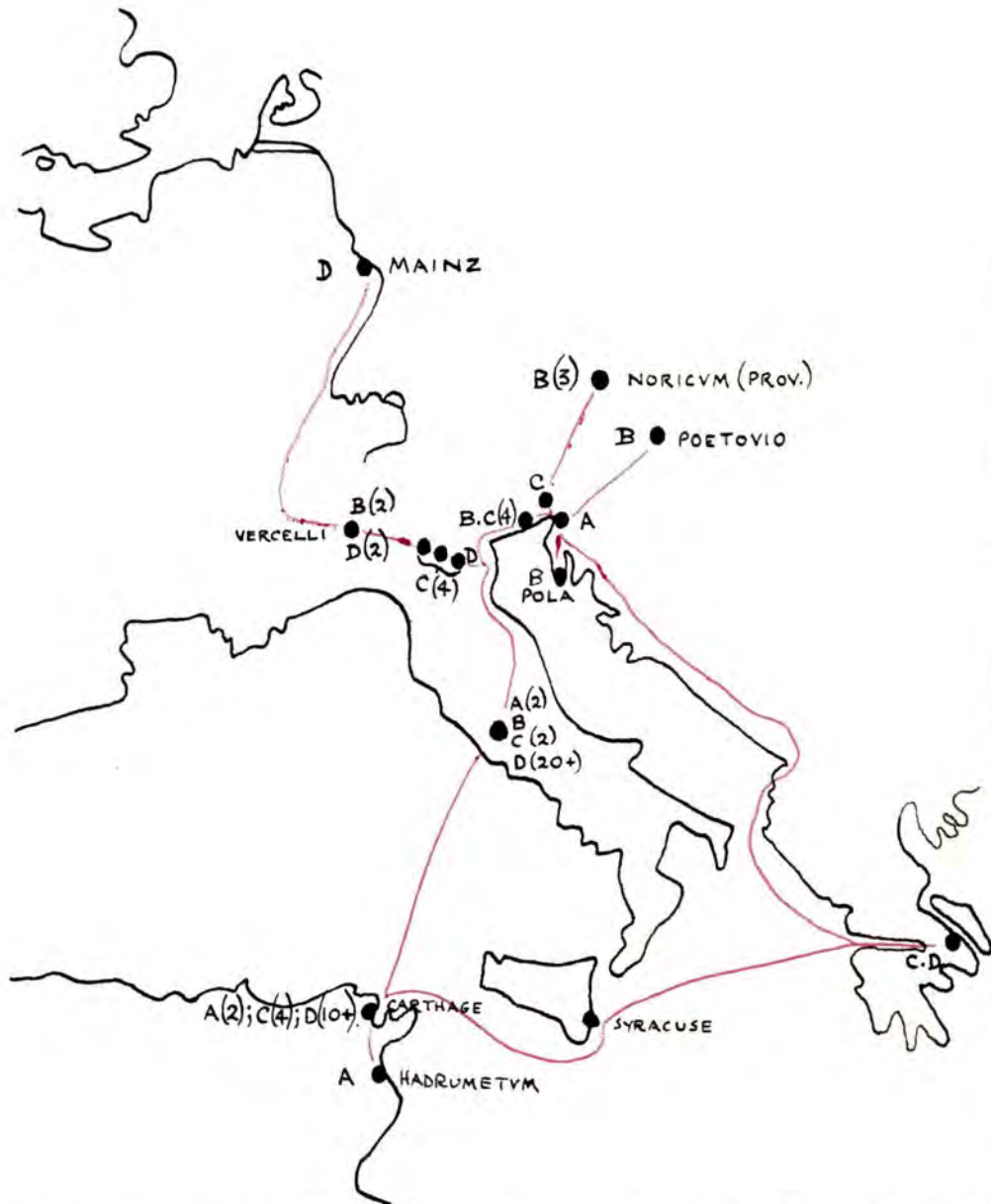


Fig. 29 Distribution of the Amphorae of A) G. Caristianus Fronto B) G. Laecanius Bassus C) M. Heremnius Picens D) T. Helvius Basila.





Fig. 31 Distribution of Amphorae of Dressel Form 1.

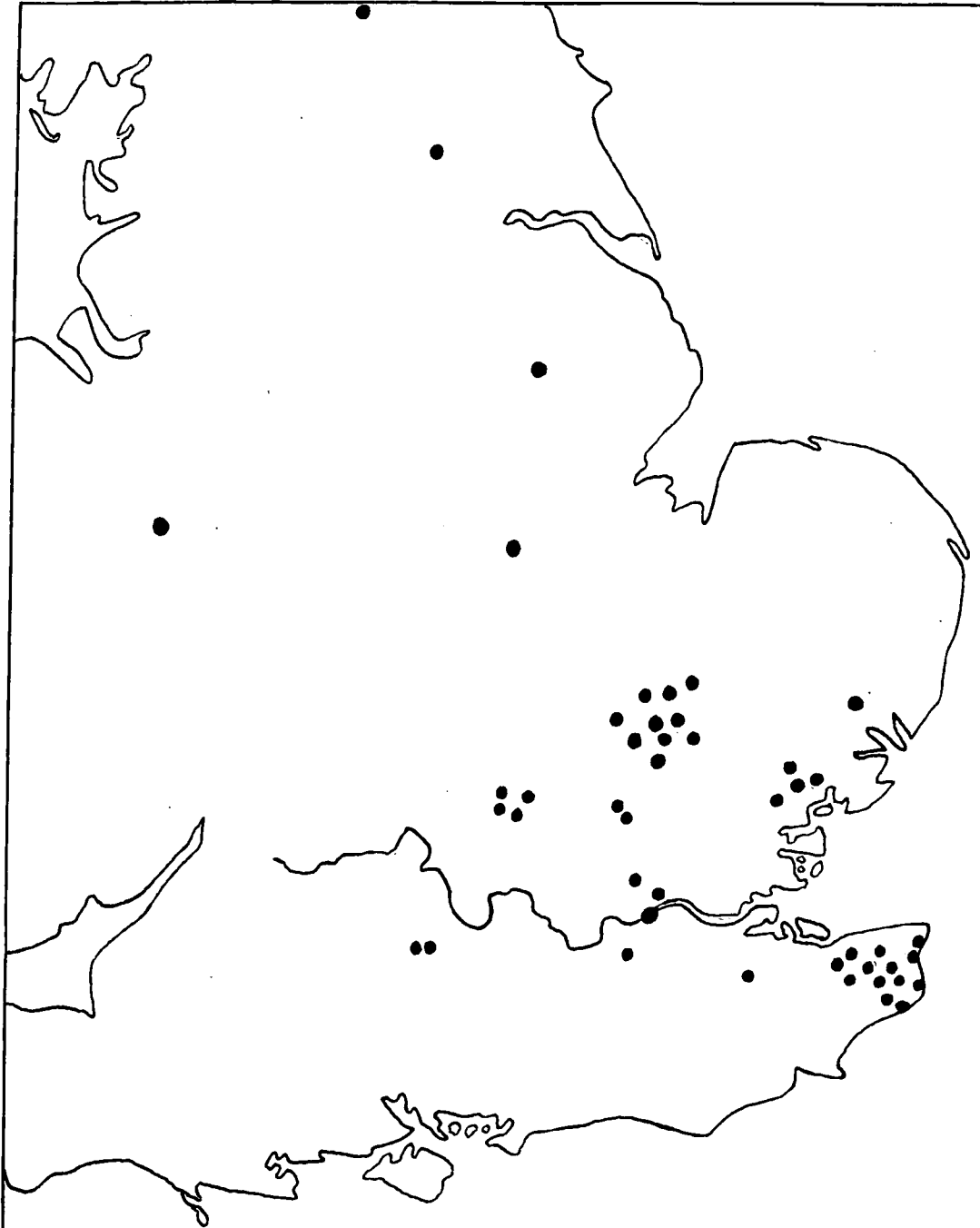


Fig.32 Distribution of Amphora-burials in Britain.



PL.I Modern Amphorae from Syria (Antiquity  
March (1939), pl.V).



PL.II Modern Amphorae from Tunisia (National Geographical Magazine, March(1937) ).

557.



PL.III Dressel Form 1 Amphora (B.M., unp.).

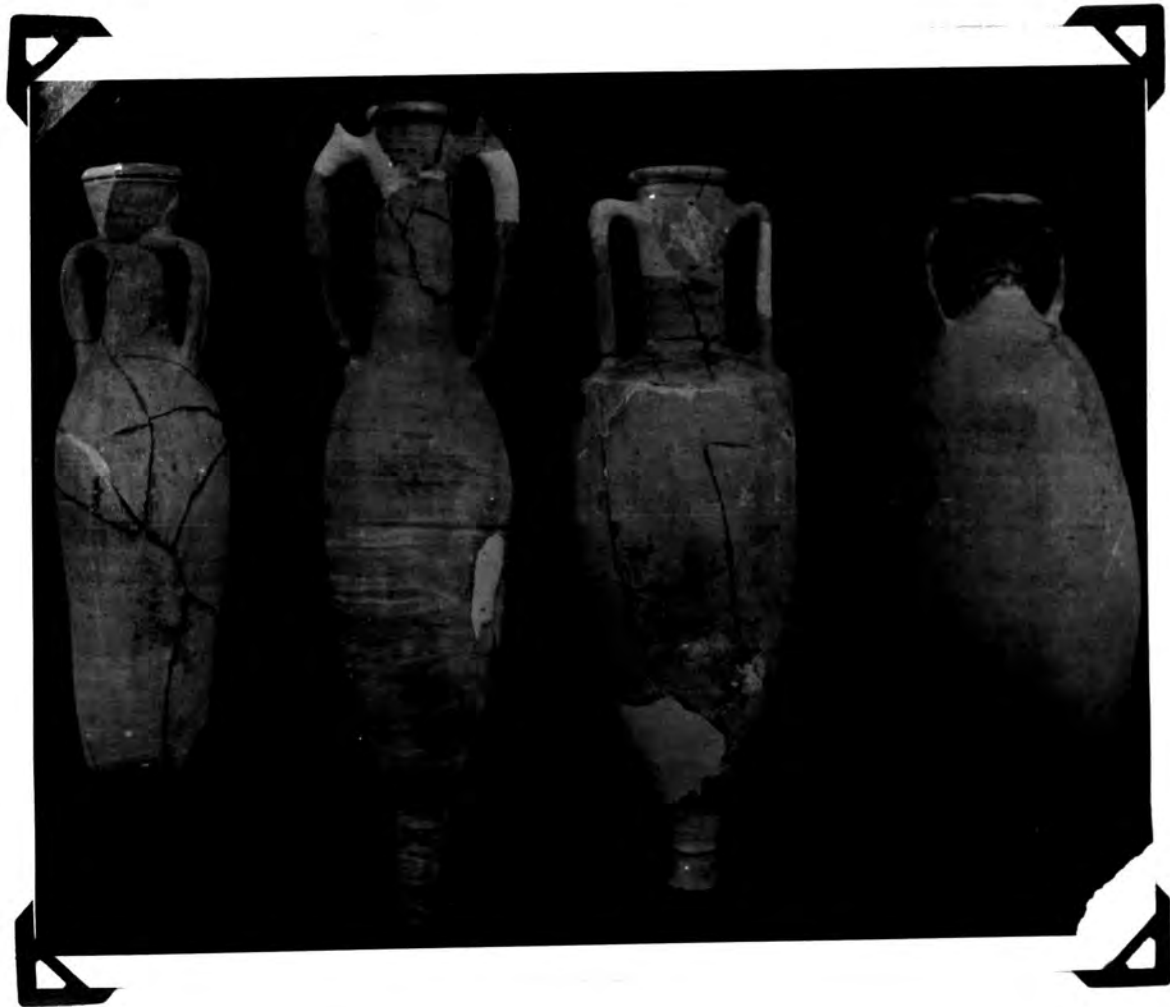


PL. IV Amphora from Imperial Estates (B.M., unp.).

559.



PL.V Amphora of Dressel Form 38 (Form 6 of this Thesis) (St. Albans : unp.,).



PL.VI Amphorae from Augst (ASA XXVIII Taf.XI).



PL.VII Amphorae from Augst (ASA XXVIII Taf.XI).



PL.VIII Augustan Amphora from the Lindenhof,  
Zurich (Landesmuseum, Zurich : unp.,).

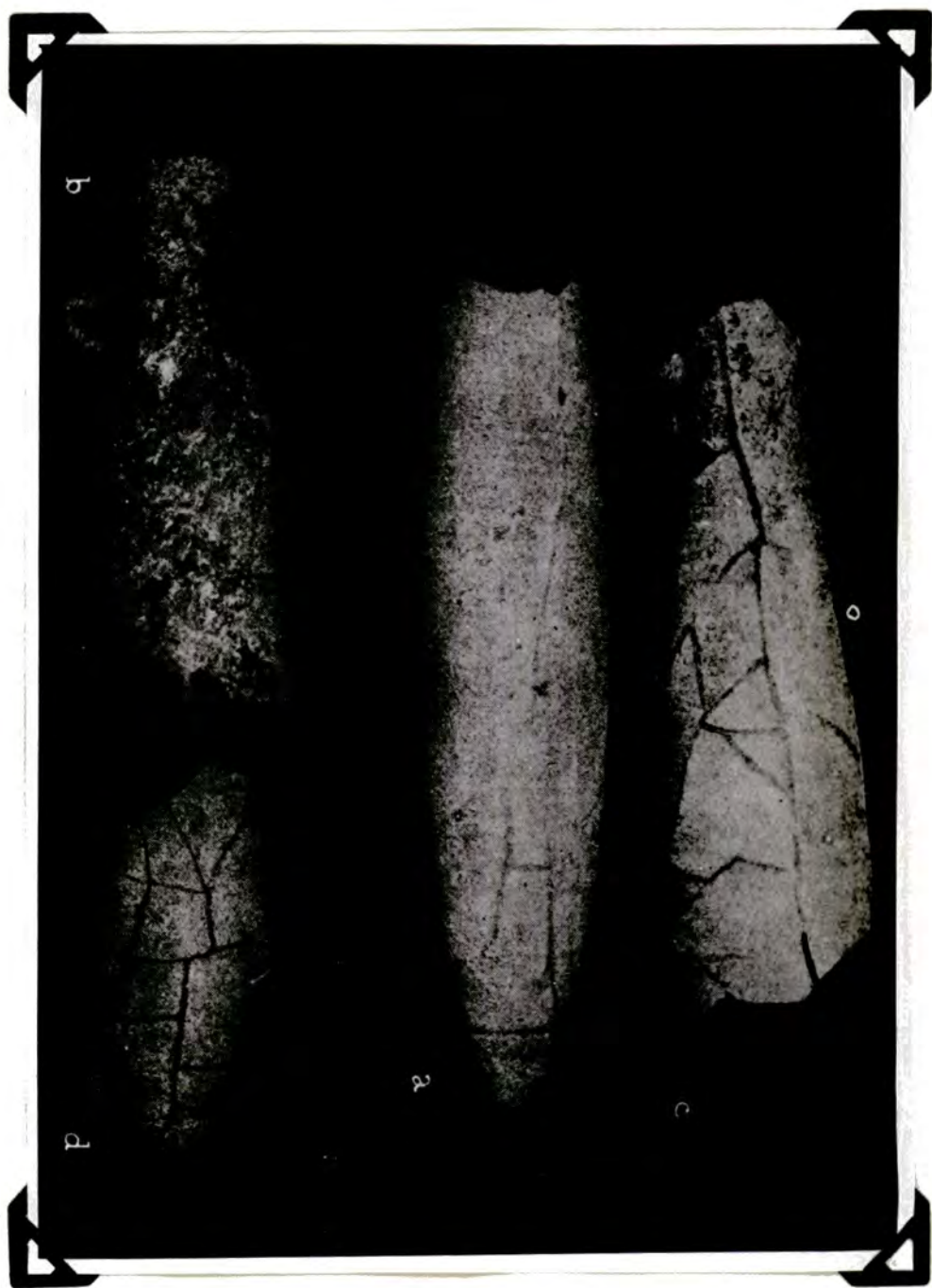


PL.IX Amphorae from Switzerland (Zurich Landesmuseum :  
unp.,).

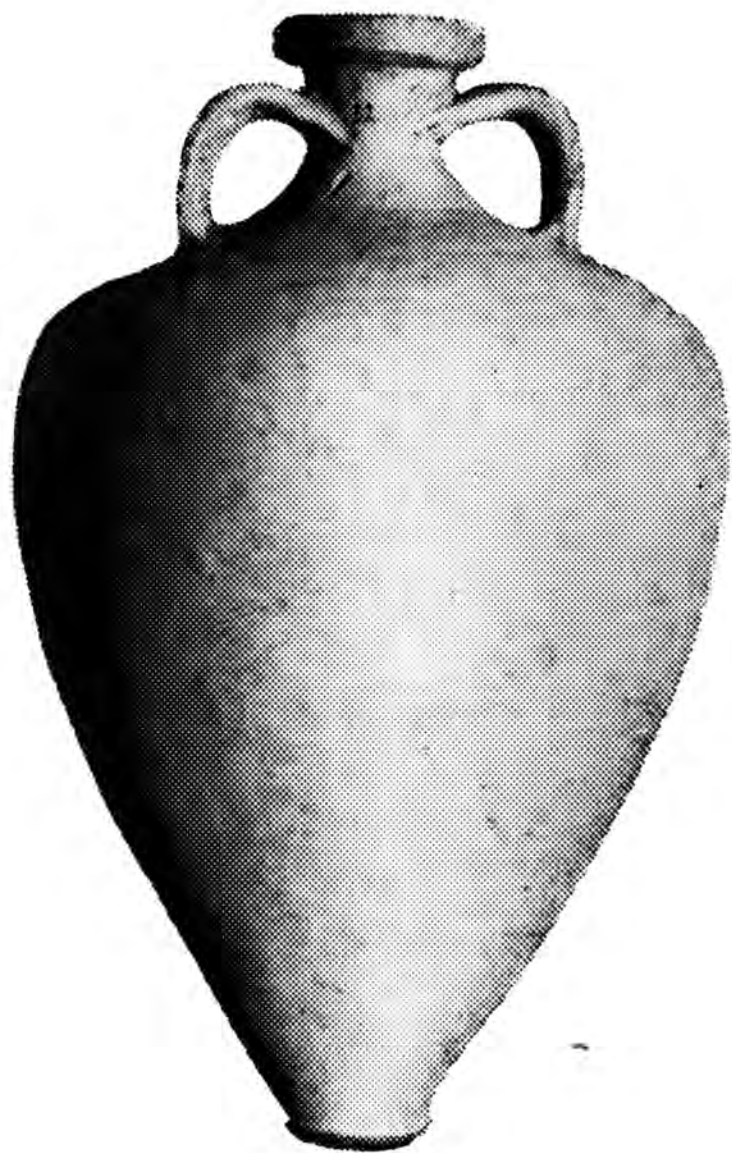
564.



Pl. X Amphorae from Switzerland (Zurich Landes-  
museum : unp.,).



PL. XI Punic Amphorae from Spain (*Acta Arqueologica Hispanica* III Madrid (1945) Lam. XII, fig. 2).



PL.XII Amphora from Nyon, Switzerland (ZAK 1946  
"A propos des Amphores de Nyon", Form 47)



PL. XIII Amphora with standing from St. Albans (unp.).



PL. XIV Amphora of unusual shape from Kent  
(BM. : unp.).



PL. XV A painted inscription on an Italian Amphora  
(BM. : unp.).



PL. XVI Amphorae from Augst and Basel, showing one  
(centre top) with the stamp, SEX DONITI, and  
another (right) which was probably used as a  
"Kühlschrank" (unp.).

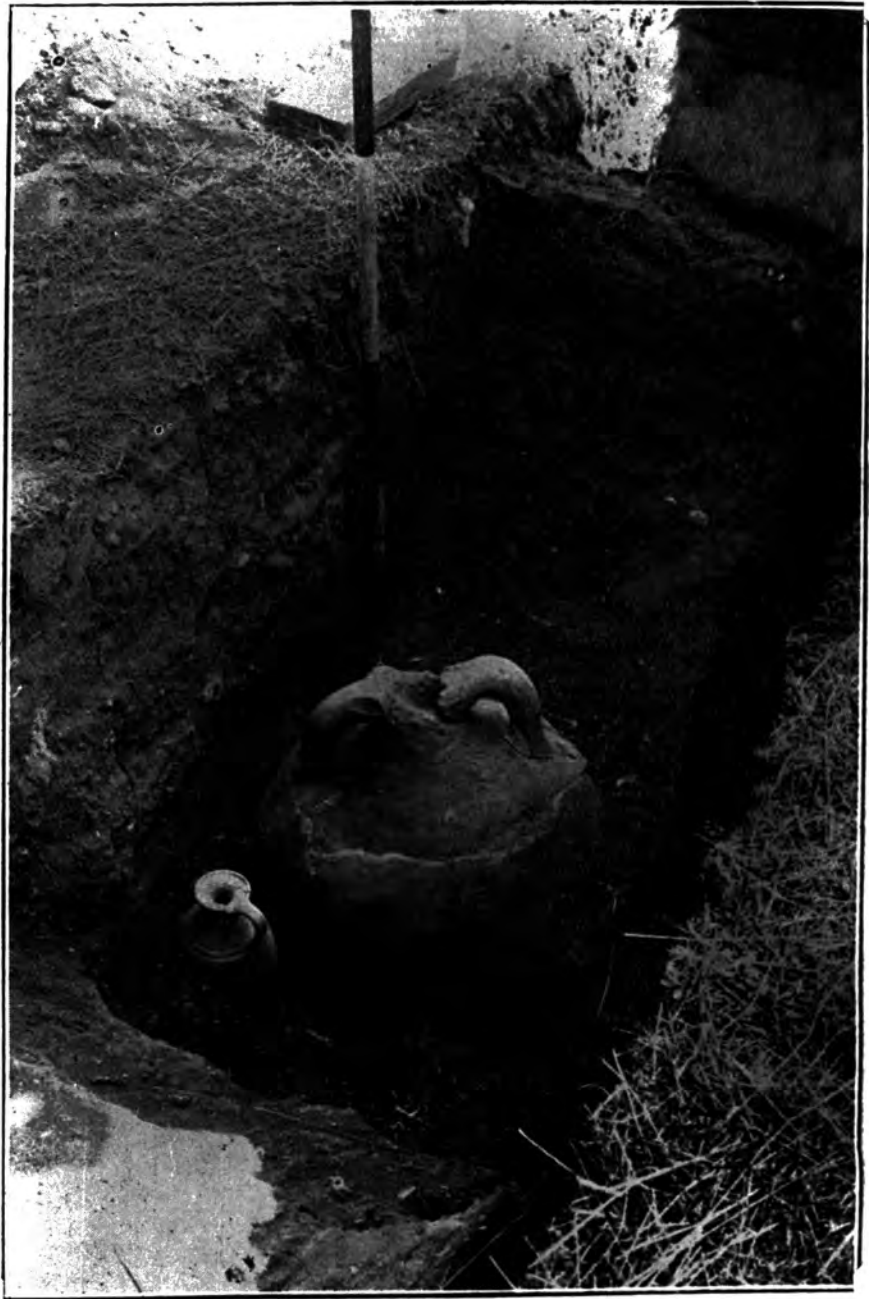


PL. XVII Amphora used as a pissoir from Legionary  
Barracks, Chester (unp.).

572.



PL.XVIII Amphora used as cooking apparatus ; from  
Milecastle 79 (unp.).



PL.XIX Burial Amphora from Colchester (M.Rep. 1935  
fig.4).

574.



PL. XX Wall Painting from Augst (Historisches Museum, Basel).



PL.XXI Straw-covered Amphorae loaded on a ship  
 (Weinmuseum, Trier: TZ 1932(Jahrgang 8),  
 "Römische Denkmäler vom Weinbau an Mosel,  
 Saar u. Ruwer").



PL.XXII Ship loaded with straw-covered  
Amphorae (Neumagen Monuments: TZ 1932  
 (Jahrgang 8), "Römische Denkmäler vom  
 Weinbau an Mosel, Saar u. Ruwer").



PL. XXIII Pouring from a globular Amphora into  
a bucket (Neumagen Monuments: TZ 1932  
(Jahrgang 8), "Römische Denkmäler vom  
Weinbau an Mosel, Saar u. Ruwer").

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iety

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