ΑΛΟΓΑ ΚΑΙ ΑΜΑΞΕΣ ΣΤΟΝ ΑΡΧΑΙΟ ΚΟΣΜΟ

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ΟΡΕΣΤΙΑΔΑ 2010

HORSES AND WAGONS IN THE ANCIENT WORLD

PROCEEDINGS OF ONE DAY SCIENTIFIC MEETING

ORESTIADA-GREECE SEPTEMBER 30, 2006

EDITED BY

DIAMANTIS TRIANTAPHYLLOS-DOMNA TERZOPOULOU

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ΠΡΟΛΟΓΟΣ

Η ανασκαφή στον ταφικό τύμβο της Μικρής Δοξιπάρας-Ζώνης άρχισε τον Σεπτέμβριο του 2002 από την ΙΘ΄ Εφορεία Προϊστορικών και Κλασικών Αρχαιοτήτων Θράκης. Η αποκάλυψη, για πρώτη φορά στην Ελλάδα, πέντε αμαξών ρωμαϊκών χρόνων με τα υποζύγιά τους, προσέλκυσε από νωρίς το ενδιαφέρον του κοινού και της επιστημονικής κοινότητας. Λόγω της ιδιαίτερης αρχαιολογικής σημασίας των ευρημάτων του τύμβου και της διεπιστημονικής μορφής της έρευνας το Έργο έχει ενταχθεί στο Ταμείο Διαχείρισης Πιστώσεων για την Εκτέλεση Αρχαιολογικών Έργων του Υπουργείου Πολιτισμού και Τουρισμού με τίτλο «Έρευνα, προστασία και ανάδειξη των ευρημάτων του ταφικού τύμβου της Μικρής Δοξιπάρας-Ζώνης Ν. Έβρου» και εποπτεύεται από Επιστημονική Επιτροπή.

Στις 30 Σεπτεμβρίου 2006, τέσσερα χρόνια μετά την έναρξη της ανασκαφής, διοργανώθηκε στην Ορεστιάδα μια ημερήσια Επιστημονική Συνάντηση με θέμα *Άλογα και άμαξες στον αρχαίο κόσμο*. Στόχος μας ήταν να κοινοποιήσουμε τα πρώτα πορίσματα για τις άμαξες και τα άλογα του τύμβου και να προσεγγίσουμε την παρουσία τροχήλατων οχημάτων στην αρχαιότητα, με τη βοήθεια της εικονογραφίας, των αρχαίων πηγών και των αρχαιολογικών ευρημάτων. Ο τόμος των Πρακτικών, ο οποίος περιλαμβάνει και ορισμένα επιπλέον κείμενα που αφορούν τον ταφικό τύμβο της Μικρής Δοξιπάρας-Ζώνης, αποτελεί τον καρπό της Συνάντησης αυτής.

Η πραγματοποίηση της Επιστημονικής Συνάντησης δεν θα ήταν δυνατή χωρίς την οικονομική συμβολή της Τοπικής Ένωσης Δήμων και Κοινοτήτων Νομού Έβρου, του Νομαρχιακού Διαμερίσματος Έβρου, του Δήμου Ορεστιάδας και του Δήμου Κυπρίνου. Το ενδιαφέρον του Νομάρχη Νίκου Ζαμπουνίδη οδήγησε στη χρηματοδότηση της έκδοσης των Πρακτικών από το Νομαρχιακό Διαμέρισμα Έβρου.

Η Επιστημονική Επιτροπή του Έργου «Έρευνα, προστασία και ανάδειξη των ευρημάτων του ταφικού τύμβου της Μικρής Δοξιπάρας-Ζώνης Ν. Έβρου».

PREFACE

The 19th Ephorate of Prehistoric and Classical Antiquities (Thrace) began excavating the burial tumulus of Mikri Doxipara-Zoni in September 2002. The discovery of five Roman wagons and their draught animals—the first of its kind in Greece—attracted the interest of both the public and the scholarly community from early on in the excavation process. The continuation and completion of research and the enhancement of the finds from the burial tumulus have been included in the Ministry of Culture and Tourism's Management Fund for Archaeological Projects (T.D.P.E.A.E.).

Four years after excavations began, on September 30, 2006, we organized a day-long Scientific Meeting in Orestiada on *Horses and Wagons in the Ancient World*. Our goal was to announce our initial conclusions concerning the wagons and horses in the tumulus and to approach the theme of wheeled vehicles in Antiquity with the aid of iconography, the ancient sources, and the archaeological finds. The present volume, which also includes a number of additional texts on the tumulus of Mikri Doxipara-Zoni, represents the fruits of this Meeting.

The Scientific Meeting would not have been possible without the financial contribution of the Regional Association of Municipalities and Communities of the Prefecture of Evros, the Prefectural District of Evros, the Municipality of Orestiada, and the Municipality of Kyprinos. Interest on the part of Prefect Nikos Zambounidis led to the Prefectural District of Evros' funding the publication of the Proceedings.

The Scientific Committee for the T.D.P.E.A.E. Project "Research, Protection, and Enhancement of the Burial Tumulus of Mikri Doxipara-Zone, Prefecture of Evros".

ΠΕΡΙΕΧΟΜΕΝΑ / CONTENTS

ΣΥΝΤΟΜΟΓΡΑΦΙΕΣ / ABBREVIATIONS

ΑΑΑ	*Αρχαιολογικά Ανάλεκτα εξ Αθηνών*
ΑΔ	*Αρχαιολογικόν Δελτίον*
ΑΕ	*Αρχαιολογική Εφημερίς*
ΑΕΜΘ	*Το Αρχαιολογικό έργο στη Μακεδονία και Θράκη*
Γαία	*Γαία. Περιοδική έκδοση του τμήματος Γεωλογίας του Εθνικού και Καποδιστριακού Πανεπιστημίου Αθηνών*
Εγνατία	*Εγνατία. Επιστημονική Επετηρίδα της Φιλοσοφικής Σχολής του Αριστοτελείου Πανεπιστημίου Θεσσαλονίκης*
ΕΕΦΣΑΠΘ	*Επιστημονική Επετηρίς της Φιλοσοφικής Σχολής του Αριστοτελείου Πανεπιστημίου Θεσσαλονίκης*
Ηόρος	*Ηόρος. Ένα αρχαιογνωστικό περιοδικό*
Θεσσαλονικέων πόλις	*Θεσσαλονικέων πόλις. Έκδοση πολιτισμού της πολιτιστικής εταιρείας επιχειρηματιών βορείου Ελλάδος*
Μακεδονικά	*Μακεδονικά. Σύγγραμμα Περιοδικόν της Εταιρείας Μακεδονικών Σπουδών*
Τεκμήρια	*Τεκμήρια. Συμβολές στην Ιστορία του Ελληνικού και Ρωμαϊκού κόσμου*
AA	*Archäologische Anzeiger*
ABV	J.D. Beazley, *Attic Black-figure Vase-painters.* Oxford 1956
Achse	*Achse Rad und Wagen. Beiträge zur Geschichte der Landfahrzeuge*
Acta RCRF	*Acta Rei Cretaria Romanae Fautorum*
AEMTh	*Το Αρχαιολογικό έργο στη Μακεδονία και Θράκη*
AF	*Archäologische Forschungen. Deutsches Archäologisches Institut.*
AJA	*American Journal of Archaeology*
AJPh	*American Journal of Philology*
AM	*Athenische Mitteilungen. Mitteilungen des Deutschen Archäologischen Instituts*
Antiquity	*Antiquity. A Quarterly Review of Archaeology*
AntCl	*L'Antiquité Classique*
Archaeofauna	*International Journal of Archaeozoology*
ArchCl	*Archeologia Classica*
ArcheologijaKiiv	*Archeologija. Nacional'na akademija nauk Ukraini. Institut archeologii*

*Archeologija*Sof	*Archeologija. Organ na Archeologičeskija institut i muzej (pri Bălgarskata akademii nauk)*
ARV[2]	J. D. Beazley, *Attic Red-figure Vase-painters*, 2η έκδοση. Oxford 1963
ASAtene	*Annuario della Scuola archeologica di Atene e delle Missioni italiane in Oriente*
AttiMemMagnaGr	*Atti e memorie della Società Magna Grecia*
BAC	*Bulletin archéologique du Comité des travaux historiques et scientifiques*
BalácaiKöz	*Balácai közlemények*
BAR	*British Archaeological Reports*
BCH	*Bulletin de Correspondance Hellénique*
BerRGK	*Bericht der Römisch-Germanischen Kommission*
BIABulg	*Izvestija na Arheologičeskija Institut (Bulgaria)*
BSA	*Annual of the British Scholl at Athens*
Bull.épigr.	*Bulletin épigraphique*
Chiron	*Mitteilungen der Kommission für Alte Gesichte und Epigraphik des Deutschen Archäologischen Instituts*
CP	*Classical Philology*
CSIR	*Corpus Signorum Imperii Romani*
CVA	*Corpus Vasorum Antiquorum*
Dacia	*Dacia. Recherches et decouvertes archeologiques en Roumanie*
Darenberg- Saglio	C. Daremberg-E. Saglio, *Dictionnaire des antiquités grecques et romaines d'*après *les* textes *et les monuments*. Paris 1877-1919
Eirene	*Eirene. Studia graeca et latina*
FA	*Fasti Archaeologici*
GodMuzPlov	*Godišnik na Archeologičeski muzej Plovdiv*
Hellenica	L. Robert, *Recueil d' épigraphie de numismatique et d' antiquités grecques*. Paris. 1940-1965
Hesperia	*Hesperia. The Journal of the American School of Classical Studies at Athens*
JAnthArch	*Journal of Anthropological Archaeology*
JASc	*Journal of Archaeological Science*
JdI	*Jahrbuch des Deutschen Archäologischen Instituts*
JHS	*The Journal of Hellenic Studies*
JIES	*Journal of Indo-European Studies*
JPR	*Journal of Prehistoric Religion*
IG	*Inscriptiones Graecae*
Klio	*Klio. Beiträge zur alten Geschichte*
KölnJB	*Kölner Jahrbuch für Vor- und Frühgeschichte*

LSJ	H. G. Liddell- R. Scott και H. S. Jones. *A Greek-English Lexicon*
MÉFRA	*Mélanges de l' École française de Rome. Antiquité*
MM	*Madrider Mitteilungen. Mitteilungen des Deutschen archäologischen Instituts.*
Mnemosyne	*Mnemosyne. A Journal of Classical Studies*
MonAnt	*Monumenti Antichi*
Nikephoros	*Nikephoros. Zeitschrift für Sport und Kultur im Altertum*
Orpheus	*Orpheus. Journal of Indo-European, Paleo-Balkan and Thracian Studies*
Palaeovertebrata	*Paleovertebrata. Montpellier, Laboratoire de Paléontologie.*
Paralipomena	J. D. Beazley. *Additions to Attic Black-figure Vase- painters and to Attic Red-figure Vase-painters* [2]. Oxford 1971.
Physis	*Rivista Internazionale di Storia della Scienza*
PNAS	*Proceedings of the National Academy of Sciences of the United States of America*
PPM	G. Pugliese Carratelli και I. Baldassarre (επιμ.), *Pompei: Pitture e Mosaici*
PZ	*Prähistorische Zeitschrift*
RA	*Revue Archéologique*
RdA	*Rivista di Archeologia*
RE	Pauly-Wissowa, *Real-Encyclopädie der klassischen Altertumswissenschaft* (1893-)
REA	*Revue des Études Anciennes*
RM	*Römische Mitteilungen. Mitteilungen des Deutschen Archäologischen Instituts*
SaalbJb	*Saalburg-Jahrbuch. Bericht des Saalburg-Museums*
SEG	*Supplementum Epigraphicum Graecum*
Seminarium Thracicum	*The Professor Alexander Fol Centre of Thracology. Papers and communications read at the meetings of the Seminar*
SIMA	*Studies in Mediterranean Archaeology*
Smith	W. Smith, *A Dictionary of Greek and Roman Antiquities*. London 1842-1890.
Starini	*Starini.Spisanie za Balkanza Arkheologia*
TAPhA	*Transactions and Proceedings of the American Philological Association*
ThesCRA	Thesaurus Cultus et Rituum Antiquorum
TIG	*Trends in Genetics*
TrZ	*Trierer Zeitschrift für Geschichte und Kunst des Trierer Landes und seiner Nachbargebiete*
ZPE	*Zeitschrift für Papyrologie und Epigraphik*

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FOUR-WHEELED VEHICLES IN THE ROMAN WORLD

Animal-drawn two- and four-wheeled vehicles designed for carrying people and goods were widely used in the Roman Empire. The two-wheelers can be divided into two basic categories: *chariots* for carrying an unstable load, i.e. one or more standing persons, in racing and ceremonies, and *carts* for transporting stable loads, i.e. seated persons or goods, for a variety of purposes. In this paper I will concentrate on four- wheeled vehicles, here called *wagons*, thereby providing some background to the recent spectacular finds of the early 2nd century AD from Mikri-Doxipara-Zoni in Greek Thrace[1].

Vehicles with four wheels have a long history in different parts of Europe and the Near East, going back to the fourth millennium B.C.[2] According to the surviving material remains and figured documents, the wagons at first had solid-disk wheels, later also lighter, cross-bar and spoked wheels. Pulled by paired bovids or equids under a yoke that was attached near the end of a central draught pole, the wagons were used for the transport of people and heavy and/or bulky goods.

Detailed information on the complex construction of (spoke-wheeled) wagons first becomes available in central and western Europe during the Hallstatt period (later 8th-6th centuries BC), when such vehicles were often buried in tumulus graves of important individuals. Although the wooden parts had usually completely decayed, various metal elements of the wagons survived, though mostly not in their original positions.

According to the resulting reconstructions, the Hallstatt vehicles all had a fairly small rectangular body (between 1.48 and 1.85 m in length, and between 0.585 and 0.84 m in width). A very low siding, apparently not exceeding 0.15 m in height, extended all around and was variously decorated in bronze **(Fig. 1)**[3].

There is evidence to show that the front axle was not rigidly fixed to the wagon frame but could swivel, thus facilitating the turning of the vehicle in motion. In the case of a swiveling front axle, the draught pole (or shafts, see below) must be connected to the axle, not to the frame of the wagon - so that the axle turns *with* the draught animals and not differentially. For a draught pole to be attached

1. I am most grateful to Diamantis Triantapfyllos and Domna Terzopoulou for inviting me to participate in the meeting at Orestiada on 30 September 2006 and for all their hospitality. I also had the privilege of being shown the *in situ* remains of the vehicles and horses at Mikri-Doxipara-Zoni by Mr. Triantaphyllos - an altogether unforgettable experience. I also thank G. Brownrigg and T. Doorewaard for their critical reading of a draft text and G. Skyte-Bradshaw for correcting the English.
2. See, most recently, various contributions to Fansa and Burmeister 2004.
3. See especially Piggott 1983, 152-77; Pare 1992 (fig. 134: distribution map); also contributions to *Vierrädrige Wagen* 1987 and *Zeremonialwagen* 2000; Messerschmidt 2000, 8-10; Egg and France-Lanord 2003.

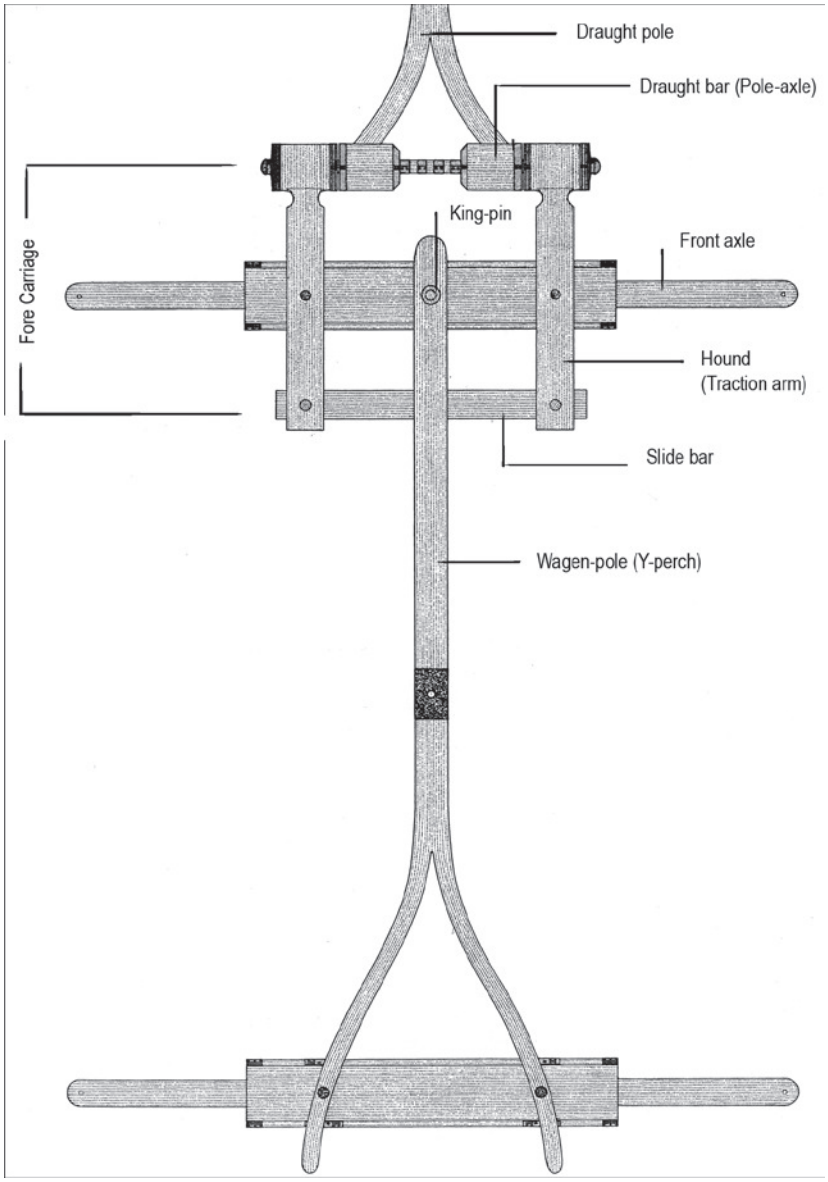

Fig. 1a-b *Vix, tumulus grave. Parts of wagon, as reconstructed by M. Egg and A. France-Lanord (after: Egg and France-Lanord 2003, fig. 17: above and middle; technical terms added).*

to the axle and still to clear the front edge of the floor as it swings, the axle would have to be placed lower than the wagon floor. In other words, an undercarriage would be needed (for this and other terms, see **Fig. 1** and below). A factor to be considered with a swiveling axle is the danger of the rims of the front wheels running into the edges of the floor during turns. This may be obviated in one of three ways: there may be a mechanism to limit the degree of turning, as on modern vehicles; the floor may be raised so high over the front wheels that it completely clears them; or the diameter of the wheels may be so small and the axles so long that there is little likelihood of the wheel rims running

into the floor[4]. In most reconstructions of Hallstatt wagons the vehicle body is resting directly on the undercarriage. However, there is evidence that sometimes the body was raised over it on (tall) metal posts. The undercarriage, which supports the body, consists of the fore carriage - itself formed by the front axle, draught-bar (also called pole-axle), the two hounds (also called traction arms) and the slide bar - the rear axle and the wagon-pole (also called perch). The latter is a central bar joining the front and rear axles and bifurcating at the rear junction (whence the often used name Y-perch), in order to help keep the rear axle at right angles. The front axle, and the fore carriage as a whole, could swivel on a kingpin, a vertical metal bolt passing either through the centre of the axle.

The straight or forked rear end of the central draught pole hinged up and down the draught-bar of the fore carriage. On a four-wheeler a draught pole with vertical play is essential, because rigid attachment would turn the wagon and pole into a single, long, rigid body. Although this might function adequately on smooth and level going at slow gaits, uneven ground would immediately create difficulties. Front and back wheels would be alternately suspended in the air, putting stress on the wagon frame, on the area of attachment of the pole and wagon and of the pole and yoke, and pressure on the neck of the animals. A wagon with a vertically articulating draught pole, however, may tilt independently, at a different angle from the pole, and thus the entire equipage adapts itself better to the terrain. In this way four-wheelers are quite unlike two-wheelers which require a fixed pole supporting the vehicle[5].

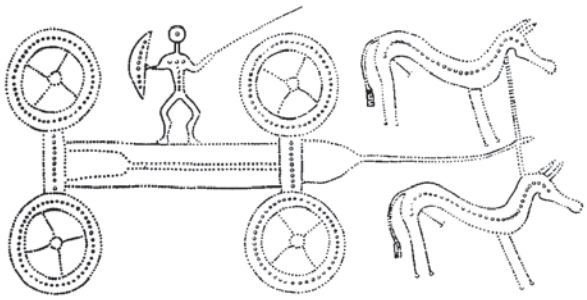

Fig. 2 *Hochdorf, tumulus grave. Incised wagon scene on bronze couch (after: Pare 1992, fig. 142).*

The spoked wheels had diameters ranging from 0.70 to 0.95 m, to judge from the size of their iron hoop-tyres. The latter also indicate that the front wheels were of the same size as the rear ones. The wheels revolved on fixed axles and were held on by linch pins, the latter passing through the axle ends which often carried bronze caps. The spokes, their number varying from six to sixteen, were inserted into a projecting, cylindrical nave which carried simple metal hoops at the ends to prevent splitting, or was entirely cased in bronze, with openings for the spokes to pass through. There were different types of wooden felloe, consisting of one or two layers of wood and held together with the help of clamps. The running surfaces of the wheels were protected by iron hoop-tyres, held in place by nails.

The vehicles were equipped with the traditional pole-and-yoke draught system for paired animals, probably horses. These are seen on contemporary figured documents which also illustrate - in plan view - the Y-perch and forked pole **(Fig. 2)**[6]. Some of the vehicles have particularly rich metal decoration at the rear side of the body, which may be raised higher than the other sides. Traces

4. See Littauer and Crouwel 2002, 352-3.
5. See Littauer and Crouwel 2002, 362.
6. Pare 1992, 204, 206-8, figs. 142 (our **Fig. 2**), 143-5; also Piggott 1983, 149-52, figs. 91-92, 94-96.

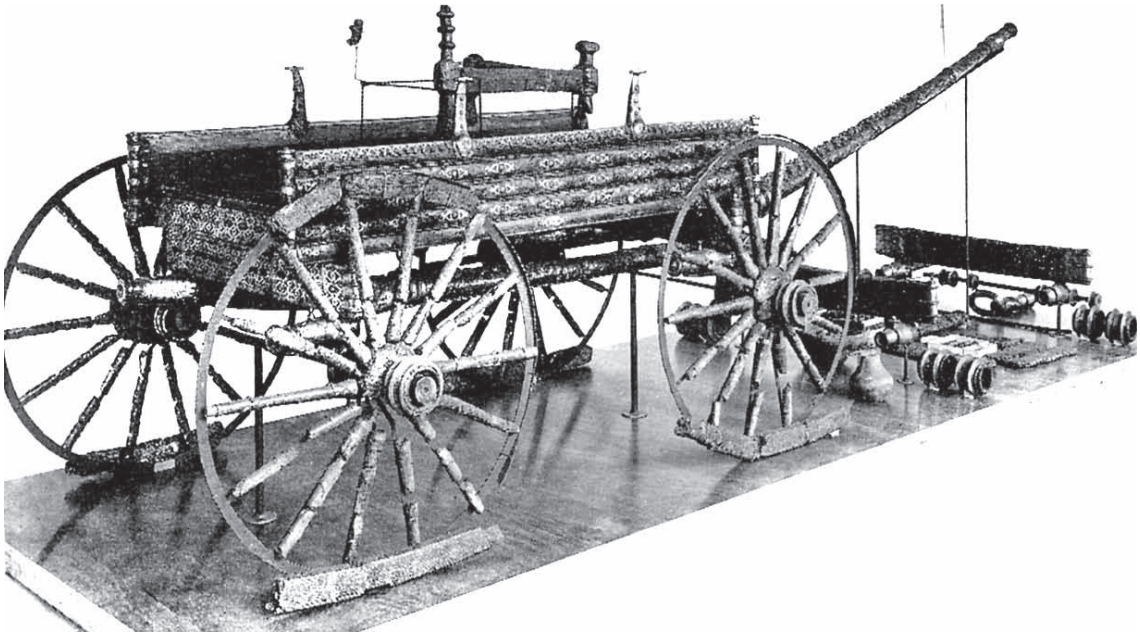

Fig. 3 *Dejbjerg, peat-bog. Wagon, as reconstructed (after: Piggott 1983, fig. 141).*

of wear on functional metal parts indicate that the vehicles had been used -surely for ceremonial purposes- before being buried.

The Hallstatt wagons have a counterpart in a vehicle that was buried in a rich tomb at Ca'Morta near Lake Como, variously dated to ca. 500 and 475-450 BC[7]. The metal parts of the Ca'Morta wagon, in common with some of the Hallstatt vehicles, show considerable wear, thus pointing to repeated use before being buried. The four-wheelers from pre-Roman Italy, represented by a few other tomb finds and figured documents, appear to have been rather differently constructed[8].

There is funerary evidence to show that the Hallstatt tradition of burying ornate four-wheeled vehicles in richly furnished graves continued in the subsequent La Tène period (5th-1st centuries BC) in different parts of Europe[9]. It may be noted that burials with two-wheelers are now much more common, while in vehicle graves of the Hallstatt period wagons predominate[10].

Particularly informative is a find from a peat bog near Dejbjerg in western Jutland (Denmark), probably dating to the 1st century BC. Of the two dismantled wagons found, one could be reliably reconstructed, again chiefly on the basis of its metal parts **(Fig. 3).** It had an undercarriage with a Y-perch and pivoting front axle, as well as a forked, vertically articulating pole - all to remain salient features of wagon construction in Europe[11]. The wheels had 12 to 14 spokes and a diameter of

7. See a.o. Piggott 1983, 183-4; Pare 1992, 2, 82, 86, 100, 105, 128-32, fig. 95, pls. 133-134.
8. See a.o. Emiliozzi 1977, 320 no. 102 (Cerveteri, Sorbo cemetery, Tomba Regolini Galassi) and 325 no. 152 (Veii, Monte Michele tomb 5). For pre-Roman representations of wagons, see Pare 1992, figs. 147-48. The present author is finishing a monograph on chariots, carts and wagons in Italy prior to the period of the Roman Empire.
9. See especially Schönfelder 2002 (fig. 187: distribution map).
10. Among the vehicle burials listed by Schönfelder (2002, 371-91) are only eight of wagons.
11. For the Dejbjerg wagon and technical aspects of the undercarriage, see Hayen 1983, especially 457-9; Piggott 983,

0.95 m. Their iron hoop-tyres did not have fastening nails and must have been secured merely by 'sweating-on', i.e. "raised to red heat so as to expand to enable to be fitted over the wheel, and by its subsequent contraction to hold tightly in position its felloe and other wooden parts"[12]. Such nailless tyres became common by the later part of the La Tène period. With its many metal elements, decorated siding and seat, the Dejbjerg vehicle must have been used for carrying persons at ceremonial occasions.

A variety of sources point to the wide use of wagons (and carts) in the Roman imperial period - in the Italian heartland as well as the provinces - for ceremonial and more work-a-day purposes[13]. The evidence consists of actual, mostly metal, remains from funerary and other contexts, but also of numerous profile representations in various artistic media. There are also many written sources for vehicles other than chariots, denoted by a variety of terms, several of which are of Celtic rather than Latin origin. However, the textual references need to be used with caution, since the number of wheels is rarely explicitly stated, leaving uncertain whether wagons or carts are intended[14]. On the other hand, they do indicate that wagons and/or carts were used for transport in agriculture, traffic in and around towns and cities, and for travelling. Physical remains confirm that, although not primarily designed for this kind of traffic, Roman roads and streets were often suitable for wheeled vehicles[15].

Let us start with Italy in our brief survey of what four-wheeled vehicles were like in Roman imperial times. Remains of two wagons have been found in the so-called Villa of Ariadne at Stabia in the Gulf of Naples which was destroyed by the eruption of Mt. Vesuvius in 79 AD. One of the vehicles has been (partly) reconstructed, once again with the help of surviving metal parts **(Fig. 4)**[16]. The basic construction is clearly similar to that of the Dejbjerg and Hallstatt vehicles. The vehicle body has been calculated as measuring 1.60 by 0.77 m, and the wheels as having had ten spokes. The relatively large diameter of all four wheels (0.117 m) derives from the iron hoop-tyres which, like those of the Dejbjerg wagon, have no fastening nails and must have been 'sweated-on'.

As reconstructed on paper, the body of the Stabia wagon is raised over the undercarriage by wooden axle blocks and the connection between these and the wagon pole is strengthened by two iron bars or spanners running at oblique angles (**Fig. 4**, nos. 26 and 33). Similar spanners, with spiral endings, have been found among other wagon remains and are indicated on a few figured documents from other parts of the Roman Empire[17]. In the reconstruction drawings of this vehicle, the draught pole unrealistically cannot move up and down. The iron bar (**Fig. 4**, no. 11), which in the

12. Quoted from Piggott 1983, 167.
13. There are as yet no overviews of wagons and other vehicles of the Roman imperial period. At the University of Amsterdam, M. van Leusen has written his MA thesis (1989; unpublished) on vehicles in Roman Italy, and M. Nieuwe Weme her BA thesis on developments of harness systems in the later Roman and early medieval world (2003; unpublished), while T. Doorewaard is finishing her doctoral dissertation *Karen en Wagens. Constructie en gebruik van voertuigen in Gallia en de Rijn-Donau provincies* (2010; as yet unpublised). As academic supervisor in each case I have learned a great deal from their researches.
14. Two Celtic loan-words in particular appear to refer to four-wheelers; see *s.v. carruca* and *raeda/reda* in *Daremberg - Saglio* and *RE*.
15. See a.o. Chevallier 1976; Bender 1978; Junkelmann 1990, 77-85; Casson 1994, 163-225; White 1984, 93-100; Heinz 2003; van Tilburg 2007.
16. Miniero 1987 (for the other wagon, see 172 n. 5, fig. 5).
17. Kiss 1989, 29-30 and nos. 16, 21, 84, 87-8, figs. 19-21, 41-8, 50-2 (wagon from Kozármisleny, Hungary); Visy 1993, 286-97, 321 with figs. 9-10, 12, 23 (Neupotz on the Rhine and other find places); Raepsaet 1982, no. 30, pl., 12:1 (stone relief from Koblenz).

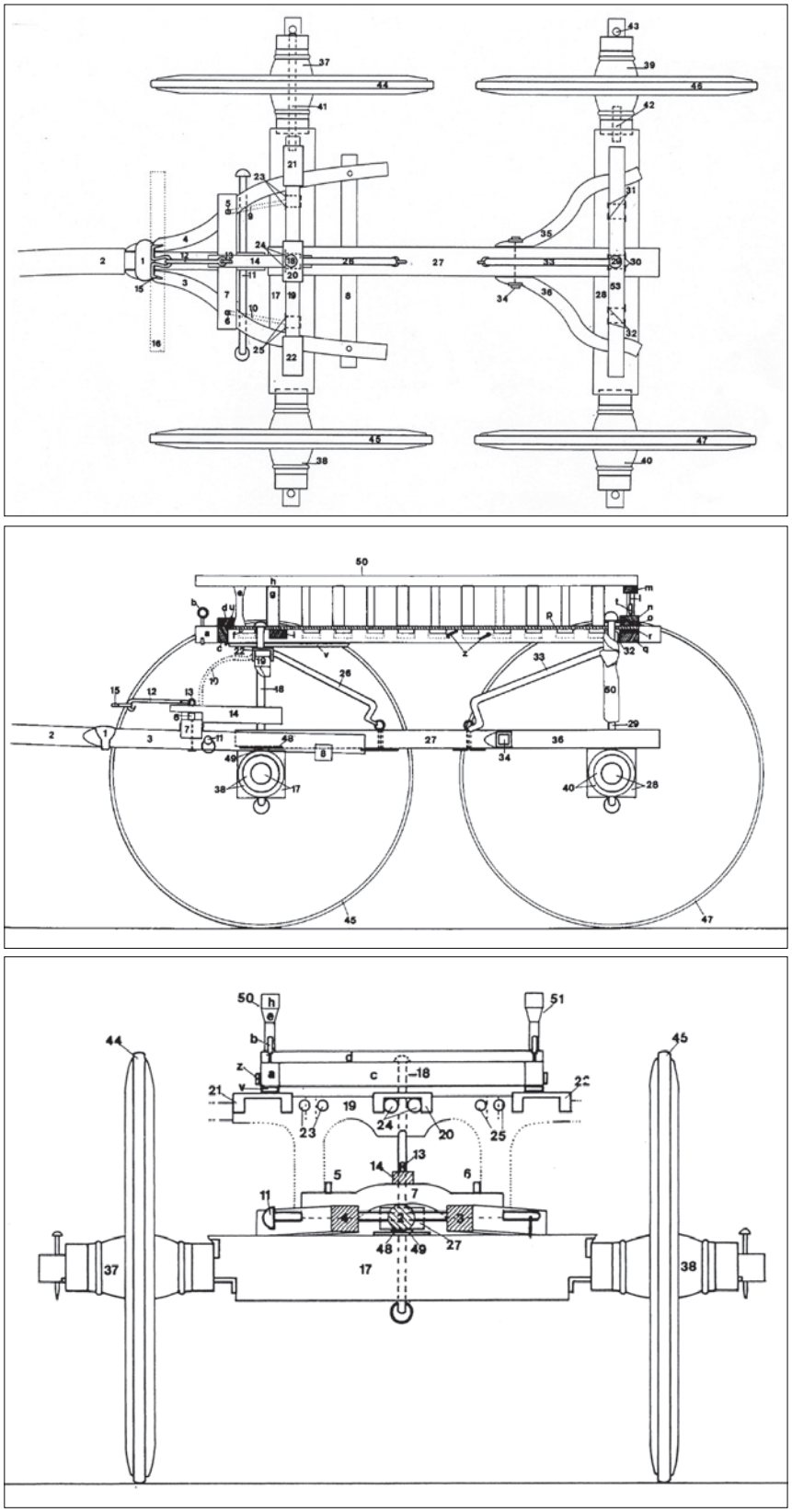

Fig. 4a-c *Stabia, so-called Villa of Ariadne. Parts of wagon 1, as reconstructed by S. Miniero (after: Miniero 1987, figs. 7a-b and 13).*

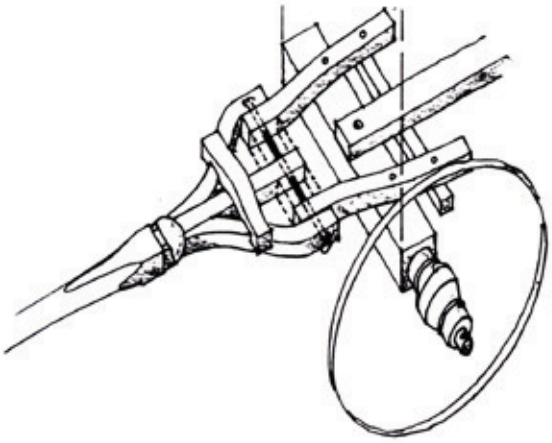

Fig. 5 *Stabia, so-called Villa of Ariadne. Part of wagon 1, as reconstructed by van M. Leusen (after: van Leusen 1989, drawing F).*

Fig. 6 *Ostia, Baths of the Cisium-drivers (Terme dei Cisiari). Detail of floor mosaic (after: Becatti 1961, pl. 107).*

reconstruction has no apparent function, could very well have served this purpose **(Fig. 5)**[18]. The vehicle from Stabia apparently had a low siding consisting of a horizontal rail supported by a number of vertical posts. A railwork siding is a frequent feature of the spoke-wheeled wagons (and carts) depicted on figured documents from Italy and other parts of the Roman Empire. The vehicles were clearly multifunctional: they are not only depicted carrying seated persons - a driver at the front, alone or accompanied by one or two passengers who are placed side by side or one behind the other **(Figs. 6, 7)** - but also transporting barrels or other loads **(Fig. 8).** Other such wagons are shown empty **(Fig. 9)**[19].

The vehicle remains from the villa at Stabia were found together with two iron bridle bits and a variety of bronze horse gear, indicating paired horse draught. A tomb at Kozármisleny in the Roman province of Pannonia (roughly the western part of present-day Hungary) yielded not only the remains of a bronze-decorated four-wheeled vehicle, bronze bridle bits and other gear, but also of the two draught horses[20]. One of the animals was 4 to 4.5 years-old, the other somewhat younger. In size they fall within today's "large pony" range, the official upper limit being a withers' height of 1.47 m.

The wagons with a railwork or other siding seen in the figured documents may be similarly drawn by horses or by mules and controlled by a driver holding reins and a whip **(Figs. 6-8).** Other such vehicles are pulled by teams of oxen (castrated bulls), animals that provide the slow but strong and steady traction which is particularly welcome in heavy transport **(Fig. 9)**[21]. In this case control is by a driver holding only a stick or goad.

18. van Leusen 1989, 62, drawing F (our fig. 5, revising Miniero 1987, fig. 7a).
19. See also a.o. Zimmer 1982, no. 196 (tombstone from northern Italy), cf. nos. 197 (tombstone, also from northern Italy) and 195 (another tombstone from the area of Beneventum in central Italy); Raepsaet 1982, pls. 6:1 (no. 16: funerary monument of the Secundini at Igel near Trier), 11:3 (no. 29: tombstone from Strasbourg), 12:2 (no. 32: tombstone from Baden-Baden), also pl. B.
20. Kiss 1989, with an osteological report on the draught horses by S. Bökönyi (53-62).
21. Another example can be seen on a mosaic from a villa at Boscéaz near Orbe, west of Lake Neuchâtel in Switzerland (see a.o. Miniero 1987, 209 n. 57, fig. 38; Visy 1993, fig. 22). For the use of paired oxen, under a neck or horn yoke, with wheeled vehicles and ploughs, see Molin 1987-1988, 43-49.

In most cases the animals are paired, and traditionally yoked on either side of a central draught pole. An explicit example is provided by a restored wall painting from Pompeii **(Fig. 10)**[22]. Here the team of two mules is not harnessed to the wagon which has a railwork siding and carries a large wine sack with a tied spigot. The artist thereby provides a rare view of the forward end of the draught pole and of the yoke which is shaped into bays to fit the animals' necks. A similar unharnessed wagon with draught pole and shaped yoke, again associated with mules, can be made out in a damaged portion of a floor mosaic from Ostia, the port of Rome. The mosaic, dated to ca. 120 AD, is situated in the *frigidarium* of the Baths of the Cisium-drivers (*Terme dei Cisiari*) near the Porta Romana[23]. It also shows a pair of mules led by a man on foot, and two harnessed wagons with railwork siding. One of these vehicles carries three persons and is pulled by two mules **(Fig. 6).** The other, with only a driver, is drawn by a single mule between shafts **(Fig. 7).** Here we have a representation of a new type of traction and harness system that in medieval times in Europe was to develop into economical, efficient single horse draught[24].

From Roman Italy there is one other profile representation of a four-wheeler with shaft harness. It occurs on the tombstone of M. Viriatius Zosimus which has been attributed to the time of the Flavian emperors (71-96 AD) and is presently in the Museo Maffeiano in Verona **(Fig. 11)**[25]. The wagon, without a railwork siding, carries a driver and a passenger, and is

Fig. 7 *Ostia, Baths of the Cisium-drivers (Terme dei Cisiari). Detail of floor mosaic (after: Becatti 1961, pl. 108).*

Fig. 8 *Augsburg, tombstone (after: Crouwel 1997, fig. 83).*

22. From a *caupona* (tavern) on the Via Mercurio in Regio VI 10, 1; see *PPM* IV. *Regio VI. Parte prima* (Roma 1993), 1008-9, figs. 5-6 (also Junkelmann 1990, fig. 73), cf. 1019, fig. 23 (also a.o. Jashemski 1979, 218, fig. 326; Miniero 1987, 209 n. 56, fig. 39): colour illustration of a similar scene from the same building, this time involving horse draught, in which the undercarriage of the wagon and the (forked) rear end of the draught pole are incorrectly restored. At Pompei, metal remains of an actual wagon were found in the Casa del Fabro (Regio I 10, 7); see Allison 2006, 344, 190 no. 1351, possibly also 278 nos. 51-53 and 282 no. 127, with pl. 88:1 showing a highly questionable reconstruction.
23. In Regio II, Is. II. See Becatti 1961, 42-4 no. 64, pls. 107-108; Molin 1987-1988, 64, fig. 18: Junkelmann 1990, fig. 81; Ling 1998, 45, fig. 30; Raepsaet 2002, 223, 225, figs. 120-121.
24. Spruytte 1983, 17-9, 126-27; Wegener Sleeswyk 1992, 75-6; Rommelaere 1995; also Littauer and Crouwel 1979, 9; J. Weller, Internet website "Roman traction systems", http://www.humanist.de/rome/wagon.html.
25. Molin 1987-1988, 64, fig. 17; Molin 1995, 71, fig. 9; Raepsaet 2002, 225, 227, fig. 123.

Fig. 9 *Detail of tombstone, acquired in Smyrna (Izmir) (after: Pfuhl and Möbius 1977-1979, pl. 177, no. 1175).*

pulled by what looks like a horse. The shafts here are not short and straight, as on the Ostia mosaic, but long and with a sharply upward-curving forward end.

As in the case of wagons, most of the two-wheeled vehicles depicted on figured documents from Roman Italy have the traditional pole-and-yoke traction system. But there are also some carts with shaft harness. They include the vehicle depicted on the tombstone of C. Valerius Ismarus, again in Verona, where the forward end of the shaft is similarly upturned **(Fig. 12)**[26]. Shaft harness recurs on some other tombstones and sarcophagi from northern and central Italy, where it is associated with children's pleasure carts drawn by small animals, mainly rams[27].

Most of the carts illustrated in figured documents from the western provinces of Gallia and Germania Superior have shaft harness. In contrast, the wagons from these provinces all feature the pole-and-yoke traction system[28], as do the vehicles - wagons as well as carts - that are represented on numerous tombstones from the Danube provinces, especially Pannonia[29].

The shafts of carts in the western provinces have a sharply upward-curving forward end, exactly like those of the cart and wagon on the tombstones of M. Viriatus Zosimus and C. Valerius Ismarus from northern Italy.

The shafts are often depicted together with a girth, i.e. a strap encircling the thorax of the draught animal **(Fig. 8).** This strap helped to keep the shafts in place, and may also have acted as a braking device.

26. Molin 1987-1988, 64, fig. 17; Molin 1995, 71, fig. 9; Raepsaet 2002, 225, 227, fig. 123.
27. Molin 1987-1988, 64, figs. 15-16 (two damaged tombstones in Turin); Molin 1995; Gabelmann 1983, 146-50, figs. 3 (sarcophagus of M. Aufidus Fronto in Pesaro in east-central Italy) and 4 (fragment of tombstone in Verona). Weber 1978, pl. 31:1 (sarcophagus in Rome). The unprovenanced sarcophagus of M. Cornelius Statius in the Louvre in Paris shows a goat-drawn chariot with shaft harness, driven by a standing boy (Baratte and Metzger 1985, 29-31 no. 3; also Vigneron 1968, pl. 55b; Molin 1987-1988, fig. 29). Some wall paintings with fantastic scenes from Herculaneum and Pompeii associate shaft harness with griffins, birds, etc.; see Molin 1987-1988, 62 with n. 147 (references).
28. See especially Raepsaet 1982, 1995, and 2002, 241-54; Molin 1987-1988, figs. 21-28.
29. See especially Visy 1997.

At the front, the shafts were held up by what is variously called a single-animal yoke or a yoke fork, lying across the neck ahead of the withers. The shafts were kept forward by a strap passing around the neck which also held the yoke fork in place. Instead of a neck strap, there could be a single or double U-shaped element made of iron and with oval wooden pads at its ends. Both the iron element and wooden pads are materially documented **(Fig. 13),** and they are indicated on several detailed profile representations **(Fig. 14)** from different parts of the Roman Empire, perhaps including Italy **(Fig. 15)**[30]. The draught animal would have exerted traction by pressing with its neck muscles rather than its shoulder blades against the pads, leaving its neck free from physical contact with the iron element. The pads were later developed into the hames that are the main elements of modern collar harness[31]. It should be noted that in the western Roman provinces the same harnessing appears to have been used for wagons and carts alike, with single horses (or mules) between shafts, and with two such animals on either side of a central draught pole[32].

In the western provinces the single or paired horses or mules under yoke are often depicted as accompanied by an extra such animal **(Figs. 14, 19)**[33]. This so-called outrigger, which carried its own yoke fork and like the others was controlled with the help of reins passing through rings or terrets attached to the yoke or yoke fork, cannot have exerted much pulling power. Instead, it must have

Fig. 10 *Pompeii, tavern on the Via Mercurio. Detail of wall painting (after: Junkelmann 1990, fig. 73).*

Fig. 11 *Detail of tombstone of M. Viriatius Zosimus (after: Molin 1987-1988, fig. 14).*

Fig. 12 *Detail of tombstone of C. Valerius Ismarus (after: Molin 1987-1988, 63, fig. 17).*

30. See a.o. Junkelmann 1990, 72-5; Alföldi-Thomas 1993, 331-6 (fig. 5: distribution map of iron U-shaped elements); I am not convinced of their depiction in fig. 3, which illustrates a mule-drawn baggage wagon on the Column of Marcus Aurelius in Rome). For explicit illustrations on tombstones from the western provinces, see Raepsaet 1982.
31. Personal information G. Brownrigg. See a.o. Spruytte 1983, upper ill. p. 16; Wegener Sleeswyk 1992, 73-4, fig. 4.28; also Leighton 1972, 108-12 (medieval horse-collars).
32. Of great importance is a stone relief from Senon in Gallia (Molin 1987-1988, 56, fig. 10) which provides a frontal view of a neck yoke for two animals, its centre and two 'peaked, padded bays crowned by terrets and closely resembling the yoke forks used with shaft harness. I am not convinced that Molin (1987-1988, 52-60) is right in discerning not only neck yokes and shoulder traction but also dorsal yokes and breast traction with wagons drawn by paired horses or mules under yoke depicted in Roman times. For these harness systems, see Spruytte 1983.
33. Molin 1987-1988, 73-75. For illustrations, see again Raepsaet 1982, especially pl. F.

Fig. 13 *Harness parts of iron and wood from Le Rondet, not far from the Murtensee, Switzerland (after: Alföldi-Thomas 1993, fig. 4).*

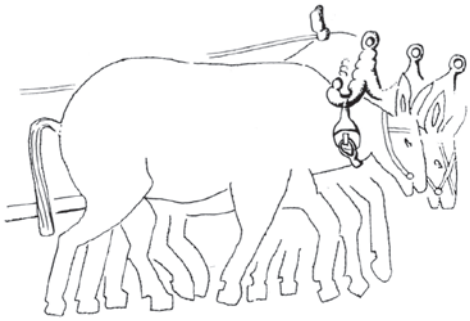

Fig. 14 *Langres. Detail of tombstone (after: Raepsaet 1982, pl. C, no. 34).*

been a replacement animal that came into use when needed.

Mention should be made here of the one instance-a tombstone from Langres in Gallia-where a wagon is depicted with four draught horses, arranged in pairs and with one pair in front of the others[34].

So experiments with harness modifications were certainly taking place in different parts of Europe during the period of the Roman Empire[35]. What is more, the available evidence may well call into question the frequently expressed view that the first appearance of shaft harness in Europe-in Italy and the western provinces-in the 2nd century AD can be traced back to contacts with China, where this type of harness first appears in the Han period (ca. 200 BC - 220 AD)[36].

To return to the construction of four-wheeled vehicles in the Roman Empire, profile representations show that the railwork siding may be in one or two tiers, or combined with a solid lower part[37]. There are also several figured documents where the human or other load is shown entirely above what looks like a very thick platform rather than a railwork or solid siding. This must have been for clarity's sake, since such a thick platform is unrealistic. Among these representations are various tombstones from Pannonia, as well as reliefs on the Column of emperor Marcus Aurelius (161-180 AD) in Rome. The latter show wagons as part of the army's baggage train. Some of these have four-spoked wheels and are pulled by paired equids (presumably mules), while others with heavier loads have solid-disk wheels and are ox-drawn **(Fig. 15)**[38].

Wagons - like carts - are essentially convertible. The platform could, by the addition of a suitable superstructure, be adapted to different kinds of transport. Thus, for instance, the Great Hunt mosaic (4th century AD) from a villa at Piazza Armerina on Sicily includes two wagons with boxes specially

34. Raepsaet 1982, pl. 13:3 (no. 36); 2002, 241, fig. 132; Junkelmann 1990, fig. 71. Another representation of a wagon, on a well-known stone relief from Vaison in Gaul (see a.o. Gabelmann 1983, 145-7, fig. 2; Junkelmann 1990, fig. 69), shows too many incongruities to be taken seriously as a document of Roman date.
35. See also concise overview, Spruytte 1983, 126-7.
36. See a.o. Needham and Lu 1960; Piggott 1983, 26, 242; 1992, 67-8, 127-30, 137; Bulliet 1975, 197-215; cf. Vigneron 1968, 127-30.
37. See e.g. Treue 1965, ill. p.164 (stone relief in the Vatican Museums).
38. Caprino et al. 1955, pl. R, above and figs. 111-12 (relief xciii; our fig. 16), pl. R, below and figs. 132-133 (relief cxi), also figs. 38 (reliefs xxxviii-xxix) and 47-48 (relief xxxviii). See also Visy 1997, 75-81 and ills. (Pannonian tombstones).

designed for the transport of captured wild animals[39]. The vehicles have heavy solid-disk wheels and are appropriately drawn by paired oxen.

Some figured documents, from different parts of the Empire, show horse-drawn wagons with a roofed superstructure which may have the form of an arched tilt. (**Fig**. **16** illustrates the covered wagon on a stone relief that was later built into the outer wall of a church at Maria Saal in Carinthia, Austria)[40] . Such a covering, made of leather or fabric, was intended to provide passengers with privacy and/or protection against the elements when travelling. The vehicles are open at the front where the driver is seated, and there may be a doorway in a long side providing easy access for the passengers. In addition, a number of reconstructions of such tilt wagons have been made, either full-scale or on paper. These are partly based on illustrated wagons like that from Maria Saal, but they also incorporate surviving functional and decorative metal elements, mainly from what must have been funerary contexts in Pannonia and Macedonia. In this connection, one such reconstruction, based on metal finds from the Vardar valley in Macedonia, has recently been questioned; the original wagon may well have been open rather than provided with a heavy wooden tilt **(Figs. 17, 18)**[41].

Fig. 15 *Rome, Column of Marcus Aurelius. Detail of relief cxiii (after: Alföldi-Thomas 1993, fig. 3).*

Fig. 16 *Stone relief, built into the outer wall of a church at Maria Saal in Carinthia, Austria (after: Weber 1986, ill. p. 100).*

39. Carandini-Ricci and de Vos 1982, foglio XXVIII and XXX; Ling 1998, 94, fig. 68.
40. Maria Saal: a.o. Junkelmann 1990, fig. 70; Weber 1986, ill. p. 100; Röring 1983, 14, pl. 8:2; Walde-Psenner 1992. Tombstones from Pannonia: Visy 1997, 81 nos. 7, 59 (also Raepsaet 2002, fig. 126a-b), 61-3. Relief fragment from Arlon in Gallia Belgica: Röring 1983, 13-4, pl. 8:1. The two wagons shown on a children's sarcophagus in Rome are very differently roofed, with a baldachin raised on posts; the vehicles carry seated families and are pulled by paired horses at speed; see Weber 1978, pl. 24:1; Junkelmann 1990, fig. 66.
41. Vardar valley: Röring 1983, 47-60, 181 no. VII 1, Plans 1 (our fig. 17), 2, 3 and 4 and pl. 21:1 (full-size reconstruction, for long on display in Cologne, Römisch-germanisches Museum), and Schleiermacher 1996, 205-20, 227-71 with figs. 5a-b (reconstruction without tilt; our fig. 18); Somodorpuszta: Röring 1983, 60-3, 175 no. IV 5, pls. 23:1-2 and 24:1-2. Poljanec: Röring 1983, 63-4, 175 no. IV 3, pl. 24:3. See also Garbsch 1986, 47-8, figs. 28-30, and Junkelmann 1990, figs. 68, 80 (reconstructed wagon with tilt in Munich, Prähistorische Staatssammlung).
Unfortunately, little is known about the functional and decorative metal parts of a covered wagon that have been reported from a domestic context at Scafati, not far from Pompeii; see *FA* 15 (1963), 306 no. 4513; Röring 1983, 174 no. III 1. For models of wagons with and without a tilt in the Museo della civiltà romana in Rome, see Cagiano de Azevedo 1939, ill. pp. 13 and 17; Pisani Sartorio 1988, figs. 60, 76-77. There are some references to covered vehicles in late Roman texts; see Marquardt 1964, 716 with n. 3.

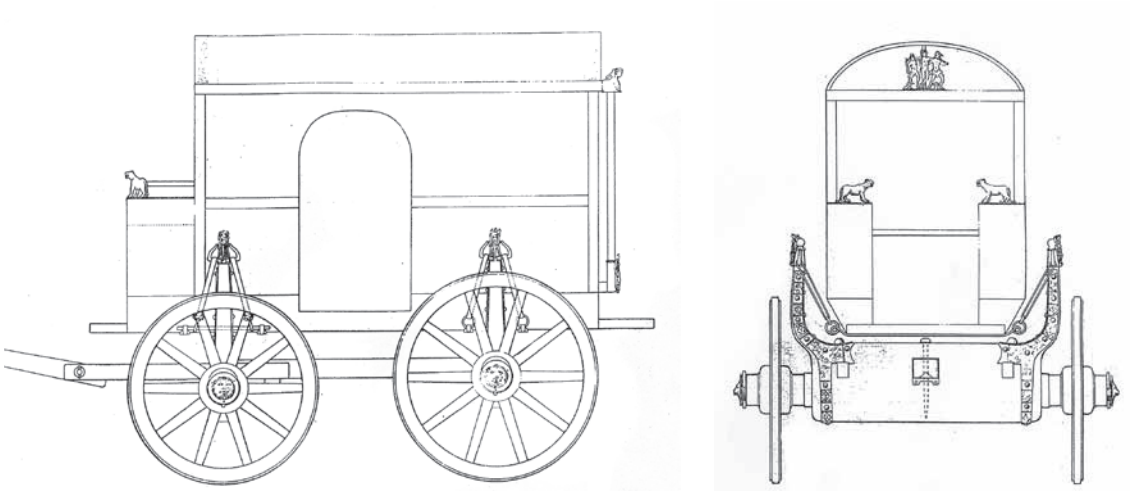

Fig. 17a-b *Vardar valley. Wagon, as reconstructed with an arched tilt by C. Röring (after: Röring 1983, Plan 1).*

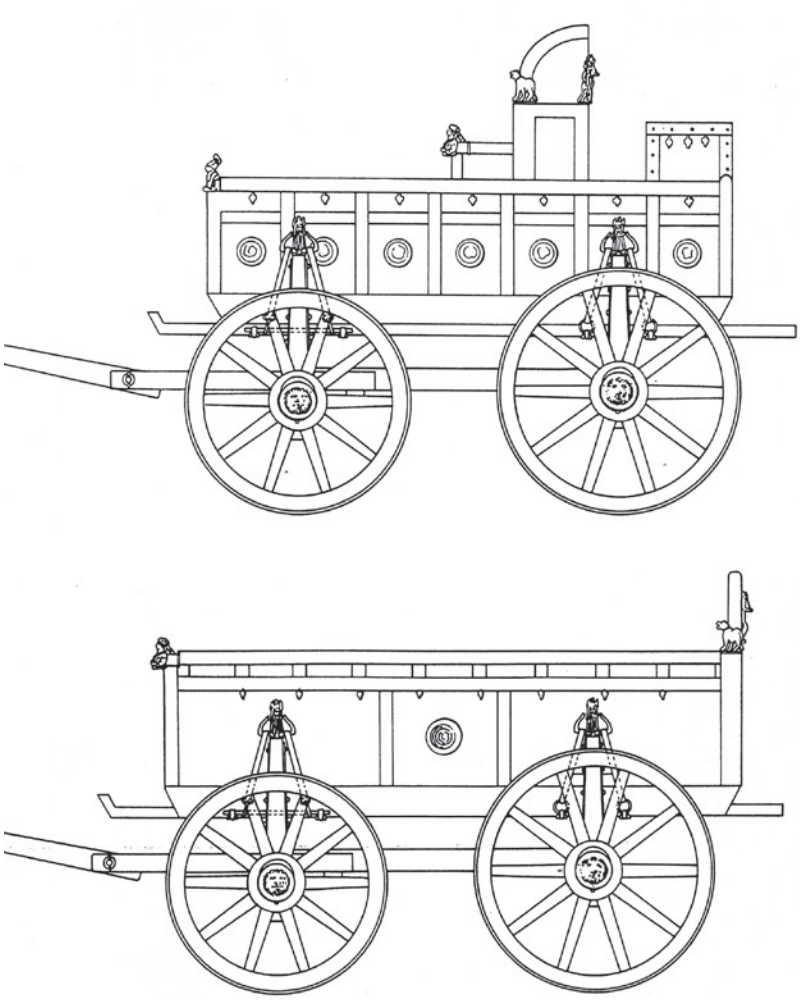

Fig. 18a-b *Vardar valley. Wagon, as reconstructed with and without a seat, by M. Schleiermacher (after: Schleiermacher 1996, fig. 5a-b).*

Among the surviving metal elements from this and other four- and two-wheeled vehicles are bronzes consisting of a hollow socket and one or two hooks or rings on either side. These so-called *Gurthalter* were often decorated and formed part of a construction in which the vehicle body was suspended on leather straps. The socket of the *Gurthalter* or strap holders fitted onto either a vertical, iron-sheathed wooden post or an iron rod (so-called *Kipfe*) which rose from the axle area of the undercarriage of the vehicle. The hooks or rings were for fastening straps which ran down at oblique angles to the bottom of the vehicle **(Figs. 17, 18)**[42].

Actual examples of the *Gurthalter* are known from many parts of the Roman Empire. There are also some from Italy, though none where found with the wagon remains at Stabia. Their presence can also be made out, with varying degrees of certainty, in a few profile representations. These include the Maria Saal relief where the (worn) griffin heads above the tilt wagon's wheels point to decorated strap holders **(Fig. 16)**[43]. The suspension system allowed for sideways movement of the hung vehicle body, lessened road shocks and made for a more comfortable ride in otherwise springless vehicles. As such, it appears to have been used exclusively with four- and two-wheeled vehicles carrying people and not freight.

Several of the wagons (and carts) depicted on figured documents from Italy and other parts of the Roman Empire appear to have only a platform without a siding. Some of these vehicles transport barrels or other loads which would have been strapped to the vehicle. Others carry only people - a driver and one or two passengers seated on cushions, boxes or seats of one kind

Fig. 19 *Viminacium (Kostolatz). Detail of tombstone of L. Bassius Nigellio (after: Junkelmann 1980, fig. 83).*

Fig. 20 *Rome. Detail of the Arch of Constantine (after: Weber 1978, ill. p. 97).*

Fig. 21 *Rome, Catacomb of Praetextatus. Fragment of sarcophagus lid (after: Weber 1978, pl. V, no. 10).*

42. See especially Röring 1983, 12-32 and 101-68 (catalogue); Weber 1986, 106-8; Wegener Sleeswyk 1992, 106-13. See also Kiss 1989, 30 and nos. 18-19, figs. 22-23, 41, 50, 52 (wagon burial from Kozármisleny; see notes 16 and 19).
43. See also Röring 1983, pl. 8:1 (fragment of funerary relief fragment from Arlon, Belgium); Visy 1997, 83 nos. 66-67, possibly also 65 (Pannonian tombstones).

Fig. 22 *Magnesia ad Sipylum. Detail of tombstone (after: Pfuhl and Möbius 1977-1979, pl. 178, no. 1177).*

or another. An example is the vivid scene on the tombstone of an army *speculator* 'scout' called L. Blassius Nigellio, from Viminacium (present-day Kostolacz) in the former Yugoslavia **(Fig. 19)**[44].

One particular kind of seat has the form of a half-round chair (often called *cathedra*), with a high backrest and sometimes armrests too, which accommodates one or two people. The vehicles - wagons as well as carts - with a chair and of this kind and with a driver seated at the front are frequently referred to as *Sesselwagen* **(Figs. 20, 21)**[45]. Representations of such vehicles frequently occur on sarcophagi from Roman Italy. Here, the draught animals are usually horses, more rarely mules. Rams are also illustrated, but always with *Sesselwagen* carrying children[46]. Horse-drawn wagons with and without a siding but with similar looking chairs appear on several reliefs from other parts of the Empire **(Fig. 22)**[47].

According to figured and textual documents, among the users of such conveyances in late antiquity were high dignitaries and the emperor himself. Thus, the Triumphal Arches of Constantine (306-337 AD) in Rome and of Galerius (293-311 AD) in Thessaloniki show these rulers seated in decorated chairs and riding in a decorated four- and two-wheeled *Sesselwagen* respectively **(Fig. 20)**[48]. Interestingly, some of the many wagons depicted on Roman sarcophagi have what look like one or two short vertical posts rising from the near side of the platform **(Fig. 21)**[49]. These may have helped prevent the (removable) chairs from sliding off the open wagon platform.

So far in this brief overview of four-wheeled vehicles in the Roman Empire I have discussed their construction, the ways their draught animals were harnessed and controlled, and the use to

44. Junkelmann 1990, fig. 83; Casson 1994, 183, fig. 13; Visy 1997, no. 70.
45. See esp. Weber 1978, with many ills.; 1986, 99; 1991, 15-20; Himmelmann 1973, pls. 50-55, 58.
46. Himmelmann 1973, pl. 55a; Weber 1978, pls. 13:1 (no. 19), 31:1 and 2 (two-wheelers, one of them with shaft harness). Cf. Gabelmann 1983, 147, fig. 4 (tombstone in Verona showing another two-wheeler with shaft harness, but pulled by an animal of uncertain species).
47. See a.o. Raepsaet 1982, pl. 12:3 (no. 33: votive relief from Beihingen in Württenberg; also Junkelmann 1990, fig. 82). Visy 1997, 87-9, a.o. nos. 20-21, 29, 34, 37, 39-40, 42, 47-56, 64, 72-73 (tombstones from Pannonia).
48. L'Orange and von Gerkan 1939, pls. 3b and 12a (also Weber 1978, pl. 21:1; 1986, ill. p. 97; 1991, fig. 2), cf. pls. 3a and 6a (another, simpler wagon carrying what have been described, pp. 54 and 57, as two officers and their driver). Laubscher 1975, pls. 46, 48:1 (also Weber 1978, pls. 21:2 and 22:1; 1991, fig. 1). For textual sources on the use of vehicles by grandees in late antiquity, see especially Alföldi 1970, 106-10; Castritius 1971; Weber 1983 and 1991. Illustrations of four-wheeled *Sesselwagen* appear in the so-called *Notitia Dignitatum*, an originally 5th century Roman document listing civilian and military dignitaries but known only through copies of the Renaissance period; see a.o. Weber 1978, 46, pl. 23; 1991, 19, fig. 6.
49. See also Weber 1978, 46, pls. 3:2 (no. 6), 4:1 and 3 (nos.7, 9), 16:1 (no. 25) and possibly also 11 (no. 16). The alternative interpretation - the posts indicating the presence of the suspension system discussed above - seems less likely.

which the equipages were put. One function that has not yet been mentioned is that as hearse, to carry a dead body or ashes to the burial place. The former is never illustrated, while wagons carrying ash containers may perhaps been seen on some of the Pannonian tombstones[50].

It has also been claimed in preliminary reports on the newly discovered vehicles from Mikri-Doxipara-Zoni in Thrace that they had been used as hearses[51]. Whether or not this was the case, the five vehicles, at least four of them wagons of which one may have been covered, are unique in several respects: their large number from a single burial mound, their excellent state of preservation (along with that of the accompanying draught teams), and the high skills with which they have been excavated and conserved. The full study and publication offers great possibilities for a deeper understanding of four-wheeled vehicles in the Roman world. The new finds are certainly a most valuable addition to the already extensive corpus of vehicle burials in Thrace and other parts of the Roman Empire[52]. Significantly, however, such burials of that period have so far not come to light in the Italian heartland.

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50. So Visy 1997, 84-7.
51. Triantaphyllos and Terzopoulou 2003.Triantaphyllos and Terzopoulou 2005. For the horses 13 in all from the tumulus, see Trantalidou 2005.
52. See especially Venedikov 1960; Röring 1983, 175-81 with distribution maps 1-4; Boube-Piccot 1980, 391-9, Appendix I with Tableaux I-VII (fig. 38: distribution map). For references to recent additions, see Triantaphyllos and Terzopoulou 2003, 8 n. 30, and 2005, 23 n. 39.

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ΤΕΤΡΑΤΡΟΧΑ ΟΧΗΜΑΤΑ ΣΤΟΝ ΡΩΜΑΪΚΟ ΚΟΣΜΟ

Στο κείμενο παρουσιάζονται συνοπτικά τα τετράτροχα οχήματα που ήταν σε χρήση στην επικράτεια της ρωμαϊκής αυτοκρατορίας. Τα στοιχεία για τα οχήματα αυτά (τα οποία πρέπει να αποκαλούμε άμαξες) προέρχονται από τα ίδια τα αρχαιολογικά ευρήματα, κυρίως μεταλλικά αντικείμενα που έχουν βρεθεί σε ταφικά ή άλλου είδους σύνολα, αλλά και από πολυάριθμες παραστάσεις. Υπάρχουν επίσης αρκετές αναφορές σε αρχαία κείμενα, οι οποίες χαρακτηρίζονται από τη χρήση μιας ποικιλίας όρων. Δυστυχώς, συχνά είναι δύσκολο να αποφασίσουμε αν το όχημα που αναφέρεται στο γραπτό κείμενο είναι δίτροχο ή τετράτροχο.

Τα διαθέσιμα στοιχεία αποδεικνύουν ότι κατά τη διάρκεια της αυτοκρατορικής περιόδου γινόταν ευρεία χρήση δίτροχων και τετράτροχων οχημάτων για καθημερινές εργασίες ή τελετουργικούς σκοπούς, τόσο στην Ιταλία όσο και στις επαρχίες. Τα οχήματα δεν μετέφεραν μόνο επιβάτες που κάθονταν. Τόσο τα δίτροχα, όσο και τα τετράτροχα χρησιμοποιούνταν για τη μεταφορά φορτίων με μεγάλο βάρος ή όγκο.

Στο κείμενο παρουσιάζεται η σύνθετη κατασκευαστική δομή των αμαξών και γίνονται συγκρίσεις με τα τετράτροχα οχήματα αρχαιότερων χρόνων που έχουν βρεθεί στην Ευρώπη. Σχολιάζεται, για παράδειγμα, το γεγονός ότι ο άξονας δεν ήταν στερεωμένος στο πλαίσιο της άμαξας, αλλά μπορούσε να περιστραφεί, και με τον τρόπο αυτόν να διευκολύνει τη στροφή των οχημάτων όταν ήταν σε κίνηση.

Ένα άλλο ζήτημα που αναλύεται είναι ο τρόπος ζεύξης των υποζυγίων. Στις περισσότερες περιπτώσεις τα υποζύγια (άλογα, ημίονοι ή βόδια) χρησιμοποιούνταν σε ζεύγη, που προσδένονταν εκατέρωθεν ενός κεντρικού ρυμού. Υπάρχουν όμως στοιχεία που αποδεικνύουν ότι υπήρχαν δίτροχα και τετράτροχα οχήματα, τα οποία σύρονταν από ένα υποζύγιο, άλογο ή ημίονο ζεμένο μεταξύ δύο ρυμών. Αυτός ήταν ένας νέος τρόπος, ο οποίος επρόκειτο να εξελιχθεί περαιτέρω κατά τη διάρκεια των μεσαιωνικών στην Ευρώπη, και να οδηγήσει σε μια πιο οικονομική και αποτελεσματική ζεύξη, που απαιτούσε τη χρήση ενός μόνο υποζυγίου.

Η σύντομη επισκόπηση που επιχειρείται στο κείμενο, έχει ως στόχο να πλαισιώσει με κάποια ευρύτερα στοιχεία τα εντυπωσιακά ευρήματα του πρώιμου 2 ου αι. μ.Χ. από τον ταφικό τύμβο της Μικρής Δοξιπάρας-Ζώνη. Όπως γνωρίζουμε από τις εξαιρετικές προκαταρκτικές παρουσιάσεις, τα υπολείμματα των πέντε αμαξών και των υποζυγίων τους βρέθηκαν σε έναν ταφικό τύμβο, ερευνήθηκαν και συντηρήθηκαν με προσοχή. Όταν η δημοσίευση τους ολοκληρωθεί, τα ευρήματα αυτά θα συνεισφέρουν καθοριστικά στην εμβάθυνση των γνώσεων μας για τα τετράτροχα οχήματα και τη χρήση τους στον ρωμαϊκό κόσμο.

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