MAPS WITHIN TEXTS: THE ARTEMIDORUS PAPYRUS

ABSTRACT. The map in the Artemidorus Papyrus is a modern forgery. No classical source refers to maps accompanying texts. The logistics of producing the map as it survives make no sense. No evidence exists for maps (or any kind of drawing) as a frontispiece. Finally, just because we "need" maps, does not mean that they did in classical antiquity.

The Artemidorus Papyrus not only has "three lives" but also fulfills three of the fondest wishes of classicists, art historians, and geographers[1]. It preserves: (1) a lost text, (2) the largest extant set of

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[1] A preliminary description with some photographs appeared in Gallazzi and Kramer 1998, followed by a "summary" in English of the information about the map in Kramer 2001, but with the addition of a line drawing of the major section of the map. A publication of the entire papyrus accompanied the catalogue of the exhibition in Turin in Gallazzi and Settis 2006. For a complete summary of the scholarly history of the Artemidorus Papyrus, see: Canfora 2007a, 405-440. The *editio princeps* appeared in 2008, for which see Gallazzi *et al.* For an English exposition: Canfora 2007b with an update in Canfora 2008. For a bilingual German/Italian summary, see Canfora and Bossina 2008. Publications on the papyrus continue at a rapid rate often with the latest findings and views appearing in letters in the Italian and German press. For example: Bossina 2009 with reply by Kramer 2009 to which Canfora 2009 in turn replied. Strophe and antistrophe are compiled online at: http://www.fondazionearte.it/anatomia_del_mondo/index.php?sz=press. All urls were accessed in August 2009. I want to thank A. A. Donohue and M. B. Hollinshead for their comments on various drafts.

artistic sketches, and (3) the subject of this article, the earliest extant Graeco-Roman regional map and moreover one which is placed within a text. While I leave the text *per se* to the papyrologists and I have always thought at least some, if not all, of the drawings are post-Antique, the map within its context of a literary roll presents problems that I avoided, when I last dealt with the relationship between picture and text in classical antiquity[2]. The situation has changed since then, because the map and the papyrus have now been published with excellent color illustrations and a line drawing. Hence I return to the issue of the interplay between picture and text in classical antiquity, but this time with a focus on maps.

First, let me review the information about the Artemidorus Papyrus. It was found together with Greek documentary papyri dating to ca. AD 54-96. Analysis of the papyrus itself places it between 40 BC and AD 85[3]. It is a segment from a roll that is fairly well preserved in some sections, but pretty scrappily in others. Some pieces are non-joining; some join by a "thread". The papyrus currently measures approximately 250 cm. in length and 32.5 cm. in height. The recto preserves in the following order from the left: two heads, text, map, more text, more drawings. The verso contains only drawings. The map takes up an extremely large section of the recto (93.5 x 32.5 cm.), i.e. about one-third, with major gaps on the right and

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[2] Small 2003, 119-121 with the notes on 207-209. For my comments on the Artemidorus Papyrus, see 209 n. 25.

[3] When originally published, the Artemidorus Papyrus was considered to probably date to the first century BC, which remains a possibility. (Kramer 2001, 115.) Scientific testing has been done of both the papyrus and the ink. The papyrus itself dates «with a 95% probability ... to between 40 B.C. and 130 A.D. and a 68% probability that they date back to between 15 A.D. and 85 A.D.» Moreover, «[a]ccording to the results, the Papyrus was definitely not written with iron-gallic ink (which is based on metal salts and was commonly used in the 19th century) but with an ink with a purely organic base». See http://www. infn.it/news/newsen.php?id=457. Also summarized in Settis 2008, 33. In response on both the dating of the papyrus and the composition of the ink, see Vigna 2008, 21-27 and Canfora and Bossina 2008, 116-117.

fairly decent preservation of the central section to the left. It sits be-
tween three columns of text on the left, which do not join with the
map, and two more columns on the right[4]. Each column is a differ-
ent width and is variously preserved, but enough survives of the text
to identify it as the beginning of Book 2 of the *Geography* of Artemi-
dorus of Ephesus, who worked around 100 BC. Since that book is
about Iberia, most scholars believe the map should represent that
area, though the precise part remains unclear.

As preserved, the map divides into three sections with only the
middle section relatively intact[5]. It seems to depict something like
four stacked land masses separated by undulating lines that form ei-
ther rivers or roads. Three groups of buildings depicted in bird's eye
perspective, looking down from the left, are positioned on the top
three portions of land. All the sections have small, roughly drawn
squares generally placed near the defining lines for the land masses.
Sometimes these boxes are very close together (by the bottom build-
ing), sometimes rather regularly placed (following the middle build-
ing on the right), or scattered (the top section). If my description
sounds vague, it is because what is preserved is ambiguous.

At this point a very brief introduction to ancient maps is helpful[6].
Definitions are crucial, because maps not only come in different sizes

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[4] Gallazzi and Kramer (1998, 199) estimate that the map takes up around
seven columns and Kramer (2001, 115) states that it comprises more than twenty
fragments.
[5] Two "reworkings" of the original publication of the map highlight various
interpretations of what represent land and waterways: Kramer 2001, 117 fig. 1
(photograph) and 118 fig. 2 (line drawing); and Rathmann 2007b, 95 fig. 4.
[6] Harley and Woodward (1987) provide the fullest account of ancient map-
making. Dilke (1985) focuses on Greek and Roman maps and wrote extensive
sections in Harley and Woodward. These works give the "standard" account.
Others, especially Brodersen (see Bibliography) and myself included, are more
skeptical. Brodersen (2004, 185) says that «We simply lack the evidence for 'map
consciousness' in the ancient world». On how maps work in general from a cog-
nitive psychology point of view, see Liben 2001.

and shapes, but also include different kinds of information[7]. The way
a map is intended to be used affects what it shows and how. A map
is a graphic or visual depiction of an area that can range from a city
to a region or even the whole world. Ptolemy the Geographer (2nd c.
AD) mentioned only the last two major categories: maps of the world
(oecumene) and regional maps (chorographia)[8]. World maps obvi-
ously depicted the then known world, but only in a general manner.
The earliest extant example is from Babylonia and dates to the sixth
century BC[9]. Regional maps show areas larger than a city but smaller
than the world. The amount of detail included in either of these two
types can range from a simple outline map of the land masses to de-
tails of the interior including rivers, mountains, and settlements. It
may be significant that Ptolemy does not include a category for
plans, which cover the smallest extent[10]. Plans of buildings can be
combined together to make a plan of a whole city, as is the case with
the *Forma Urbis*, the enormous wall-sized map of Rome[11]. The result

[7] Liben 2001, 69-74.
[8] Here I follow Salway 2005, 123 who, in turn, depends on Ptolemy, *Geogra-
phy* 1.1 and cites Berggren and Jones 2000, 57-59 (and with 57 n. 1). Salway
(2005, 120) supplies the vital statistics. Please note that I am only providing
background for the Artemidorus Map and not a complete survey of Graeco-
Roman maps much less those from the greater Mediterranean area.
[9] Harley and Woodward 1987, 114 fig. 6.10. London, British Museum 92867.
[10] Plans occur extremely early in the Near East from ca. 2300 on. Harley and
Woodward 1987, 109-114.
[11] The fragments from the *Forma Urbis* have been digitized and are available
online at: http://formaurbis.stanford.edu/. Also available on this site is an anno-
tated bibliography. For a recent study with bibliography: Trimble 2008. The ear-
lier map of Agrippa is believed to be the predecessor of the *Forma Urbis*. Hänger
(2008, 135) says that «The Map of Agrippa definitely is a map according to mod-
ern standards». It is difficult to understand how he can make that claim, when
not a single piece of this map has survived. Consider, in contrast, Brodersen
(2004, 185): «...depending on which opinion one follows, it [the map of Agrippa]
was a globe or a "large scale map", executed as a mosaic, painted in colour, en-
graved in bronze, or hewn into marble; it was circular, oval, or rectangular, and
it measured 6-10 m in height, 9 m in width and 18 m in height, or 24 m in width

is precision in details, but «the angles of monuments and city sections are occasionally skewed and incorrect»[12]. Because the Artemidorus Map cannot be construed as a plan, I shall exclude plans from further discussion[13].

With these definitions in mind it is now possible to consider the survival of ancient maps in the broad sense that includes both extant physical maps and those referred to in texts. Unfortunately most of the extant free-standing Greek and Roman maps are from the late Empire and are rudimentary from a topographical point of view[14]. One of the rare maps from the early Empire consists of the three fragmentary stone cadasters from Orange (Arausio) dated to AD 77[15]. Cadasters were surveys of land into grids for taxation purposes. The Orange examples preserve not only the grid but also inscriptions recording location co-ordinates and information about rents and tariffs. It is probably significant that Dilke includes the Orange cadasters in the chapter called "Roman Stone Plans"[16]. While the Orange example includes a river and roads, one would never use the cadasters for navigation or wayfinding, since such maps are not portable. In fact that is a distinctive feature of most extant Graeco-Roman maps. They are large, fixed in place, and often have little

and 12 m in height (on a pediment of 5 m), or 75 m wide, but only 4.5 m high. At the top was east, south, or north, and it resembled the *Tabula Peutingeriana*, a schematic medieval *mappamundi*, or an early portolan chart», Also quoted in Albu 2008, 112.

[12] Brodersen 2004, 186-187.

[13] Liben (2001, 76) found a similar result. When queried, most children and adults did not consider plans as a type of map.

[14] On free-standing painted and mosaic maps, see Dilke 1985, 148-153. The best known mosaic map is probably the sixth century mosaic from Madaba in Jordan. See Bowersock 2006, 1-29 with color photograph opposite p. 1 and detail on p. 16. The two photographs in Gallazzi and Settis (2006, 206-207) are sharper.

[15] Dilke 1985, 108-110.

[16] Dilke 1985, 102.

sense of scale[17]. In other words, one of our basic uses of maps, for travel, does not seem paramount in the classical world.

Yet we know that the Greeks and Romans did travel, sometimes extensively especially in the Empire. We even have descriptions of their travels in authors like Herodotus and Pausanias and indirectly in accounts of wars such as those of Julius Caesar. Some writers refer to their travels, as Galen does for his two visits to Lemnos in the second century AD. His first attempt ended in failure, because he did not realize that the island had two cities and he went to the wrong one. Brodersen remarks: «he [Galen] does not even considering looking the details up on a map … this kind of presentation of geographical knowledge simply does not occur to him. … and he certainly does not even mention that drawing a map might perhaps be a better alternative of presenting his newly gained geographical knowledge»[18]. Instead of portable maps they used itineraries, which were lists of the major stopping places (cities, lodgings, places to change horses) and the distances between them. The best known today is the Antonine Itinerary (*Itinerarium Antonini*) from the third century

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[17] Brodersen (2001a and 2004, 186-187) takes an extreme position when he maintains that the concept of scale did not exist. Talbert (2002, 533) chides him on this point: «To attempt making any kind of map by definition requires an awareness of scale, and with the survival of (say) the Marble Plan of Rome and the Orange cadasters, to maintain that Romans altogether lacked this sense surely goes too far». Certainly the second half of Talbert's statement is true. Evidence comes from Vitruvius (1.2), who recommends that the architect know about plans, as well from actual plans that have survived with the dimensions indicated and therefore allowing us to figure out if the plan is to scale or not. See, among others, Wilson Jones 2000, 50-59 with the marble plan of a tomb complex (Perugia, Museo Archeologico) 52 fig. 3.5. On the other hand, it is also "surely" possible to draw both plans and map without any notion of relative size and proportions, especially in the case of a map that covers a sizable, and therefore difficult to measure, distance. Liben (2001, 76) discusses the differences between being able to experience a small space directly compared to a continent (her example).

[18] Brodersen 2001a, 9. Brodersen quotes the full passage on p. 8. It is from: Galen, *De simplicium medicamentorum temperamentis* 9.

AD, which has survived in over twenty copies[19]. More unusual is the set of four silver "goblets" from the first century AD from Vicarello in Italy, each of which lists places with the distances between them[20]. One of them, for example, gives the overland route from Cadiz to Rome. Unlike the other maps I have mentioned so far, the contents of the goblets are not only potable but the goblets themselves are portable.

As Brodersen points out, the utility of such lists underlies the huge success of the Internet's mapping sites like MapQuest[21]. Years ago, when I first drove in Italy, I found making my own list of all the towns I would pass through essential. Moreover, a fair number of people have trouble reading maps, but can master a set of written directions with greater ease. On the other hand, again, from personal experience, I find the map of the London underground easy to follow when underground, but maddening when above ground. Because it is not superimposed over the city and does not show distances, I find it impossible to calculate the time for a journey and, of course, I have no idea where the stations are relative to the actual streets. It does, however, illustrate why more than one version of a map is often necessary and why even today we find valuable maps not drawn to scale.

At some point – we do not have a precise date – the itineraries were produced in graphic form. The most notable example is the Peutinger Table dated ca. 1200 and based on the Antonine Itinerary[22]. Because of

[19] Salway 2001, 22. Salway 2007. Talbert 2007a. Talbert (2008, 21) notes that «this collection is of very low quality and far from accommodating to potential users» and wonders «why do scholars treat it so respectfully and assume that it was useful and put to use?».

[20] Dilke 1985, 122-124. The "goblets" are now in Rome, Museo delle Terme. Albu (2005, 137 with references in 145 n. 13) dates them to the time of Augustus. For photographs, see Cinque 2002, 464-465.

[21] Brodersen 2001a, 16-19.

[22] Gallazzi and Settis *2006,* 208-209. The dimensions are ca. 70 cm. high by ca. 700 cm. long. Brodersen 2001a, 18. Salway 2005, 120. A new "edition" of the Peutinger Table is being prepared by Richard Talbot. Scanned versions of the Table are available at: http://www.hs-augsburg.de/~harsch/Chronologia/Lspost03/Tabula/tab_intr.html.

internal details it is clear that it is a copy and most scholars date its original to the third/fourth century AD[23]. It combines Ptolemy's two types of maps, since it covers much of the then known world from Great Britain to India, but with the kind of detail expected in regional maps. At the same time, like the itineraries, it gives the distances between points. While the Peutinger Table has «a strikingly "modern" feel»[24], it is not to scale for two reasons. First, it expands and compresses portions in order to allow sufficient space for the names of the places and their distances from each other[25]. Second, because it is placed on the equivalent of an extremely long roll, the vertical dimension is so narrow that the map sometimes becomes very narrow in that dimension, as in the section with Italy and Sicily. Instead of Italy extending downward and south from Europe into the Mediterranean, it runs from left to right with the Mediterranean reduced to a mere strip and Carthage positioned directly opposite Rome[26]. Hence, while quite useful, the one bit of information lacking is what we expect most in a map – where each point is physically located. Salway calls it: «a distinct oddity from a cartographical point of view. It does not fit into the mainstream of either the ancient or medieval (that is, Christian) cartographical traditions as they are generally understood»[27]. Finally, the Peutinger Table is treated as if it were an exact copy of a lost original with few or no changes from

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[23] The exception to the date of the original is Albu 2005 who believes the original was a Carolingian creation of the ninth century. Albu (137) gives a good summary of the evidence that it is a copy. Albu (2008) continues her arguments and suggests (115) the Reichenau scriptorium for its origin. She rightly emphasizes the dearth of classical prototypes.

[24] Salway 2005, 120.

[25] On issues of scale, see Liben 2001, 59-63.

[26] Why north is "on top" on our maps has its own history, which does not concern us here. Knapp (2004, 286-293) suggests that the orientation of the Artemidorus Map may be with East on top like Near Eastern maps (p. 286).

[27] Salway 2005, 122.

that putative original[28]. And, of course, it raises the question of where the original was and how the copyist got access to that original[29].

It is obvious, and everyone agrees, that the Artemidorus Map resembles the Peutinger Table not as a map of the whole world (oecumene) but in its sections as a regional map. The presumed original of the Peutinger Table has long been considered the earliest example of an attempt to convert lists of itineraries to a visual layout. Hence the Artemidorus Map takes on even more significance as not only the first extant map accompanying a text, but also as a model for later Roman mapmaking. Unfortunately, unlike the Peutinger Table, no labels, much less the distances in Roman miles, are present. Furthermore, the depiction of landmasses, waterways, or land routes is sufficiently ambiguous that it is not possible to pin down precisely what region the map represents. Although the works of Artemidorus do not survive, he was quoted by later authors[30]. In fact, Canfora and Bossina point out the anomaly that the writings of Artemidorus preserved on the Artemidorus Papyrus are themselves based on an epitome, as explicitly stated in column V, 15 (ἐν ἐπιτομῇ)[31]. Hence, as I said, the passage preserved on the Artemidorus Papyrus has been identified as coming from his second book and therefore the majority of scholars thinks the Artemidorus Map depicts some part of Spain in order to match the text.

At this point we are confronted by a major problem. *There are absolutely no references within any extant classical text to maps accompanying texts.* While it is difficult for us to imagine an account about wars without maps, Herodotus, Thucydides, Xenophon, Julius

[28] Compare Albu (2008, 119): «She [Ingrid Baumgärter] has demonstrated that the medieval mapmakers felt no compunction whatsoever to reproduce their prototypes exactly». This conclusion aptly describes the way Roman artists approached Greek works.

[29] Compare my study on copies and originals in Small 2008.

[30] Compare Brodersen 2001b, 146: Artemidorus as "viel genutzt wurde".

[31] Canfora and Bossina 2008, 118.

Caesar, and every other classical author who wrote about battles in-
cluded no maps[32]. Even in the late fourth century AD, when Veg-
etius wrote his military treatise, maps were not common. His recom-
mendations are important:

First off the commander should have a very detailed description for the
routes of the entire area [*itineraria omnium regionum*] in which the war is
being waged, so that he knows the spaces between places not only in terms
of the number of feet but even the quality of the roads. The description
ought faithfully to record shortcuts, side roads, mountains, and rivers. This
has even been carried to the point that the more shrewd generals have in-
sisted on having not only the verbal descriptions but even maps of the routes
of the provinces in which necessity engaged them, so that they could choose
the road for the march not only by mental deliberation but also by the sense
of sight[33].

Notice how Vegetius mentions first the usual "itinerary" with the
places and the distances between them indicated, but then he adds
the need for further descriptive information. Next and most signifi-
cantly he not only mentions that the "more shrewd generals" have
"maps" but also phrases it in such a way that it is evident that his
readers may not be familiar with how "maps" work. Otherwise why
would Vegetius mention that «they could choose the road for the

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[32] For example, the lack of maps may explain how Julius Caesar got lost in
the forest right before crossing the Rubicon, although some people today get lost
not just with maps but even using GPS. And keep in mind that Caesar's misad-
venture probably postdates the Artemidorus Papyrus. Suetonius, *Julius Caesar*
31. Albu 2005, 141. Whittaker 2002, 81-82.

[33] Vegetius, *Military Science* 3.6. Translation from Humphrey *et al.* 1998, 441-
442 No. 10.55. Note the Latin for the last part of the passage: «sollertiores duces
itineraria provinciarum, in quibus necessitas gerebatur, non tantum adnotata sed
etiam *picta* habuisse firmentur, ut non solum consilio mentis verum *aspectu ocu-
lorum viam* profecturus eligeret». Latin (and Greek) at this time had no word for
map, but instead the context defined what Humphrey *et al.* translated as "map".
I have italicized the crucial words. Among others, see discussion in Harley and
Woodward 1987, XVI-XVII.

march not only by mental deliberation but also *by the sense of sight*»? If his readers knew about maps and how they work, that information is superfluous and perhaps patronizing. In turn that means the likelihood of such maps existing in the first century BC is not high.

While we cannot imagine a travel guide without maps, Pausanias included none. While we cannot imagine a work on geography without maps, neither Strabo nor Ptolemy included maps. They did give directions on how to construct maps. Strabo recommends: «But [a world map] requires a large globe [σφαί ϱᾳ] … let it have a diameter not less than ten feet. But if one cannot make [a globe] of this size or not much smaller, one ought to draw [the map = πί ναϰ] on a planar surface of at least seven feet»[34]. Strabo is certainly not thinking of any kind of map that would be included with a text and the one he proposes is freestanding[35]. Ptolemy merely gives data points with directions sufficiently ambiguous that we still discuss what they mean[36]. All those wonderful "old" colorful maps that illustrate our modern works on classical geography, as well as the editions of Strabo and Ptolemy, are post-Antique[37]. *We assume that because we would include maps so did they.*

[34] Strabo 2.5.10. Translation from Berggren and Jones 2000, 32 with discussion on 32-33.

[35] Dio (67.12.4) records an anecdote about Domitian who «put him [Mettius Pompusianus] to death, one of the complaints against him being that he had a map of the world painted on the walls of his bed-chamber». (Translation from the *Loeb Classical Library*.) Suetonius' version (*Domitian* 10.3) changes it to a map on parchment (*membrana*) that Mettius Pompusianus carried around with him. In either case, while Domitian's action is extreme, it, nonetheless, underlines the rarity of maps. For a modern example of a dictator controlling who can own maps, see: Horwitz 1991.

[36] Berggren and Jones 2000, 31-38. They (46) draw the further distinction between the idea that Ptolemy could have «actually drew, or had drawn for him, the maps he describes» and the fact that «it does not have to follow that Ptolemy incorporated actual maps in the manuscript of the *Geography* that he published».

[37] A good sampling, many in color, appear in Stückelberger 1994, 47-73 («Geographisches Anschauungsmaterial [Karten]»).

Although Artemidorus' work has not survived, we do have a number of references to him in various texts. He was a source for Strabo and Pliny the Elder among others[38]. Pliny the Elder cites Artemidorus twenty-two times in the first seven books of the *Natural History*, primarily for various distances. A typical example (2.242) is:

Our own portion of the earth['s] … longest extent is from East to West, i.e. from India to the Pillars consecrated to Hercules at Cadiz, a distance of 8,568 miles according to Artemidorus, but 9,818 according to Isidore. Artemidorus adds in addition from Cadiz round Cape St. Vincent to Cape Finisterre the longest projection of the coast of Spain, 890 1/2 miles[39].

Pliny (4.78) also uses Artemidorus as one of his sources for the circumference of the Black Sea. In other words, Pliny has sufficiently frequent recourse to Artemidorus for disparate places that it is likely that he had direct access to the work[40]. Yet Pliny makes no mention of a map accompanying Artemidorus' work. This fact means either maps are so commonplace that no mention need be made or no map was present. I believe the latter is the case. Remember no citations exist to maps accompanying texts from classical antiquity.

Pliny was interested in most anything unusual. Hence he extols Varro's *Imagines*[41]:

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[38] *OCD³* 182 *s.v.* Artemidorus (2).

[39] Translation from the *Loeb Classical Library* 1.367. I have purposely chosen a citation that included Spain.

[40] While Pliny could be quoting whole sets of figures, five in the case of the circumference of the Black Sea, derived from earlier authors, he himself had an extensive library and access to other libraries. He devotes a considerable portion of the first book of the *Natural History* to listing his sources for each book with Artemidorus mentioned six times. Interestingly, he cites Artemidorus for Book 3 and not for Book 5. Yet Artemidorus' name does not appear in Book 3, but four times in Book 5. Please note that these figures come from a computer search of the *Natural History*.

[41] Much of the argument presented in this section is based on my book (2003, 118-154 = Chapter 5 – "Illustrated Texts from Antiquity). The discussion there is considerably fuller than my summary here.

… by the most benevolent invention [*invento*] of Marcus Varro, who actually by some means [*aliquo modo*] inserted [*insertis*] in a prolific output of volumes portraits of seven hundred famous people, not allowing their likenesses to disappear or the lapse of ages to prevail against immortality in men. Herein Varro was the inventor of a benefit that even the gods might envy, since he not only bestowed immortality but despatched it all over the world, enabling his subjects to be ubiquitous, like the gods. This was a service Varro rendered to strangers[42].

When Pliny calls Varro the inventor of this new technique, he implies that the idea of such illustrations of text did not occur until ca. 39 BC, the date commonly given for Varro's portraits[43]. The problem for us is that Pliny does not specify what precisely is new. It could be the idea of doing portraits and text together or it could be the arrangement of the portraits and the text. I think the latter, because Pliny immediately follows the clause about the invention with the statement that the portraits were "by some means inserted". Hence, most curiously, Pliny, despite his wide practical knowledge and extensive reading, is not at all sure how Varro produced the work, even though he is familiar with the work and our primary source for information about how to make papyrus and rolls[44]. Inserting maps into texts presents similar problems to those for portraits. If maps commonly appeared in texts, Pliny would probably not have commented on a similar use for portraits[45].

[42] Pliny the Elder, *Natural History*, 35.2.11. Translation from the *Loeb Classical Library*.

[43] *OCD³*, 1582 s.v. "*Varro*" (Robert A. Kaster).

[44] *Natural History*, 13.21-27 (68-89).

[45] Scholars fall into two broad groups: the Romans, eminently so practical, must have had maps similar to ours (e.g., Dilke 1985); and the absence of evidence reflects reality – the Romans did not use maps the way we do, but depended on itineraries for journeys beyond a single city (e.g., Brodersen 2001a and 2004). Compare also Whittaker 2002. In contrast we now have Google Earth to pinpoint the precise spot where anything is, although even then problems sometimes arise.

Next, as the example just considered implies, illustrated texts of any sort are extremely rare in the first century. While technical treatises are among the first to get illustrations, even then the drawings are rudimentary. Vitruvius, who now comes in an edition with over a hundred illustrations, himself included a paltry ten[46]. And those ten, with only one exception, were not placed within the text, but at the very end of the roll, "*in extremo libro/volumine*"[47]. This location has two advantages. Space can be left at the end of the roll for the "illustrator", if it is a separate person; and the reader needs only one roll not two. The major disadvantage is that the reader cannot both look at the picture and the text simultaneously, but must roll back and forth between the two – a harder task than flipping pages, as users of microfilm and word processors know. The one case where Vitruvius put a picture within his text was for a simple diagram (9 Preface 5).

Moreover, for anything complicated like the hoisting machines (10.2), the water organ (10.8), or the odometer (10.9), Vitruvius includes no pictures, because:

To the extent I could apply myself to the task, I have striven to enunciate an obscure matter lucidly in writing, but this [the water organ] is not an easy subject, nor easy for everyone to understand, except those who have some practical experience in this kind of work. But if anyone has failed to understand it fully from my writings, when he comes to know the thing itself, he will certainly discover that everything has been set out in order, carefully and precisely[48].

While a water organ is complicated, classical maps are less so, because a relatively simple two-dimensional lay-out can be used, as in

[46] Rowland and Howe 1999.

[47] I have checked translations and with a Latinist (John van Sickle) to make sure that the phrase means "at the end of this book" and not "in the last book", as it might be construed. All the sources I looked at agree on the first translation. For further discussion, see Small 2003, 210 n. 45.

[48] Vitruvius 10.8.6. Translation from Rowland and Howe 1999.

the Peutinger Table or in plans such as the *Forma Urbis*[49]. Nonetheless, conceiving of a map that displayed the general topography of an area smaller than the world, but larger than a city was not something that was obvious[50]. While detailed plans are critical for complex buildings, a list of places along one's route often suffices as I have remarked. Finally the only other map to survive from classical antiquity dates to ca. AD 260 and depicts «an itinerary … from Odessos (modern Varna), south of the mouth of the Danube into the Black Sea, to the Crimean Straits of Kertsch»[51].

[49] While Vitruvius is explicit about not including any illustration of a water organ, it is debatable whether Heron of Alexandria who also wrote about the water organ (*Pneumatica* 1.43) had diagrams. Ulrich (2008, 40) states that «Heron's texts are thoroughly keyed to illustrations (now preserved only in Arabic translations)...». The first problem is whether the Arabic translators added the illustrations the way maps were added to Ptolemy's *Geography*. The second issue is that Heron's wording reflects that of mathematical proofs. Third, he probably had actual models (cf. Plutarch, *Life of Marcellus* 14.5). Together these points make it unlikely that Heron's original text had diagrams or illustrations. For full discussion and bibliography see Small 2003, 125-126 with notes on 210. Also note that Ulrich (2008, 35-61) discusses «Representations of Technical Processes». He believes that there "must" (e.g., 39 with regard to Archimedes on mirrors) have been diagrams. I think that our recognition of their usefulness and, indeed, our need for such illustrations blinds us to the difficulty of producing such drawings in the absence of an understanding of axonometric perspective among other things. For the development of technical drawings and their use in technical manuals, see Edgerton 1991, 108-192.

[50] Compare Whittaker 2002 and Brodersen 2001a. The closest example from antiquity may be the Egyptian map of a gold mine on a papyrus now in Turin from Deir el-Medina. That too, however, is of a rather circumscribed area and does not meet the requirement of a map that covers an area containing, for example, several cities, as a regional map should. For a good color photograph of the Turin map, see Gallazzi and Settis *2006*, 198-199 No. 39. Dated there to the 20th Dynasty (1186-1070 BCE). Turin, Fondazione Museo delle Antichità Egizie, Collezione Drovetti (1824), inv. 1879-1899-1969.

[51] Knapp 2004, 284 with illustration. This map is painted on parchment and is sometimes referred to as the "Dura Europos Map", because it was found there. For a photograph and reconstruction, see Settis 2008, 68 fig. 34. Settis (65-77)

One other major aspect remains to be considered: the logistics of the production of the Artemidorus Papyrus. Every scholar I have read on the Artemidorus Papyrus mentions that something had happened that left the map unfinished and the papyrus relegated to "scrap paper"[52]. Gallazzi, for example, suggests that the map should have been of all Spain and not a detail of a particular region[53]. Moret, in contrast, believes that the map represents not Spain, but Italy and Sicily because of the close resemblance of its land masses to those on the Peutinger Table[54]. He adds that, since Italy should not appear as the map accompanying a description of Iberia, the map-maker clearly made a mistake that forced the papyrus roll to be abandoned. Knapp believes that the map is not oriented with north on top and hence interprets it as representing the area around modern Huelva, but then goes on to say «There are undoubtedly many other suggestions that could be made about what area Artemidorus' map represents»[55].

Although we have abundant evidence for workshop practices in the Middle Ages, we know little about them in Antiquity[56]. Nonetheless, the possibilities are limited. Either (1) one scribe both wrote and illustrated the papyrus or (2) a scribe and an artist worked on it. In the first case, the scribe proceeded in an orderly fashion by writing some of his text, inserting the map at an appropriate point, and then continuing to write his text. The second method is more likely on analogy with medieval practices and on the premise that a map was not easy to draw. Hence the map maker and scribe should be

discusses and illustrates the usual maps cited in any discussion of ancient maps. Note that all are third century AD or later with the possible exception of the map in the Artemidorus Papyrus.

[52] Canfora 2007a, 428-430.

[53] Gallazzi *apud* Gallazzi and Settis 2006, 18.

[54] Moret 2003, 354.

[55] Knapp 2004, 293.

[56] Small 2003, 143-154 and 170-171. Alexander 1992.

different people[57]. In this case, either (2a) the scribe wrote his text continuously, but left a gap where he wanted the map to be placed – a common practice in the Middle Ages – or (2b) he wrote some of his text, passed the papyrus to the map maker, and then intended to add the labels once it was returned at the time he completed the text.

Unfortunately none of these methods explains the Artemidorus Map as it has survived. Recall that the order of items on the recto are: two heads, text, map, more text, more drawings. In other words, unlike the later text of Vitruvius, the map does not appear at the end of the book, but is inserted within the text. Remember placing the map at the end of the book – or even at the very beginning – makes for a simpler procedure than embedding it between columns of text. First the scribe writes his sections, then the map maker finishes the roll off and perhaps returns the roll to the scribe for labels, though I suspect that a map maker could write the labels himself.

Instead the Artemidorus Papyrus is troublesome. Most notable about the text is that it continues after the map despite the absence of labels. No matter which scenario is chosen for the order of scribe and map maker, it makes no sense. (1) If only one person is involved, why did he not add the labels before writing the rest of the text? Moreover, if he was skilled enough to draw a map and write the text, he should have been aware that the map was wrong at least as soon as he began to put in the labels. (2) If a scribe wrote the three or more columns at the beginning of the roll, then gave it to the map maker, why would the scribe then write two more lengthy columns before realizing that the map was wrong in some way? Would the

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[57] Alexander (1992, 40) discusses the medieval work practices and how they can be reconstructed from "the very numerous manuscripts whose illumination was never finished." He adds "In most manuscripts, though not necessarily in all, the text was written first. In the majority of cases, therefore the decision of *where*, with the implication it has on *how*, the illustration or decoration is placed and planned, had been made before the illuminators started their work."

scribe not have checked the map out first and possibly even added the labels before writing more text?

Next, any explanation for how the map and text of the Artemidorus Papyrus were produced must take into account the "model" for its map and text. That is, either a classical author hands over his autograph manuscript to a "workshop" for copying, as Cicero often entrusted his works to Atticus to be reproduced, or the workshop already has a "model" to copy[58]. Since no one claims that the Artemidorus Papyrus reproduces an original autograph "manuscript" of Artemidorus, then it must be the case that the workshop had a "model" to follow. With a model present in the workshop it becomes even less likely for a mismatch between map and text.

There are only two possible solutions. (1) Posit that the third person who oversaw the process in the workshop neglected to check the map before the scribe wrote two more columns. Since the production of rolls was costly and an illustrated roll from the first century BC was not common, that explanation is unlikely. Mistakes were made in medieval manuscripts and, according to Alexander, «The extent to which alterations could be made was necessarily limited, though there are examples of insertion of extra leaves, and of deletion and recopying of text»[59]. If the latter possibility is applied to the Artemidorus Papyrus, it might have been possible to insert extra sheets of papyrus or even to "paste" another piece of papyrus over the mistake. Or (2) because the two sections of text are non-joining, the problem is an artifact of the preservation of the roll. Against this hypothesis is the high likelihood that in the first century BC pictures within texts appear either next to the text they refer to or at the end of the roll, as Vitruvius states. The idea of a map as a kind of frontispiece is modern[60].

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[58] For Cicero "publishing" his works via Atticus, see Small 1997, 212.

[59] Alexander 1992, 40.

[60] Compare Knapp (2007) who says «its purpose was in all likelihood to illustrate the text in the manner of a modern book accompanied by maps».

A simpler and better explanation exists: the map is modern. Again two hypotheses are possible. (1) If the text is ancient, then someone at a later date decided to enhance the roll to fetch a better price. Canfora suggests Constantine Simonides, a well-educated 19th c. Greek known for his forgeries[61]. At that time the forger added the drawings and the map. This practice was common in the 19th century for Etruscan objects. For example, someone made a bronze oval cista more "valuable" by adding a scene from the *Aeneid* to its lid[62]. Similarly the "earliest" "Latin" inscription was added to a genuine Etruscan fibula from Praeneste[63]. Hence a first century BC/AD date for the actual papyrus proves nothing beyond the fact that the papyrus alone was made then[64]. (2) The other possibility, of course, is that the "decoration" of the papyrus in whole or in part is a post-Antique fabrication[65]. In either case, the map, as everyone recognizes,

[61] Canfora 2007a, 302-304 and 441. Compare summary in Assalto 2006.

[62] While the round Etruscan bronze cistae often had decorated lids, the oval ones did not. Compare Walters 1899, 129-130 No. 741 («though the cover itself is antique, the genuineness of the design cannot be upheld.»). For a picture, see: Galinsky 1969, 162-164 with fig. 121.

[63] Gordon 1975. Gordon gives a succinct summary of the problem with further bibliography in 1983, 74-75 No. 1 with pl. 1.1. The inscription in retrograde is: «Manios med fhefhaked Numasioi» («Manios has had me made for Numasios»). It is now considered a 19th century forgery produced by F. Martinetti with the aid of W. Helbig. Jones (1990, 161-233) entitles a chapter «The 19th century: the great age of faking».

[64] See note 3. For a later example compare the scientific assessment of the "Renaissance" Neptune pendant in the Metropolitan Museum of Art, New York (14.40.665). Wypski (2009, 39) concludes: «the Neptune pendant is probably a restored Renaissance piece, or possibly a pastiche of several different pieces, at least some of which are either wholly modern or were reenameled in the nineteenth century».

[65] Note the careful wording of the scientific laboratory on their testing of the ink (see note 3 above). They never rule out the possibility that an organic-based ink could have been used in the 19th century. Instead they merely state that the ink used was not iron-gallic ink which was "commonly used" then. Compare Canfora and Bossina, 2008, 116-117.

looks like the Peutinger Table which not only was virtually the only model available in the 19th century (and sadly even today), but also ensured the acceptance of the Artemidorus Map, because it is well-known that fakes have to look like what we know. Ironically, then, the Artemidorus Map now provides a false pedigree for the Peutinger Table[66]. Albu's idea of dating the original of the Peutinger Table to the ninth century gains indirect support if the Artemidorus Papyrus' map is not antique[67]. Talbert (2008, 21) does not accept Albu's theory and wonders «then what origin is there for the classical cartographic heritage that is to be perceived in medieval work? Equally, how is the Peutinger Map to be accounted for?»[68]. I would respond that we may have to face the fact that there may have been no such classical tradition and that, instead, this is a late to post-Antique development based on the textual Roman itineraries[69].

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[66] For example, Talbert 2005, 633 n. 29. Compare the similar situation for classical illustrated Homer papyri. Turner (1987, 137) says: «It is notable that, despite the very large number of Homeric papyri, none has illustrations».

[67] Albu 2005 and 2008, especially 112-113.

[68] Talbert 2008, 21.

[69] Objects from excavated contexts generally avoid such problems, even if they seem strange at first, as was the case with the Etruscan seated statue with its "stetson" hat from Murlo. (Edlund-Berry 1992.) On the other hand, the "Map of Soleto", discovered in 2003, is incised on a small black-glaze sherd that dates to ca. 500 BC. While no one questions that the sherd itself is ancient, the map has a number of anomalies beyond its early date that have prompted some to wonder whether the map was a practical joke carried too far. The fullest account in English was posted by Peter van der Krogt on the MapHist listserv: http://mail-man.geo.uu.nl/pipermail/maphist/2006-February/006646.html. He, in turn, summarizes an article by Douwe Yntema: «Ontdekking 'oudste kaart' een grap?», *Geschiedenis Magazine* 41, 1 (Jan.-Feb. 2006) 5. Briefly:

– «it look[s] too much like a piece of Bosatlas (the most popular Dutch schoolatlas).

– the placenames are engraved with north at the top.

– towns are indicated as points, and not with house symbols as on the other antique map, as the Peutinger map and mosaics.

The idea that the map is modern would account for other anomalies of the Artemidorus Papyrus. Labels were not added to the map, because the modern designer made up the whole outline with no specific region in mind. Hence despite our best efforts we cannot identify the region the map shows. The odd series of evenly spaced boxes in the upper land mass do not have sufficient space for labels and mileage, because they were never intended to have labels[70]. Instead the modern designer sprinkled the various symbols rather aesthetically throughout. Finally, the total lack of evidence, literary or pictorial, for maps within texts in this period argues against the existence of such a map. The sheer quantity of extant ancient literary sources without any references to maps that we would and do illustrate with maps makes a classical Artemidorus Map even more unlikely. More importantly, the question needs to be answered of why Artemidorus alone had a map accompanying his text and why its occurrence was not repeated. In other words, the extant evidence agrees with the passage from Pliny the Elder on Varro's *Portraits*. Illustrated rolls with pictures integrated with text begin in the second half of the first century BC, are rare in the first century AD, and increase slowly in popularity thereafter[71]. A sophisticated map within a text simply did not exist in the first century BC/early first century AD. The map, then, is, post-Antique and most likely a 19th century forgery.

Rutgers University New Brunswick   JOCELYN PENNY SMALL
New Jersey

– the engraving follows rather exactly the borders of the ostrakon [thus, the map was drawn after the pot was broken, - my interpretation of this point, PvdK]».

For a list of maps of any date suspected of being forgeries with links to pictures and discussions: http://www.maphistory.info/fakesnotes.html. For published photographs of the Soleto Map, see Gallazzi and Settis 2006, 95 fig. 2; and Mattaliano 2008, 194 fig. 2 with discussion on 190.

[70] Knapp (2004, 289-90) believes that their even spacing indicates that they are milestones.

[71] Small (2003), especially Chapter 5 with its conclusion 153-154.

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