

ABSTRACT

HAMMERSEN, LAUREN ALEXANDRA MICHELLE. The Control of Tin in Southwestern Britain from the First Century AD to the Late Third Century AD. (Under the direction of Dr. S. Thomas Parker.)

An accurate understanding of how the Romans exploited mineral resources of the empire is an important component in determining the role Romans played in their provinces. Tin, both because it was extremely rare in the ancient world and because it remained very important from the first to third centuries AD, provides the opportunity to examine that topic. The English counties of Cornwall and Devon were among the few sites in the ancient world where tin was found. Archaeological evidence and ancient historical sources prove tin had been mined extensively in that region for more than 1500 years before the Roman conquest. During the period of the Roman occupation of Britain, tin was critical to producing bronze and pewter, which were used extensively for both functional and decorative items.

Despite the knowledge that tin was found in very few places, that tin had been mined in the southwest of Britain for centuries before the Roman invasion, and that tin remained essential during the period of the occupation, for more than eighty years it has been the opinion of historians such as Aileen Fox and Sheppard Frere that the extensive tin mining of the Bronze Age was discontinued in Roman Britain until the late third or early fourth centuries. The traditional belief has been that the Romans were instead utilizing the tin mines of Spain (i.e., the Roman province of Iberia).

This thesis uses archaeological finds and more recent ideas about the Roman role in the southwest to show that tin mining operations continued in Cornwall and Devon from just after the Claudian invasion (AD 43) into the late third century. It will also show that exploitation of the tin resources of Britain was fueled both by the surviving use of bronze and

growing pewter industry in the province. The paper concludes that uninterrupted tin mining indicates a greater Roman presence in Cornwall and Devon than has previously been suggested.

**THE CONTROL OF TIN IN SOUTHWESTERN BRITAIN FROM THE FIRST
CENTURY AD TO THE LATE THIRD CENTURY AD**

by
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HISTORY

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DEDICATION

I would like to dedicate this thesis to my family, who have supported me tirelessly. Their support and belief in me has kept me on track and helped me complete this work.

I would like to also dedicate this thesis to R. D. Penhallurick and Lady Aileen Fox, though unfortunately they are no longer with us; their work was invaluable in the creation of this thesis.

BIOGRAPHY

Lauren Hammersen was born in Norfolk, Virginia, on September 23, 1983. She graduated from Appalachian State University in 2005 with a double degree in European History (with Honors) and Anthropology (Archaeology). Since 2005, she has pursued a graduate degree in Ancient History from North Carolina State University. Upon obtaining this Masters in Arts, she plans to continue her studies at the doctoral level.

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Introduction

It has long been thought by scholars such as John Wachter, Robert Shepherd, Howard Hayes Scullard, Aileen Fox, Sheppard Frere, Ian Archibald Richmond, and Francis John Haverfield that southwestern Britain was ignored by the Romans, and that its well-known and easily-attainable mineral resources (including such scarce minerals as tin) lay largely unexploited from the time of Gaius Julius Caesar's initial invasion in 55 BC until the middle of the third century AD, with many allowing an exception for possible prospecting and mining attempts in the first half of the first century AD.¹ Many of these scholars argue that Spanish, rather than Cornish, tin deposits were the main source until the mid- to late-third century.² Surviving historical accounts are silent on this period in the history of southwestern Britain. Archaeological evidence from Cornwall and Devon goes largely unmentioned by these scholars; this is partly because for scholars writing before the mid-1970s, much of the archaeological evidence had not yet been discovered.³ However, since the time of Aileen Fox, who conducted important excavations in Cornwall, including the Roman fort at Nanstallon, finds have been increasing, and by the mid-1980's, scholars such

¹ John Wachter, *Roman Britain* (Stroud, UK: Sutton Publishing Ltd., 1998), 220; Robert Shepherd, *Ancient Mining* (London: Elsevier Applied Science, 1993), 341-2, 348; Howard Hayes Scullard, *Roman Britain: Outpost of the Empire* (London: Thames & Hudson, 1979), 130; Aileen Fox, *South-West England: 3500 BC -AD 600* (North Pomfret: David & Charles, 1973), 183; Sheppard Frere, *Britannia: A History of Roman Britain* (Cambridge: Harvard University Press, 1967), 282, (These exact sentiments are reiterated in the later 1978 edition of *Britannia: A History of Roman Britain*, 320, 324); Ian Archibald Richmond, *Roman Britain* (New York: Barnes & Nobles, 1964), 123; Francis John Haverfield, *The Romanization of Roman Britain* (Oxford: Clarendon Press, 4th ed., 1923), 24-26.

² Shepherd, 212; Scullard, 130; Fox, *South-West England*, 183, Frere, *Britannia: A History of Roman Britain*, 286.

³ The earliest publications this author has found articulating this viewpoint are Haverfield (1923) and Richmond (1964).

as Henrietta Quinnell began to call for a re-examination of information.⁴ As late as 1998, the traditional view was still in place in the work of John Wachter, who argues that mining did not occur until the fourth century.

By examining the pre-Roman history of this region, together with a thorough study of available archaeological and historical material, this paper will challenge this belief. This widely accepted view of the southwest seems to have originally been little more than an argument based on the silence of ancient historical writings and a lack of archaeological material, and this view has persisted over time, even as new evidence has come to light. However, when historical sources are silent or lack sufficient details, it is necessary to turn to the growing body of archaeological evidence in order to draw accurate conclusions.

It is important to realize that there is no single episode in the whole history of Roman Britain for which we have written evidence deriving directly from two or three of its eye-witnesses, and moreover that there is not more than one or two episodes for which we have even a single account that can be regarded as that of an eye-witness.⁵

I will argue that the tin deposits of Cornwall and Devon were exploited by the local inhabitants of this region between the first century AD and the late third century. While this exploitation may not have been on a massive scale in this period, there was no reason for the Romans to ignore a material that would have been valuable in meeting the military and economic needs of the province of *Britannia*. This is especially true since tin is a very rare metal, and the deposits in Cornwall and Devon are so easily accessible and were so well known in ancient times. I will propose that mining was conducted by local inhabitants,

⁴ Henrietta Quinnell, "Cornwall during the Iron Age and the Roman Period," *Cornish Archaeology*, No 25 (1986): 130-1; However, she is one of very few scholars to do this.

⁵ Peter Hunter Blair, *Roman Britain and Early England: 55 B.C.-A.D. 871* (New York: W.W. Norton & Company, Inc., 1963), 3. (This excludes the *Vindolanda* tablets, which were discovered after this statement was made).

perhaps initially in a client kingdom, and that eventually some of the individual mines probably were leased by *procurators* of the province *Britannia*.

To do this, I will start by showing how geology, historical sources, and archaeological material have helped scholars understand Bronze Age and Iron Age exploitation of tin deposits in southwest England. A brief examination of this period, which I covered in detail in my undergraduate thesis, will provide a foundation for understanding evidence representing the period from the Roman conquest through the late third century AD. I will then examine historical sources, such as Suetonius, Tacitus, Cassius Dio, Pliny the Elder and others to show what these sources relate about the period of time between the conquest in AD 43 and the third century AD. This will provide the most accurate view of the southwest that historians possess. Using archaeological finds, I will provide evidence of nearly continuous mining and refining of tin and lead in the southwest that are not included in primary historical sources. I will explore the nature of Roman mines and Roman uses of tin to demonstrate how the Romans would have exploited tin deposits in the southwest, most likely initially through leased mines in the territory of a client kingdom of the *Dumnonii*, and later as leased mines in part of the Roman province of *Britannia*.

Taken together, the archaeological evidence suggests continued local exploitation of tin in southwestern Britain throughout the Roman period until the end of the third century AD.

Chapter I

Summary of Geology and Bronze and Iron Age Exploitation of Tin in Cornwall

Classical Greek and Roman authors recorded a place known as the “tin islands” in their descriptions of the world. The oldest surviving accounts are those of Herodotus (fifth century BC) and Timaeus (third century BC, though his writings survive only in Pliny the Elder’s work). These tin islands, according to classical accounts, lay off the coast of northern Europe in the Atlantic and were the origin for a large portion of the tin mentioned in classical sources. The two names associated with the tin islands are the *Kassiterides* (literally meaning “tin islands” in Greek) and *Mictis* (described as an island where tin was supposed to be sold). The exact location of these tin islands has been debated for more than two thousand years. In my undergraduate thesis, I argued that the tin islands described by ancient writers were, in fact, Cornwall and Devon, rather than other postulated locations in Britain, France, or Spain. I utilized geology, historical sources, and archaeological evidence to support my argument.⁶

Tin, a relatively rare metal with special properties, was important in antiquity because it could be combined with copper to form bronze. Bronze is stronger than copper, less brittle than tin, and easier to cast.⁷ The usual ratio found in bronze is 10% tin to 90% copper, which means little tin is needed to make bronze. Prior to the discovery and use of iron, bronze was

⁶ Lauren Hammersen, “Control of the Cornish Tin Trade in Pre-Roman Britain,” (Bachelor’s Honors thesis, Appalachian State University, 2005), 16-23.

⁷ D. H. Slater, *Mineral Resources Consultative Committee, Mineral Dossier No. 9.: TIN* (England: Her Majesty's Stationery Office, 1974), 3.

the predominant metal used to manufacture objects ranging from decorative, utilitarian, to weaponry.

During the Iron Age, bronze was used less frequently, but its production did not cease. In addition to making bronze, tin also began to be used to create pewter, which is an alloy of lead and tin. Pewter was first used extensively by the Romans. There appears to have been no set ratio of tin to lead in Roman pewter; this changed in medieval Europe.⁸

There are relatively few deposits of tin in Europe. Two of the largest are in Cornwall and Spain.⁹ Tin normally occurs in two mineral forms – cassiterite (most common) and stannite.¹⁰ Both Cornwall and Spain have alluvial deposits of cassiterite ore found in current or former riverbeds, which are relatively easy to mine. Brittany in France also has tin which has been mined at different times in history.¹¹

⁸ Neil Beagrie, "The Romano-British Pewter Industry," *Britannia* 20 (1989): 169-170.

⁹ J. G. D. Clark, *Prehistoric Europe: The Economic Basis* (Stanford, California: Stanford University Press, 1966), 194; James D. Muhly, "Sources of Tin and the Beginnings of Bronze Metallurgy," *American Journal of Archaeology* 89, No. 2 (1985): 275-291.

¹⁰ These are modern geologic names for these minerals.

¹¹ J. C. Edmondson, "Mining in the Later Roman Empire and Beyond: Continuity or Disruption?" *The Journal of Roman Studies* 70 (1989): 87; (He sites a survey of Roman mines in Brittany: P. Galliou, "Mines et métaux de l'ouest de la Gaule" *Mines et fonderies antiques de la Gaule* (Table ronde du CNRS, Toulouse, 1980) (1982), 21-32, esp. 23).

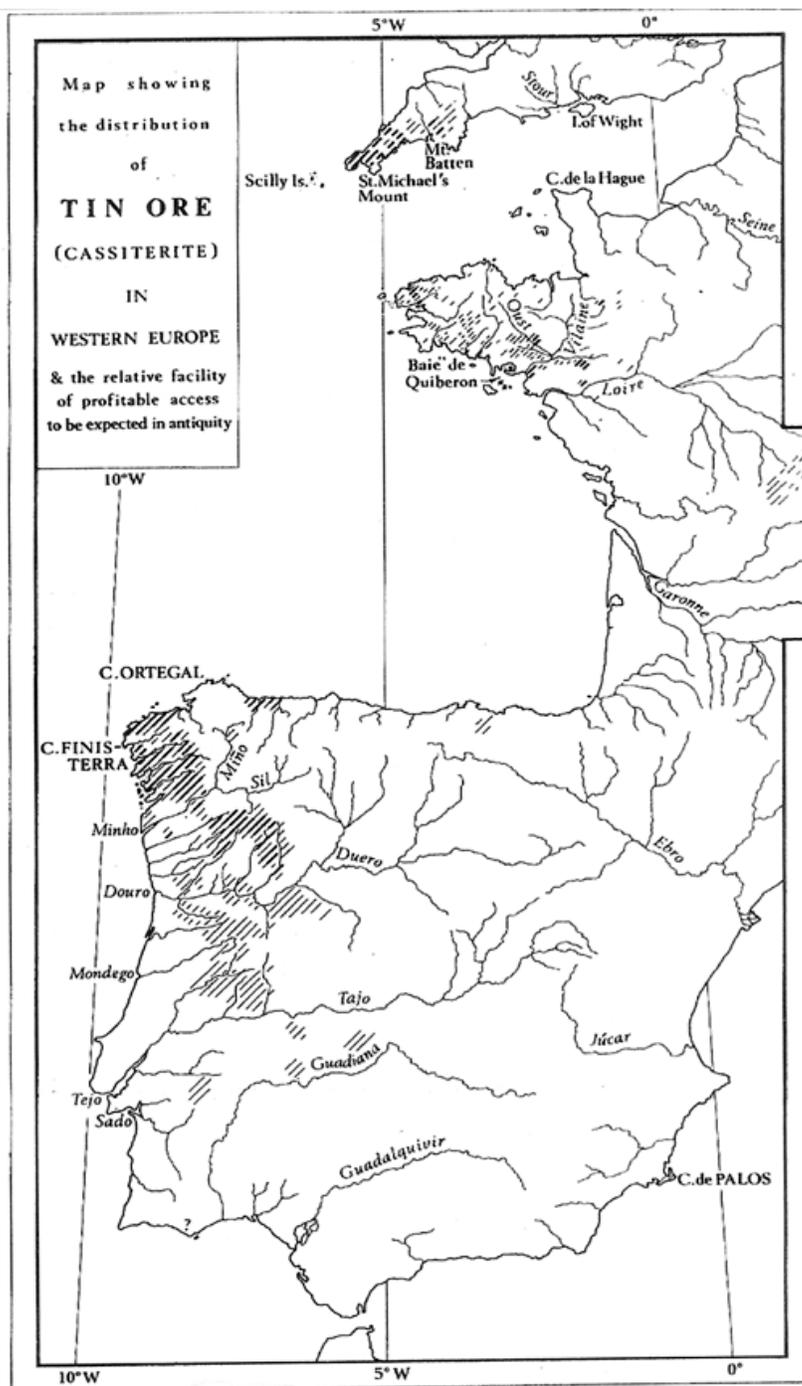


Figure 1. Distribution of western tin ores.¹²

¹² C.F.C. Hawkes, "Pytheas: Europe and the Greek Explorers," *The Eighth J.L. Myres Memorial Lecture* (New College, Oxford, 20 May 1975), 26.

In southwest England, cassiterite ore is found in a broad belt – approximately 120-150 kilometers long and 30 kilometers wide – stretching from Dartmoor in the east to Land's End in the west. Throughout this area, tin is concentrated in lodes (faults which have been mineralized over time and where the mineral has clearly defined boundaries), though the ore is not uniformly mineralized across this entire area.¹³ For the most part, tin-bearing veins are confined to specific areas, though alluvial deposits that were created by glacial action are more broadly spread across the region.¹⁴

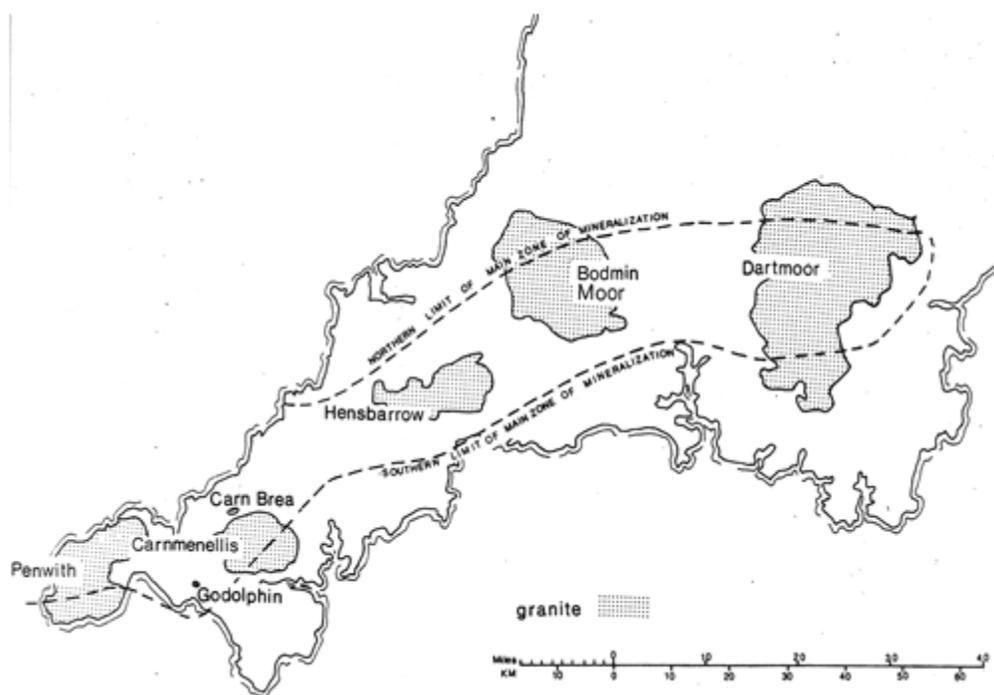


Figure 2. Copper and tin bearing areas of the southwest.¹⁵

¹³ Susan M. Pearce, *The Bronze Age Metalwork of South Western Britain* (Oxford: BAR, 1983), 95.

¹⁴ K.F.G. Hosking, "A Historical Review of Ways and Means of Searching for Ore Deposits in the Southwest of England," *Bulletin of the Geologic Society of Malaysia* 17 (1984): 167; Pearce, 95.

¹⁵ Pearce, 97.

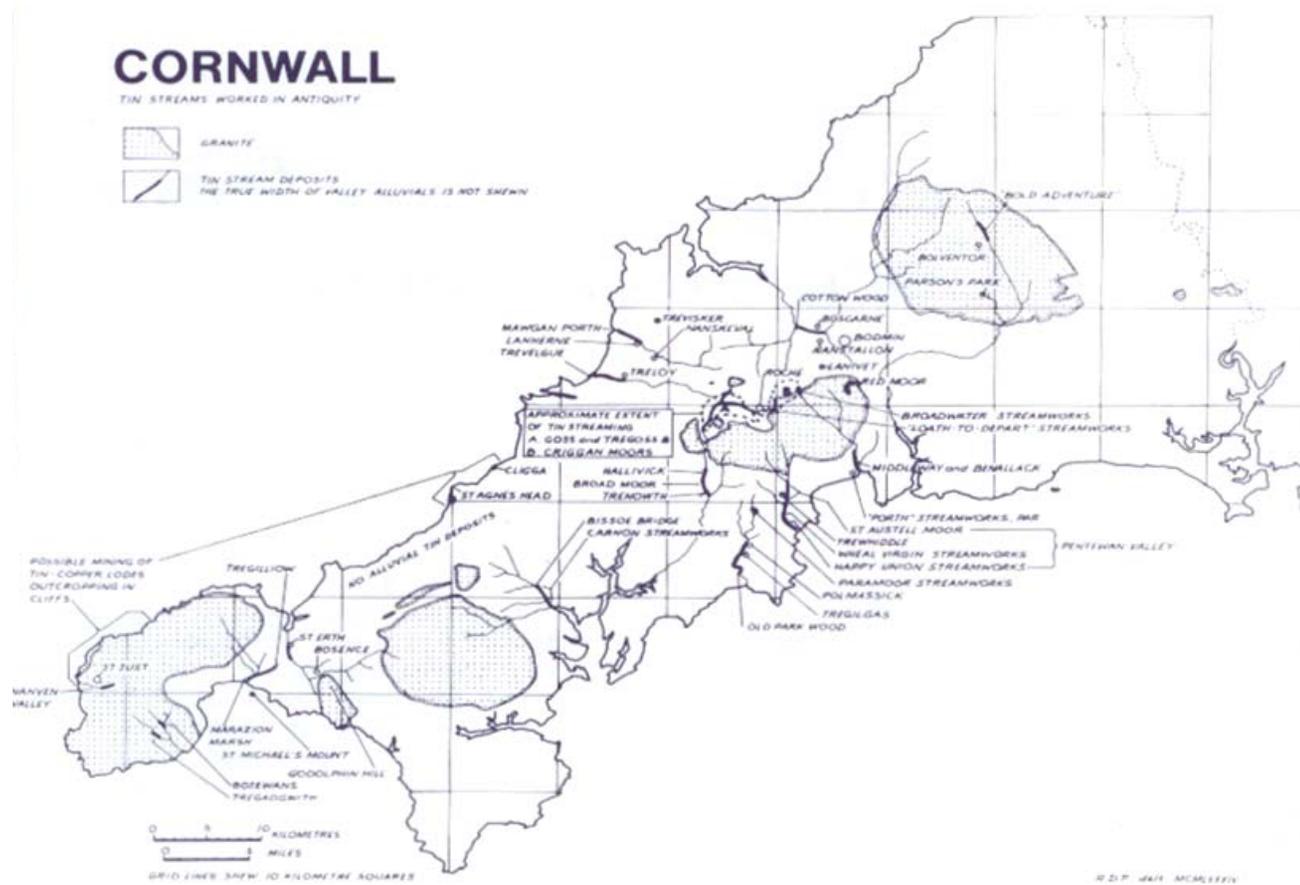


Figure 3. Cornwall: Tin streams worked in antiquity.¹⁶

¹⁶ R. D. Penhallurick, *Tin in Antiquity Its Mining and Trade Throughout the Ancient World with Particular Reference to Cornwall* (London: The Institute of Metals, 1986), 174.

Cornwall's rich deposits of tin ore have been worked since ancient times. Tin extraction continued in Cornwall through the end of the nineteenth century, after which it became more economical to mine it in other areas of the world.¹⁷

Historically speaking, the earliest classical sources that mention the tin islands date from the Iron Age. It is important to remember that these were not firsthand accounts, and often not even secondhand accounts. The Roman and Greek authors who wrote about the location of the tin islands included Herodotus (fifth century BC), Timaeus (surviving in Pliny the Elder; third century BC), Poseidonius (second century BC; surviving in Strabo's *Geography*), Strabo himself (first century AD), the historian Diodorus Siculus (first century BC), the naturalist Pliny the Elder (first century AD), and the geographer Pomponius Mela (first century AD).¹⁸ These authors probably never traveled to most of the locations they described. Since on a number of occasions they refer to the tin deposits in Spain and then mention the tin islands separately, we can infer that they were somewhere outside of Spain.¹⁹ Timaeus, referred to the *Kassiterides* as being opposite *Celtiberia*, and described *Mictis* as an island to which the Britons sailed in boats of twigs, stitched round with hides, bringing processed tin to be traded.²⁰ That implies the island was relatively close to Britain. Diodorus Siculus, in a detailed account from the first century BC, described an island with a similar

¹⁷ Penhallurick, 174.

¹⁸ John P.A. Gould, *The Oxford Classical Dictionary*, 3rd ed., s.v., "Herodotus," 696-8; Klaus Meister, *The Oxford Classical Dictionary*, 3rd ed., s.v., "Timaeus," 1526-7; Ian Gray Kidd, *The Oxford Classical Dictionary*, 3rd ed., s.v., "Poseidonius," 1231-3; Nicholas Purcell, *The Oxford Classical Dictionary*, 3rd ed., s.v., "Strabo," 1447; Kenneth S. Sack, *The Oxford Classical Dictionary*, 3rd ed., s.v., "Diodorus Siculus," 472-3; Nicolas Purcell, *The Oxford Classical Dictionary*, 3rd ed., s.v., "Pliny the Elder," 1197-8; Nicholas Purcell, *The Oxford Classical Dictionary*, 3rd ed., s.v., "Mela," 1218.

¹⁹ Strabo, *The Geography of Strabo*, trans. Horace Leonard Jones, (Cambridge: Harvard University Press, Vol. II, 1988), III. 5.11., 156-9; Pliny the Elder, *Pliny Natural History*, trans. H. Rackham, (Cambridge: Harvard University Press, Vol. IX, 1952), XXXIV. 47.156-59; 48. 160., 240-243.

²⁰ Pliny, *Natural History*, XXXIV. 47.156-7., 240-41; Pliny the Elder, *Pliny Natural History*, trans. H. Rackham, (Cambridge: Harvard University Press, Vol II, 1989), IV. 16. 104-5., 199.

name, *Ictis*, located off a promontory of Britain, as the place to which the Britons conveyed their refined tin.²¹ Diodorus' source was probably Timaeus, on whom he relied heavily throughout his *History*.²² This is most certainly the southwestern promontory of that island, comprised of Devon and Cornwall. In *The Gallic Wars*, Julius Caesar wrote that tin could be found in Britain. He may have read about it from an earlier literary source, or perhaps local tribes in Britain informed him; in either case, his brief invasion never came near the tin-producing areas of southwest Britain.²³

Were they really "tin islands" or trading stations for tin somewhere off the coast of Britain? It has been suggested for decades that the Isles of Scilly are the *Kassiterides*.²⁴ This cluster of small islands appears to be a logical guess, but there is no tin to be found in these islands (as has been demonstrated by prospecting done on several occasions over the last hundred years). Likewise, there is no evidence for ancient mining.²⁵ In addition, during the time of the Roman Empire, today's Isles of Scilly were a single large island, known in Latin as *Silura Insula* or *Sylina Insula* (e.g., the singular rather than plural form of the noun).²⁶ Due to a rise in the sea level of nearly fifteen feet in the intervening centuries, the multiple

²¹ Penhallurick, 142.

²² Kenneth S. Sack, *The Oxford Classical Dictionary*, 3rd ed., s. v., "Diodorus Siculus," 472-3.

²³ C. Julius Caesar, *Caesar The Gallic War*, trans. H. J. Edwards, (Cambridge, Harvard University Press, 1986), V.12, 250-1.

²⁴ William Copeland Borlase, *Historical Sketch of the Tin Trade in Cornwall, from the Earliest Period to the Present Day: A Lecture Delivered at the Institute, St Just-in-Penwith, March 9th, 1874* (Plymouth, England: W. Brendon & Son, 1874); These islands lie roughly thirty miles west of the most western tip of the Cornish peninsula.

²⁵ Penhallurick, 121.

²⁶ "The Isles of Scilly: Cornwall, England," n.p., 2005, < <http://www.swuklink.com/BAAAGBLQ.php+island+of+Sylina.&hl=en> > [cited March 2005] (Webpage; link no longer functions).

islands of today were created.²⁷ Even now, one can walk between some of the larger islands at low tide.



Figure 4. Isles of Scilly (satellite image).²⁸

Mictis or *Ictis* has been thought by many scholars over the last several centuries to be St. Michael's Mount in Cornwall.²⁹ This is an island connected to the mainland by a land bridge at low tide.³⁰ However, many other locations have also been suggested (See Figure 5. for a list of places suggested in southern England). Since the southwest coastline of Britain has experienced such a great loss of land as a result of rising sea levels over the last 2000

²⁷ A. C. Waddelove and E. Waddelove, "Archaeology and Research into Sea-Level during the Roman Era: Towards a Methodology Based on Highest Astronomical Tide," *Britannia* 21 (1990): 253-266.

²⁸ The Map Shop, "Scilly, Isles of," South West England, n.d., <
<http://www.themapshop.co.uk/images/skyview/islesofscilly.jpg> > [cited March 2005] (Satellite Image; link no longer functions).

²⁹ Penhallurick, 143-6, cites: D. G. Whitley, "The Ictis of Diodorus in the Light of Modern Theories," *Transactions of the Royal Geological Society of Cornwall* 15 (1915): 55-70; T.F. Barham, "Some Arguments in Support of the Opinion that the Iktis of Diodorus Siculus is St. Michael's Mount," *Transactions of the Royal Geological Society of Cornwall* 3 (1828): 86-112; Cormac, *Glossary*, (AD 900).

³⁰ Penhallurick, 145.

years,³¹ some of the barely submerged sea mounts off the coast of Cornwall should be studied as possible locations for *Ictis*.

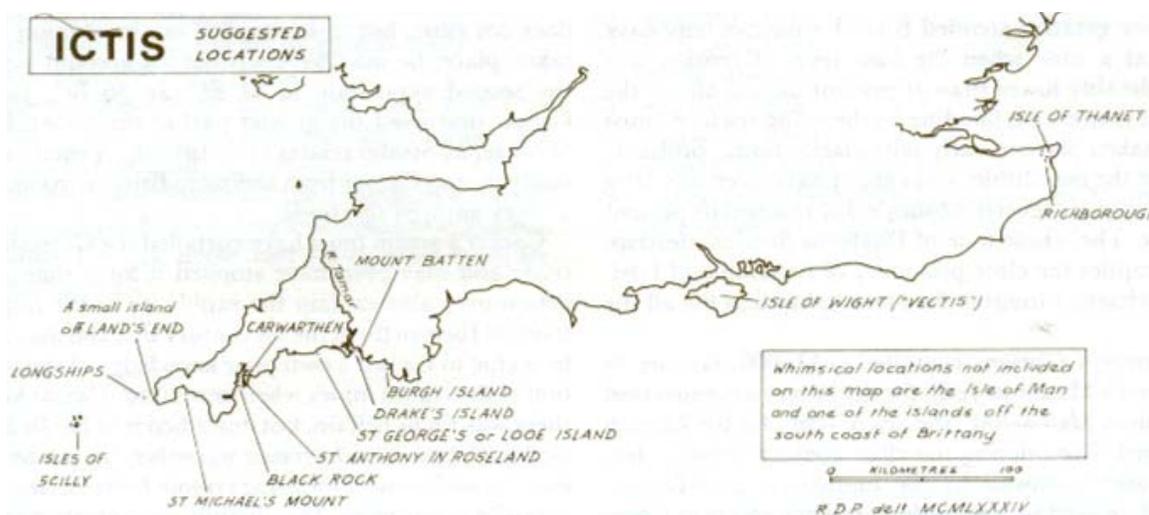


Figure 5. Map of possible *Ictis* locations in southern England.³²

It is likely that the *Kassiterides* were a place whose geographic position was only vaguely known to ancient writers, and that the place acquired the name of the product for which it was most famous. The Amber Isles depicted on medieval maps, which are actually the modern Baltic Coast, are another example of this tendency among writers in earlier eras.³³

Not surprisingly, archaeological evidence which documents ancient tin mining and refining in Cornwall is sparse, and what has been discovered can often be difficult to date. This is partially because of continued tin mining until the nineteenth century and the rise of the china clay industry, both of which destroyed vast swathes of ground and obliterated evidence of previous mining activity. Most major finds have occurred in the last three

³¹ Penhallurick, 156. An example of this encroachment is that St. Michael's Mount used to be surrounded by a great wood, which was submerged around 2000 BC due to the rising sea.

³² *Ibid.*, 145, Map 23.

³³ *Ibid.*, 128.

hundred years, though many of those discoveries no longer exist. (Many finds did not survive because they were melted down for money by miners.)³⁴ Fortunately, enough evidence has survived to document that tin mining, processing, refining and distribution occurred in Cornwall from ancient times, and that the refined metal was distributed to large portions of Europe. Archaeological evidence of Cornish tin mining includes, but is not limited to, ancient mining tools, descriptions of Cornish mine shafts similar to known Bronze Age flint mines, slag and bronze items at smelting sites dated to the Bronze Age, the occasional ancient tin ingot (one in a Bronze Age barrow at Bosilliac Croft), as well as tin beads and nails found in Bronze Age sites scattered across Europe from Jutland to the Netherlands to Switzerland (none of which have their own source of tin).³⁵

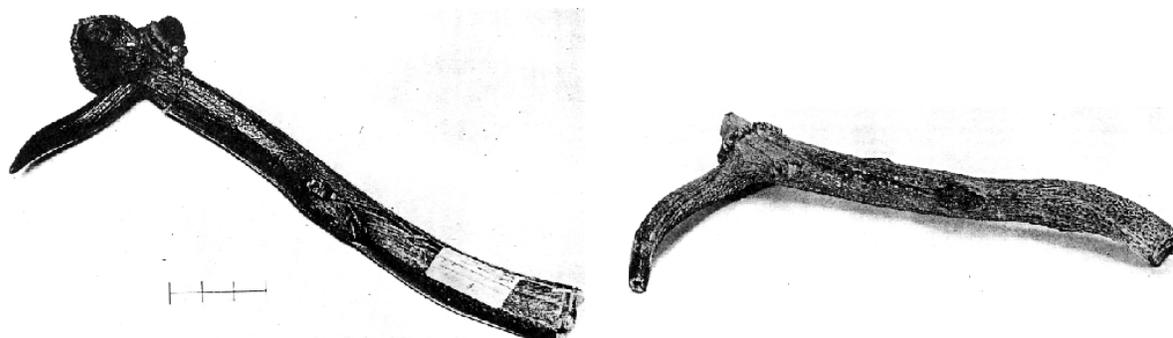


Figure 6. Antler picks from Carnon Valley tin stream (private collections).³⁶

³⁴ J. W. Barnes, "The First Metal Workings and Their Geological Settings," *Subterranean Britain: Aspects of Underground Archaeology*, ed. Harriet Crawford, (London: John Baker, 1979), 45; Penhallurick, 173.

³⁵ Hammersen, 35-53.

³⁶ Penhallurick, 169.



Figure 7. A selection of Erme estuary tin ingots.³⁷

Evidence of reciprocal trade to Cornwall during the Bronze Age and early Iron Age also exists, such as a Bronze Age Mycenaean dagger reportedly discovered in a Cornish barrow, Irish gold *lunulae* (crescent-shaped necklaces, early Bronze Age), and Baltic amber (i.e. the Fowey pin, Bronze Age).³⁸

³⁷ Bryan Stuart, "Ingots & Ingots," *Sub Aqua Association Archaeology Newsletter*, August 2002, < http://www.saa.org.uk/old_site/index/archaeology/ArchaeologyNews-August02.htm > [cited March 2005] (Article; Image used with the permission of the of Royal Albert Memorial Museum).

³⁸ Penhallurick, 137, 164, 175-7; Cheryl Straffon, "Golden Treasures from Cornwall's Past," *Meyn Mamvro: Stones of Our Motherland*, n. d., < <http://www.meynmamvro.co.uk/article2.htm> > [cited April 2005] (Article and Image); "Archaeology in Cornwall: Settlement and Ceremony - an Organized Landscape 2500-600BC Bronze Age," from *Cornwall's Archaeological Heritage*, The Chain, n.d., < http://www.chain.org.uk/chain-theme/arc_cor4.html > [cited April 2005] (Article; link no longer functions); Mary Davis, "The Pen y Bonc Necklace," *Wales Past: 250,000 Years of Life in Wales*, September 2004, < http://www.walespast.com/article_images/92-41.jpg > [cited April 2005] (Article; link no longer functions); Kerry Patterson, "Meet the Mysterious Bog People in Manchester," *24 Hour Museum*, February 2005, < <http://www.24hourmuseum.org.uk/ixbin/hixclient.exe> > [cited April 2005] (Article and Image; link no longer functions).



Figure 8. Pelynt dagger (found in Cornwall, thought to be Mycenaean); Compared to the outlined figure which is a Furumark's type *b* dagger from Mycenae.³⁹



Figure 9. The Exloo Necklace, Bronze Age. This necklace was found in a bog in the Netherlands and contains both tin beads (most likely from Cornwall) and amber (probably from the Baltic coast).⁴⁰

There are many proposals regarding who transported the Cornish tin from Britain to continental Europe in pre-Roman times. Various scholars have suggested Celtic tribes, Jews (who according to longstanding cultural tradition are the miners of the past in Cornwall), Phoenicians, and the Irish as the traders.⁴¹ Though there is insufficient surviving evidence to

³⁹ Penhallurick, 137.

⁴⁰ Kerry Patterson, "Meet the Mysterious Bog People in Manchester," [cited April 2005] (Article and Image; link no longer functions).

⁴¹ Penhallurick, 113, 125, 127; Christopher Hawkins, *Observations of the Tin Trade of the Ancients in Cornwall: and on the "Ictis" of Diodorus Siculus* (London: J.J. Stockdale, 1811), 22-27, 50-53; Hawkins is one

point definitively to any of these groups, there is also no reason to exclude any of them, since all were capable of having been involved in the trade of this valued commodity. The one group that scholars can say for certain traded extensively with Britain was the *Veneti*, a Celtic tribe in Brittany, who opposed Caesar during the Gallic Wars. Both Caesar and Strabo described their massive, ocean-going fleet and identified them as trading with Britain.⁴²

It has long been argued by modern historians that, after the destruction and enslavement of the *Veneti* and their allies by Caesar, Britain's tin trade was largely cut off with Europe for decades.⁴³ No doubt, the tin trade between southwest Britain and continental Europe fluctuated over time. However, the metal was sufficiently valuable to have been included in the accounts of almost a dozen Greek and Roman writers, spanning hundreds of years. Though the tin trade was probably disrupted for a period after the *Veneti's* defeat, it is unlikely that the trade of this very valuable metal ceased entirely.

of the earliest sources this author could acquire. However, theories about the tin trade and who the traders were goes back, not counting classical sources, to at least to the seventeenth century to William Camden who wrote *Britannia* in 1607.

⁴² Caesar, III.9 -16., 148-161; Strabo, IV.4., 234-5.

⁴³ Shepherd, 341; Scullard, 130.

Chapter II

Roman Invasions and Conquest of Britain

This chapter will briefly recount the Roman invasions of Britain and the slow conquest and occupation of the island that became the province of *Britannia*, beginning with the first invasion by Julius Caesar in 55 BC and focusing on the period from the subsequent invasion during the reign of Emperor Claudius in AD 43 through the final subjugation of Wales by Julius Agricola in AD 85. The conquest of the southwestern peninsula of the island, which occurred from AD 43-50, will be addressed in greater detail. Neither the Roman military campaign in the southwest, nor the *Dumnonii*, the tribe that occupied Devon and Cornwall, is mentioned in any surviving first century accounts. Thus, the best evidence we have of the Roman conquest of the southwest comes from archaeological discoveries. This chapter will include a survey of the major archaeological evidence, such as the fortress of the *Legio II Augusta* in Exeter and multiple smaller Roman military forts and camps. The archaeological evidence will be shown to correlate to later maps depicting Roman *Britannia*, such as the *Itinerarium Antonini Augusti* (third century), the *Tabula Peutingeriana* (fourth century), and the *Ravenna Cosmography* (eighth century).

Before looking at the actual conquest itself, it is important to define the period and the area being discussed. The boundaries of the Roman province of *Britannia* changed over time, as shown below.

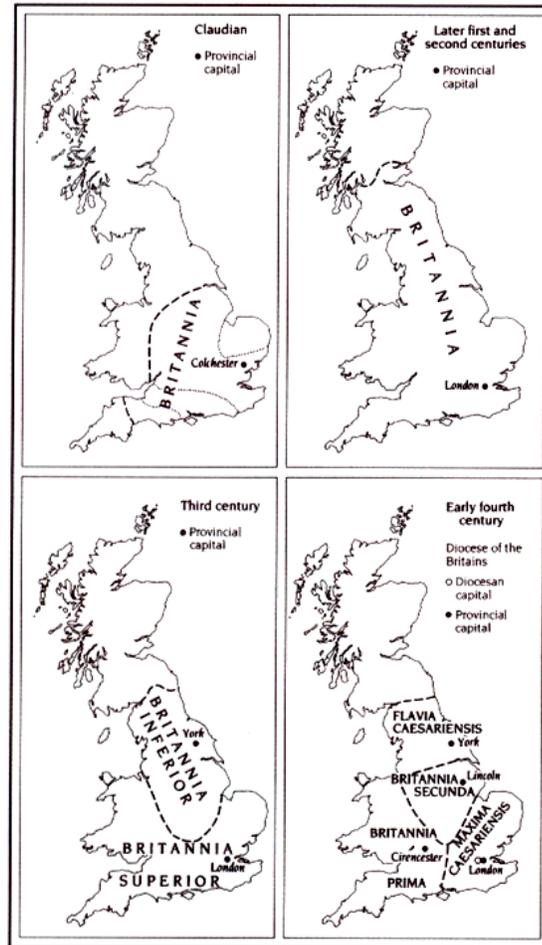


Figure 10. The Roman province of *Britannia* ⁴⁴

Roman attempts to conquer Britain lasted from the initial invasion by Claudius in AD 43 to the final subjugation of Wales by Julius Agricola in AD 85 ⁴⁵ (if one excludes the numerous and failed attempts to conquer Scotland). Gaius Julius Caesar invaded Britain twice during the Gallic Wars. In the years 55 and 54 BC, Caesar invaded the southeastern part of Britain, but did not fully subdue even the area he occupied. Instead, he made client

⁴⁴ Peter Salway, *The Roman Era: The British Isles 55 BC – AD 410* (Oxford: Oxford University Press, 2002), 255.

⁴⁵ William Edwards, *Notes on British History: Part I to Richard III 1485* (London: Rivingtons Publishers Ltd., 1967), 3-5.

kings of the tribes he conquered, requiring they pay taxes to Rome.⁴⁶ Britain remained unconquered for almost a century due to many events, including the Roman Civil War, rebellions in Gaul, and border issues in different parts of the empire.

But Rome did not lose interest in Britain after Caesar's withdrawal in 54 BC. Augustus planned to invade Britain on several occasions, but could not due to problems elsewhere in the empire.⁴⁷ Though Caligula took the title *Britannicus*, he never actually crossed the English Channel.⁴⁸

Thus, from 55 BC to AD 43, the Romans never reached the southwest. The focus, therefore, will be on the period from Claudius' invasion in AD 43 to 85, for this is when the Romans conquered the whole of southern Britain.

The Roman Conquest of Southwestern Britain - History and Archaeology

It has long been held that southwestern Britain – Cornwall and Devon – was largely untouched by the Romans.⁴⁹ It has been speculated that this area did not cause trouble for the Romans or that it was not worth the investment.⁵⁰ However, areas close by (such as the *Durotriges* in Wiltshire and Dorset) resisted the Romans heavily, and there was significant

⁴⁶ Ramon L. Jiménez, *Caesar Against the Celts* (Edison, New Jersey: Castle Books, 2001), 112-130, & 158-9; Marcus Tullius Cicero, *Cicero Letters to Atticus*, trans. E. O. Winstedt, (Cambridge, Harvard University Press, Vol XXII, 1993), IV.18., 330-1.

⁴⁷ Cassius Dio Cocceianus, *Dio's Roman History*, trans. Earnest Cary, (Cambridge: Harvard University Press, 1961), XLIX. 38., 418-419 ; Cassius Dio Cocceianus, *Dio's Roman History*, trans. Earnest Cary, (Cambridge: Harvard University Press, 1994), LIII. 25., 256-9.

⁴⁸ Cassius Dio Cocceianus, *Dio's Roman History*, trans. Earnest Cary, (Cambridge: Harvard University Press, 1981), LIX. 25., 338-341.

⁴⁹ Shepherd, 341-2, 348; Fox, *South-West England*, 183; Haverfield, 24-26.

⁵⁰ Fox, *South-West England*, 183; Shepherd, 341-2.

localized resistance.⁵¹ To understand the area, two maps are provided, the first depicting the different tribes and their supposed territories and major settlements (from Caesar's time up to Boudicca's revolt in AD 60), and the second showing the modern counties of Britain.

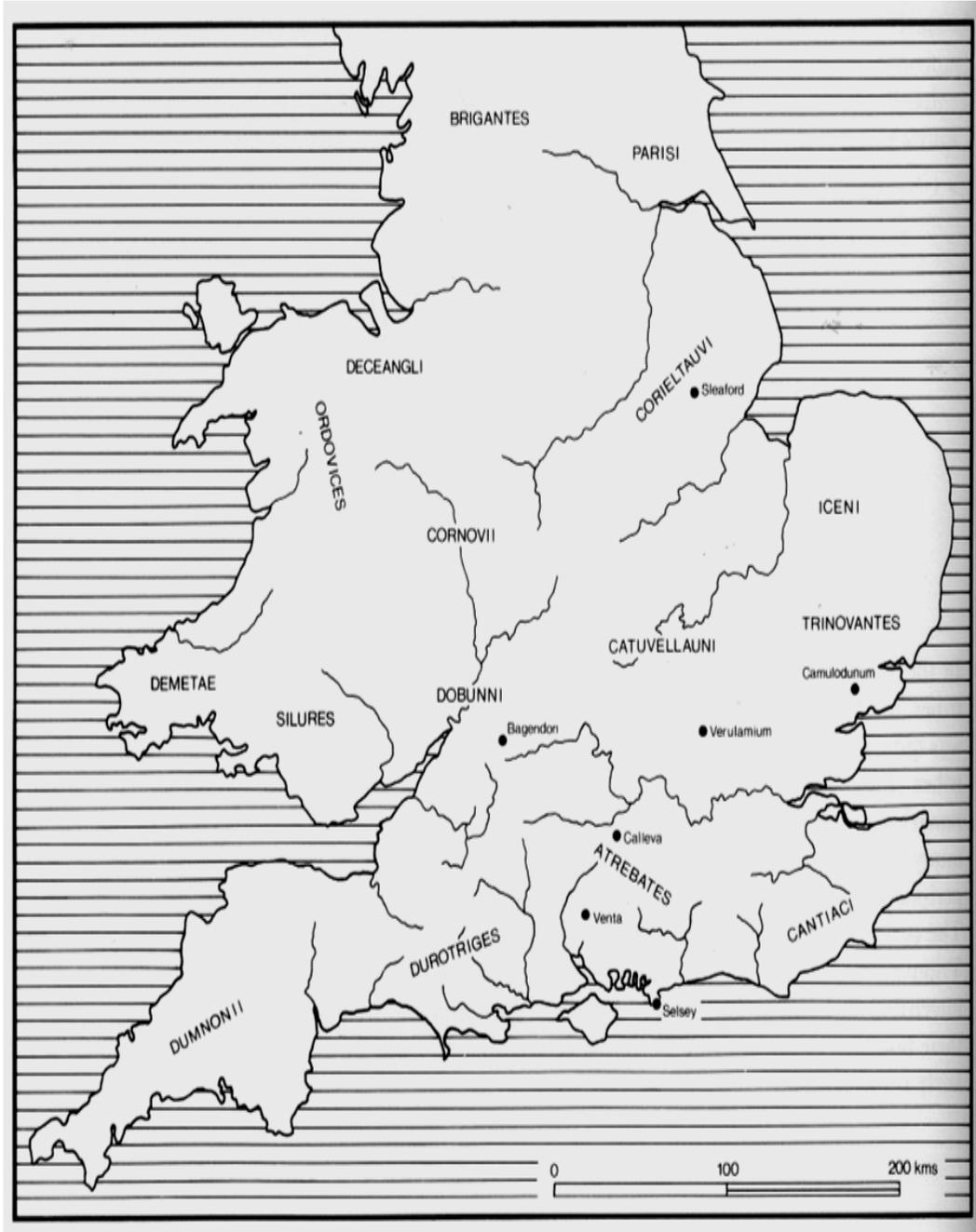


Figure 11. Tribes of Britain and most of their major settlements.⁵²

⁵¹ John Peddie, *Conquest: the Roman Invasion of Britain* (Gloucestershire: Sutton Publishing Ltd., 1987), 146-151; Jiménez, 144.



Figure 12. British counties.⁵³

⁵² Barry Cunliffe, *Iron Age Communities in Britain: An Account of England, Scotland and Wales from the Seventh Century BC until the Roman Conquest* (New York: Routledge, 1991), 160, Fig. 8.1.

⁵³ 'England,' *Lambda Education*, 2007, <<http://www.lambdaeducation.com/images/England/england-counties.gif>> [cited January 2007] (Map).

The first map shows that some of these tribes controlled vast territories. The territorial boundaries of these tribes are not precisely known, but rather inferred from evidence such as historical accounts and archaeological finds.

There are no historical sources that specifically and explicitly discuss the conquest of the southwest by the Romans. What little written information survives must be heavily augmented by archaeology in order to gain a picture of how the southwest was subdued. The primary sources are Suetonius' (ca. AD 70 – ca.130) "*The Deified Vespasian*" and Eutropius (late fourth century), who writes in his *Breviarium* an almost identical passage to that found in Suetonius.⁵⁴

Suetonius wrote that:

[Vespasian] was sent in command of a legion to Germany, through the influence of Narcissus; from there he was transferred to Britain, where he fought thirty battles with the enemy. He reduced to subjection two powerful nations, more than twenty towns, and the island of Vectis, near Britain, partly under the leadership of Aulus Plautius, the consular governor, and partly under that of Claudius himself.⁵⁵

Eutropius wrote that:

[Vespasian] had been sent by Claudius to Germany, and then to Britain, fought with the enemy thirty-two times and added to the Roman Empire two very powerful nations, twenty towns and the Isle of Wight, which is very close to Britain.⁵⁶

Neither source makes reference to any location in Cornwall or Devon, nor are the "nations" identified with any particular tribe in the southwest.

⁵⁴ Keith R. Bradley, *The Oxford Classical Dictionary*, 3rd. ed., s.v., "Suetonius Tranquillius," 1451-2; Alexander Hugh McDonald and John F. Matthews, *The Oxford Classical Dictionary*, 3rd. ed., s.v., "Eutropius," 577.

⁵⁵ Suetonius, "The Deified Vespasian," *Suetonius*, trans. J. C. Rolfe, (Cambridge: Harvard University Press, Vol II., 1992), VIII, 4., 286-7.

⁵⁶ Eutropius, *The Breviarium Ab Urbe Condita of Eutropius: The Right Honourable Secretary of State for General Petitions*, trans. H.W. Bird, (Liverpool: Liverpool University Press, 1993), 46.

The next source that describes places in this region is Ptolemy (second century AD), a geographer, astronomer and mathematician who charted much of the known world. In his *Geography*, he named many cities, geographical features, and rivers of the world.⁵⁷ It has been suggested that Ptolemy may have had access to Neronian army lists.⁵⁸ Ptolemy, writing well after the conquest of *Britannia* had been completed, names more than a dozen places in Cornwall and Devon.⁵⁹

The *Ravenna Cosmography*, by an unknown author, was written in Ravenna in the eighth century. It is a list of place names covering large portions of the world and is a compilation of older Roman maps and itineraries.⁶⁰ In the very first section covering southwest Britain, twenty-four places, rivers, or features are named.⁶¹ This document is included in this section on the conquest because a number of those places date to the period of conquest 600 years earlier.

During the Claudian invasion of Britain in AD 43, Titus Flavius Vespasian, the future emperor, commanded the *Legio II Augusta*.⁶² This legion seems to have operated in the

⁵⁷ G. J. Toomer, *The Oxford Classical Dictionary*, 3rd. ed., s.v., "Ptolemy," 1273-4.

⁵⁸ Graham Webster, *Rome Against Caratacus: The Roman Campaigns in Britain AD 48-58* (Totowa, New Jersey: Barnes & Noble Books, 1981), 63.

⁵⁹ A.L.F. Rivet and Colin Smith, *The Place-names of Roman Britain* (London: B.T. Batsford Ltd., 1979), 342; Ptolemy, *The Geography*, Book II. 2., LacusCurtius: Into the Roman World, 2005 (Loeb Classic online), < http://penelope.uchicago.edu/Thayer/E/Gazetteer/Periods/Roman/_Texts/Ptolemy/2/2*.html > [cited February 2005] (Loeb Classic online).

⁶⁰ Nicholas Purcell, *The Oxford Classical Dictionary*, 3rd. ed., s.v., "Itineraries," 775; 'The Ravenna Cosmography: The British Section, Roman Britain,' Roman-Britain.org, 2004, < <http://www.roman-britain.org/geography/ravenna.htm> > [cited January 2007] (Webpage).

⁶¹ Rivet and Smith, 248-9, 252-3, 258-9, 271-2, 297-9, 306-7, 335-8, 342-3, 367-8, 378, 414, 421-5, 440, 464-5, 470, 472, 483, 494-5.

⁶² Peddie, 130; Suetonius, "The Deified Vespasian," VIII, 4., 286-7.

south and southwest for a long period of time.⁶³ As cited above, Suetonius and Eutropius credited Vespasian with the conquest of the Isle of Wight and twenty settlements (though precisely where these twenty were is unknown).⁶⁴ Suetonius writes that Claudius awarded Vespasian “triumphal regalia...two priesthoods, besides the consulship, which he held for the last two month of the year” for his actions.⁶⁵ By AD 49, lead mining had begun at Mendip (near Bath) under the authority of *Legio II Augusta*.⁶⁶ The fact that Vespasian had sufficient control over the region that he could detach a portion of this legion to engage in a commercial activity is a good indicator that he had been successful in subduing the southwest during the time of Claudius.

The two main sources for the Claudian invasion and subsequent campaign are Suetonius’ “*The Deified Claudius*”⁶⁷ and Cassius Dio’s *Roman History*.⁶⁸ Neither source makes any explicit reference to any place or tribe in Cornwall or Devon.

Four legions took part in the conquest of Britain, under the overall command of Aulus Plautius. Because of Suetonius’ and Eutropius’ mention of the Isle of Wight as one of the areas Vespasian had captured during the initial campaign in AD 43, together with the fact that his *Legio II Augusta* was operating (or at least overseeing) the lead mines at Mendip from AD 49 onwards and the construction of the legion’s fortress at Exeter in AD 50, it has been generally held that Vespasian’s legion had remained south of the Thames River from

⁶³ Peddie, 130-162.

⁶⁴ Suetonius, “The Deified Vespasian,” VIII, 4., 286-7.

⁶⁵ Ibid., VIII, 4., 286-7.

⁶⁶ Shepherd, 303-309.

⁶⁷ Suetonius, “The Deified Claudius,” *Suetonius*, trans. J. C. Rolfe, (Cambridge: Harvard University Press, Vol II., 1992), V.17., 34-35.

⁶⁸ Cassius Dio, *Roman History*, LX. 19-23., 414-425.

AD 43 onwards.⁶⁹ However, given that the Romans were having troubles with Caratacus north of the Thames, modern scholars have questioned why Plautius was willing to detach one quarter of his force to conduct operations in the south or southwest, rather than keeping all four legions together north of the Thames. There are several points of view. One is that Plautius was concerned with the two most western tribes – the *Dumnonii* and *Durotriges*.⁷⁰ While there was some intensive fighting between the *Durotriges* and the Romans, documented archaeologically at famous sites like Maiden Castle in Dorset, it appears this was due to the *Durotriges*' attempts to fend off Roman incursions, rather than to their support of Caratacus' uprising to the north.⁷¹ Peddie offers a geographical explanation, arguing that the Roman intent in conquering the southwest was to establish a land / riverine route from the Bristol Channel to the English Channel in order to “cut out a wasteful and frequently hazardous [maritime] passage of some 300 miles around” Cornwall.⁷² Sauer takes an entirely different point of view, disagreeing with the traditional belief that the *Legio II Augusta* was stationed in the south during Vespasian's time in Britain (AD 43-47) and arguing that its fortress was at Alchester (north of Oxford), from where it would have conducted campaigns into the southwest during the summers and returned after the campaign season. Sauer believes this would have allowed Plautius to keep all of his legions in relative proximity to each other.⁷³ Roman military operations in Gaul and Germany certainly support the idea of

⁶⁹ Webster, *Rome Against Caratacus*, 44-45.

⁷⁰ Anne Johnson, *Roman Forts of the 1st and 2nd centuries AD in Britain and the German Provinces* (New York: St. Martin's Press, 1983), 239; Webster, *Rome Against Caratacus*, 44-45.

⁷¹ Peddie, 147-151.

⁷² *Ibid.*, 154-5.

⁷³ Eberhard Sauer, "Alchester: In Search of Vespasian," *Current Archaeology* 17, No. 196 (2005): 168-176, *Current Archaeology*, n.d., < <http://www.archaeology.co.uk/ca/issues/ca196/alchesterlores.PDF> > [cited January 2007] (Article).

legions operating hundreds of miles from their primary bases for months at a time.

Archaeological evidence shows that the II Legion operated in the south and southwest, but there is as yet insufficient evidence to show where the legion headquarters was based during the years immediately following the invasion.

Regardless of where they were based during those years, archaeological evidence shows that the majority of the *Legio II Augusta* had moved to a fortress in Exeter by about AD 50, and historical sources tell us that it was still based there when Boudicca revolted in the spring of AD 60.⁷⁴ The Roman governor of *Britannia* at this time was Gaius Suetonius Paulinus. He had led *Legio XIII Gemina Martia Victrix* and several cohorts of the *Legio II Augusta* to destroy the most sacred Druid site on the island of Anglesey in northern Wales. When Boudicca revolted, Paulinus marched south with only the *Legio XIII G.M.V.* and its auxiliary forces. He ended up calling for the remaining portions of the *Legio II Augusta* in Exeter and other legions to join him.⁷⁵ All four legions in Britain were mobilized, reinforced with additional troops from Gaul, and kept in the field through the winter of AD 60-61, until Paulinus was recalled to Rome.⁷⁶ Exactly when the legion returned to its fortress in Exeter is unknown. When Vespasian was sent back to Britain under Nero to provide stability after the

⁷⁴ The normal legionary fortress was between 50-60 acres in size (Graham Webster, *The Roman Imperial Army of the First and Second Centuries AD* (New York: Barnes & Noble, 1979), 182), but the fortress of the *Legio II Augusta* at Exeter was only 37-42 acres in size [depending on the source consulted: “Isca Dumnoniorum: Roman Legionary Fortress,” www.Roman Britain.org, 2006, <www.roman-britain.org/places/isca_dumnoniorum.htm> [cited February 2007], indicates the fortress is 37 acres in size (Webpage); “Roman Fortress,” *Exeter City Council*, Telematics Centre, University of Exeter, n.d., <http://www.exeter.gov.uk/timetrail/02_romanfortress/growth.asp> [cited January 2007] (City Council Webpage), indicates it is 42 acres in size]. The reason for the smaller size is unknown. It may have been that sub-elements of the legion remained at smaller forts across Devon and Cornwall.

⁷⁵ Stephen Dando-Collins, *Nero’s Killing Machine: The True Story of Rome’s Remarkable Fourteenth Legion* (Hoboken, New Jersey: John Wiley and Sons, 2005), 220; Tacitus, *Tacitus: The Annals*, trans. John Jackson, (Cambridge: Harvard University Press, Vol. 4, 1951), XIV. 38-39., 168-171.

⁷⁶ Dando-Collins, *Nero’s Killing Machine*, 230-1; Tacitus, XIV. 38-39., 168-171.

Boudiccan revolt of AD 60, the *Legio II Augusta* was still in the southwest.⁷⁷ It was not until approximately AD 75 that it moved into a new legionary fortress at Caerleon in southern Wales.⁷⁸

Bit by bit, archaeological evidence has been able to help scholars trace the movement of the *Legio II Augusta* westward from the time of Claudius. There is dateable evidence showing that the lead mines of Mendip, near Bath (Roman *Aquae Sulis*), were being worked from AD 49 to as late as AD 68 under the authority of the *II Augusta*. Two ingots were found in Britain bearing inscriptions dating them to AD 49, and another was found on the Somme which bore the markings of the *II Augusta* during the reign of the emperor Nero (AD 54-68). Given the relatively short period after the initial invasion that it took for mining to begin in the southwest, it has been suggested that the Romans knew of the mineral resources of that region even before the invasion.⁷⁹ Salway suggests that the primary tasks of Vespasian were to secure the metal-enriched regions (in his work he makes this statement while discussing the lead region around Mendips, east of Devon) of the southwest and establish a degree of control over the population, since the legion clearly was supervising the mining.⁸⁰ Peddie thinks that Vespasian may have finished the conquest of the west to the desired boundaries by the time Plautius resigned in AD 47.⁸¹ Whatever Vespasian's orders, he established sufficient control in the region that mining by the legion began quickly and continued for a long time.

⁷⁷ Webster, *Rome Against Caratacus*, 75.

⁷⁸ *Ibid.*, 75.

⁷⁹ Shepherd, 303-309.

⁸⁰ Peter Salway, *The Oxford Illustrated History of Roman Britain* (Oxford: Oxford University Press, 1993), 443.

⁸¹ Peddie, 135.

Roman Military Sites in Southwest Britain

Numerous Roman military sites in Devon and Cornwall have been discovered through historical sources, aerial photography, and archaeology. For some of these sites there is limited information. Nonetheless, assessing what is known about these sites will assist in understanding Roman control throughout the region and later impact on mining and control of tin.

Roman Devon & Cornwall

Only a few portions of the Roman roads in the southwest survive; this makes determination of the location of those roads to the west of modern Exeter theoretical to a large degree. Given the topography of Devon and Cornwall, it is possible that these may have been made of clay and other perishable materials. Lines have been traced between known military sites, archaeological finds, and Roman milestones to give an idea of the probable road system in the southwest. It has also been theorized that there was a fair amount of ocean and river travel.⁸²

Cities & Military Sites

Exeter

Exeter began as the legionary base known as *Isca Dumnoniorum*, established around AD 50-55. This fortress was home to the *Legio II Augusta* until c. AD 67, when it moved to *Glevum* (modern Gloucester), replacing the *Legio XX Valeria Victrix*, which had moved to *Viroconium* (modern Wroxeter).⁸³ Some elements of the II Legion may have remained in Exeter until about AD 75, when the entire legion moved to a new permanent base in southern

⁸² Fox, *South-West England*, 170.

⁸³ “Legio Secundae Augusta: Second Augusta Legion,” www.Roman-Britain.org, 2005, <
<http://www.roman-britain.org/military/leg2augusta.htm> > [cited February 2007] (Webpage).

Wales.⁸⁴ The location at Exeter is well situated so that a legion stationed there could move in multiple directions.⁸⁵ It also had control over the river Exe at the head of its tidal waters and could control traffic on the Fosse Way.⁸⁶ The name of the fortress is derived from two things – the river *Isca*⁸⁷ (now know as the Exe) and *Dumnoniorum* (either derived from the name of the people, *Dumnonii*, or the name of the *Dumnonim* Promontory – the modern Lizard Peninsula).⁸⁸ Exeter became the regional administrative center for the southwestern peninsula and has remained an important city into modern times.

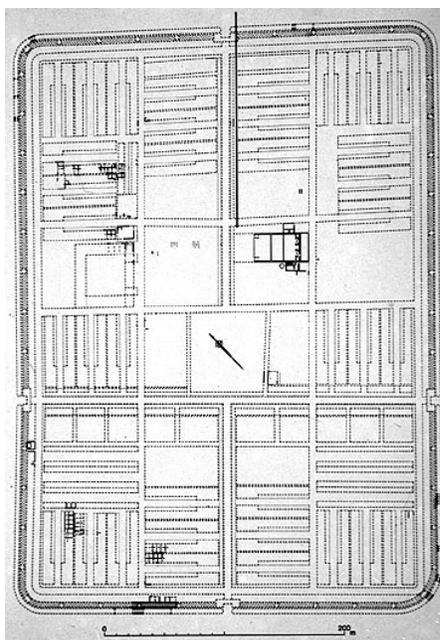


Figure 13. *Isca Dumnoniorum* layout of the fortress of the *Legio II Augusta*.⁸⁹

⁸⁴ ‘Roman Fortress,’ *Exeter City Council's Time Trail*, Telematics Centre, University of Exeter, n.d., < http://www.exeter.gov.uk/timetrail/02_romanfortress/growth.asp > [cited January 2007] (City Council webpage); Webster, *Rome Against Caratacus*, 65 & 75.

⁸⁵ Webster, *Rome Against Caratacus*, 65.

⁸⁶ Fox, *South-West England*, 158-9.

⁸⁷ Rivet and Smith, 342-3, 378, (cited by Rivet and Smith: Ptolemy, II.3.13.).

⁸⁸ *Ibid.*, 342-343, 376-8, (cited by Rivet and Smith: Ptolemy, II.3.13.).

⁸⁹ C. Henderson, ‘Plan of the Fortress,’ *Exeter Archaeology; Exeter City Council's Time Trail*, Telematics Centre, University of Exeter, n.d., < http://www.exeter.gov.uk/timetrail/02_romanfortress/object_detail.asp?photoref=2_05 > [cited January 2007] (Image used with the permission of the of Royal Albert Memorial Museum).

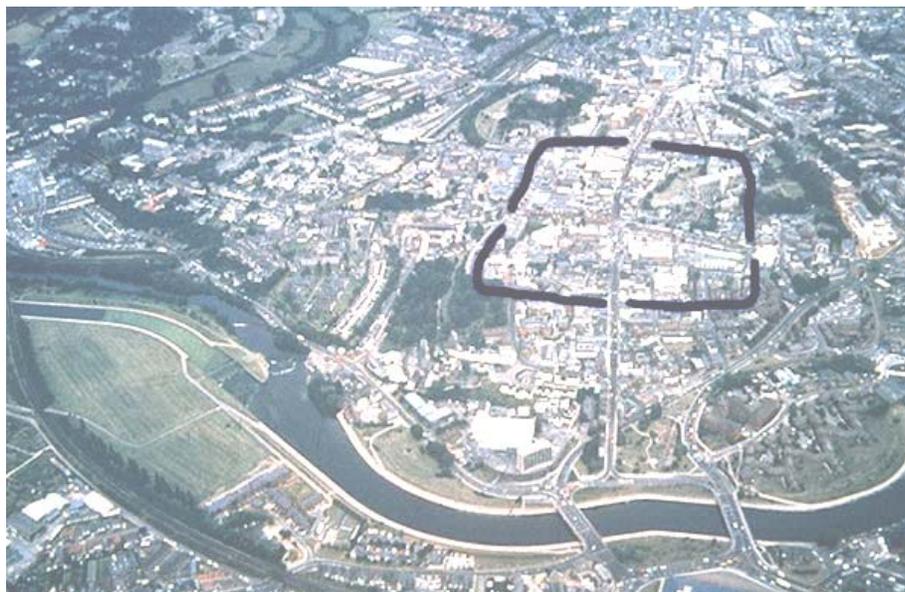


Figure 14. The modern city of Exeter with the lines of the legionary fortress.⁹⁰

The image above shows the outline of *Isca Dumnoniorum* superimposed on the modern city of Exeter. The main roadways of the fort are still used as the city's main roads. *Voliba, Uxella, and Tamara*

Voliba, Uxella, Tamara, along with *Isca*, are described by Ptolemy as the four cities of the *Dumnonii* tribe.⁹¹ These are also believed to all be the locations of subsequent Roman forts. *Isca* was the fortress of the *Legio II Augusta*. The location of *Voliba* remains unknown. *Uxella* (sometimes spelled *Uxela*) is a fort that may have been on the Parrett or Axe rivers, as

⁹⁰ D. Garner and F. Griffiths, 'Aerial view of central Exeter with superimposed area of fortress,' RAM Museum; *Exeter City Council's Time Trail*, Telematics Centre, University of Exeter, n.d., < http://www.exeter.gov.uk/timetrail/02_romanfortress/object_detail.asp?photoref=2_03 > [cited January 2007] (Image used with the permission of the of Royal Albert Memorial Museum).

⁹¹ Rivet and Smith, 343, (cited by Rivet and Smith: Ptolemy, II.3.13.).

Uxella is a name sometimes associated with them. *Tamara* refers to a settlement and possible Roman fort on the river Tamar.⁹²

Several fortlets, forts, signal stations, and marching camps have been found in Cornwall and Devon. The fortlets that are easiest to explain and define are those found on the northern coast, facing the Bristol Channel. These include two fortlets in Devon (Old Burrow and Martinhoe) and two in Cornwall (west of St. Gennys and west of Moorwenstow).



Figure 15. Forts along the Bristol Channel in Devon and Cornwall.⁹³

Old Burrow is a fortlet of Claudian date in northern Devon. Martinhoe is a Neronian fortlet, designed to house a single century, and seems to have been occupied at least until AD 74.⁹⁴ Little information is available on the two fortlets in Cornwall. Monitoring of the Bristol Channel makes sense, as this would have allowed the Romans to watch enemy movements and signal other Roman stations or possibly a fleet in the Bristol Channel.⁹⁵

⁹² Ibid., 464-5.

⁹³ Edited by author; 'Map_UK,' Scifi-World.net, 2004, < http://www.scifi-world.net/images/map_uk.gif > [cited January 2007] (Map).

⁹⁴ Fox, *South-West England*, 163.

⁹⁵ Ibid., 163-4.

Control of the Channel would have been essential if the Romans wanted to transport valuable goods, such as metals, by sea.

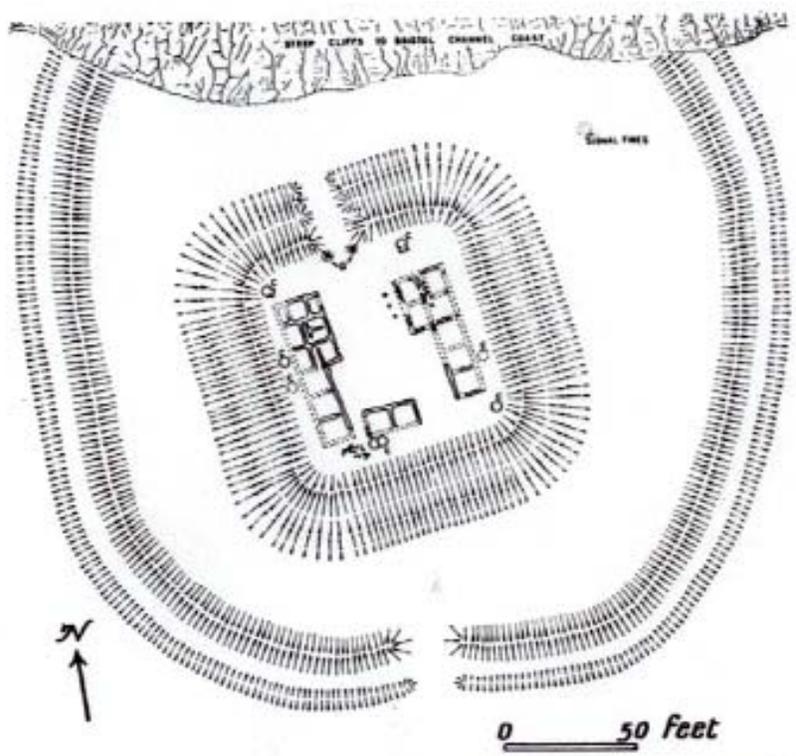


Fig 46 Reconstructed plan of the Roman fortlet of Martinhoe, north Devon. C, ovens; F, furnace; G, post-holes for gate posts; P, pit

Figure 16. Martinhoe, Devon.⁹⁶



Figure 17. Old Burrow, Countisbury, Devon.⁹⁷

⁹⁶ Fox, *South-West England*, 163.

⁹⁷ '278791 149296,' Getmapping.com, Collins-Bartholomew, 2005, < <http://www1.getmapping.com/webshop/Web/Common Pages/Main/preview.aspx?srid=27700&x=276775&y=149100> > [cited January 2007] (Image).

There were also signaling stations in the southwest, two of which (at Ide and Stoke Hill) overlook Exeter.⁹⁸ Stoke Hill may actually be a native settlement like a similar site in Devon on the river Torridge; however this has not been resolved.⁹⁹ South of Exeter a naval supply station was located at Tophsam.¹⁰⁰ (see Figure 22.)

Several smaller forts exist in Devon and Cornwall. In Devon, forts at Honiton Tiverton, Lapford, North Tawton, and Okehampton survive. These forts make a line stretching west across Devon. Honiton is east of Exeter and is the site of Hembury hillfort. The Roman fort was established within the bounds of the hillfort.¹⁰¹ Tiverton is a small fort whose boundaries have not survived completely. Archaeological evidence dates this fort to the mid-first century. Most of Lapford's fort at the Bury Barton farm (which dates to the Claudio-Neroian period) lies in the open, though modern buildings obscure part of it.¹⁰²

The site at North Tawton, which sits on the river Taw, has long been suspected to be the *Nemeto Statio* mentioned in the *Ravenna Cosmography*.¹⁰³ Several kinds of military sites survive there, including a marching camp, a fort, and part of the Roman road.¹⁰⁴ The fort has been identified as an "auxiliary fort with annex" and only 700 meters to the north is the temporary marching camp. There is some evidence to indicate that a second temporary camp

⁹⁸ G. S. Maxwell and D. R. Wilson, "Air Reconnaissance in Roman Britain, 1977-84," *Britannia* 18. (1987): 6.

⁹⁹ *Ibid.*, 6.

¹⁰⁰ Sheppard Frere and Michael Fulford, "The Roman Invasion of A. D. 43," *Britannia* Vol. 32 (2001): 52.

¹⁰¹ S.S. Frere, M. W. C. Hassall, and R. S. O. Tomlin, ed., "Roman Britain in 1982," *Britannia* 14 (1983): 323, 325-6.

¹⁰² Maxwell and Wilson, 2-3.

¹⁰³ Fox, *South-West England*, 171.

¹⁰⁴ Humphrey Welfare and Vivien Swan, *Roman Camps in England: The Field Archaeology* (London: HMSO, 1995), 54-56.

may have been established over the first at some point. This site seems to suggest it had a great deal of importance over an extended period. The map below depicts the fort, camps, and the Roman road in North Tawton.¹⁰⁵

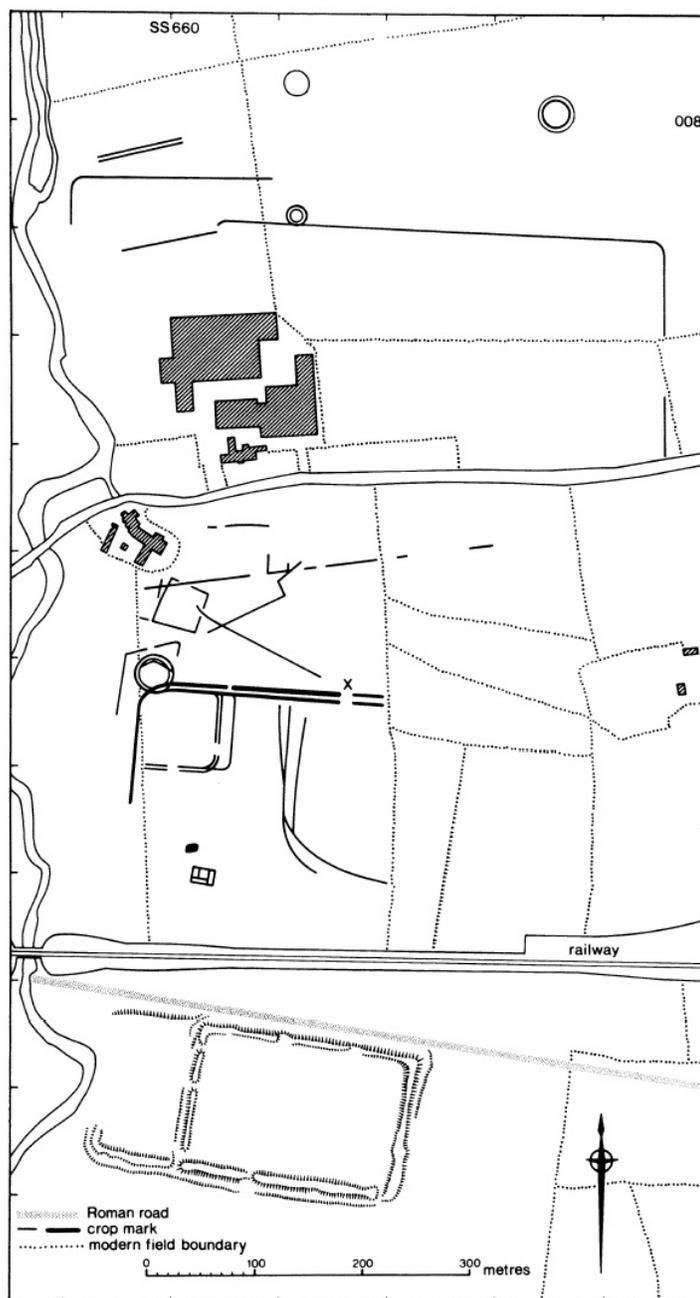


Figure 18. The Roman military sites at North Tawton.¹⁰⁶

¹⁰⁵ Maxwell and Wilson, 3-5.

¹⁰⁶ Ibid., 4, drawn by S. Morris.

Okehampton is a fort of about 2.6 acres in size located 7 kilometers southwest of the fort at North Tawton. Archaeological material indicates this is a Flavian fort.¹⁰⁷

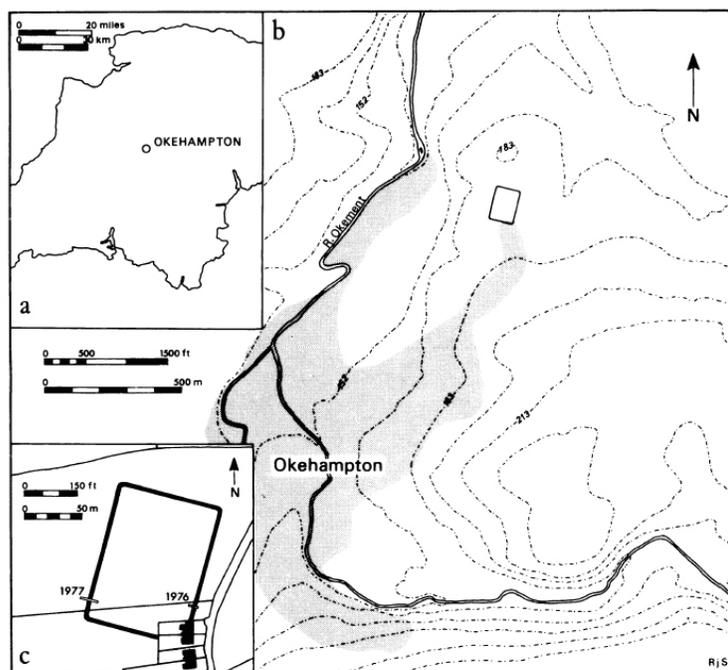


Figure 19. The Roman fort at Okehampton and its location.¹⁰⁸

There are three other sites in Devon that have not been firmly identified as Roman. Two of these are in the Culm Valley. Aerial photography implies that the one at Cullompton might have some of the internal features of a Roman fort, and pottery dating to around AD 75 was also found at sites in the Culm valley, but this site is marked as unknown.¹⁰⁹ The second site, at Killerton near Broadclyst, has some surviving earthen ramparts but no Roman material was found during excavations.¹¹⁰ The third possible fort lies between North Tawton

¹⁰⁷ Paul T. Bidwell, R. Bridgwater, and R. J. Silvester, "The Roman Fort at Okehampton, Devon," *Britannia* 10 (1979): 255-258; Maxwell and Wilson, 5.

¹⁰⁸ Bidwell, Bridgwater, and Silvester, 256.

¹⁰⁹ Maxwell and Wilson, 5.

¹¹⁰ *Ibid.*, 5-6.

and the river Tamar at Broadbury, and may be a half-acre fortlet with an excellent view of the surrounding area.¹¹¹

Remains of a temporary Roman marching camp exist in Devon at Alverdiscott, towards the coast. It is located on the Higher Kingdom Farm very close to a native hillfort. No date has been assigned to this site, though due to its location it may date to the early conquest period.¹¹²

In Cornwall, far fewer forts have been discovered than in Devon. It seems almost certain that there was one at Launceston at the crossing of the river Tamar. This would continue the line of forts that existed in Devon all the way down to Nanstallon. Both Ptolemy and the *Ravenna Cosmography* list a settlement named *Tamara*, which would have either been a fort or settlement on the river Tamar (Latin *Tamarus*). Unfortunately, no material has been found and the fort may be located under the current town and castle.¹¹³ Nanstallon is a 2 acre fort on the river Camel, thought to have been occupied from as early AD 50 to as late as AD 80. This site has been excavated and appears to have been an auxiliary fort for a *cohors equitata quingenaria* of 120 cavalry and 380 infantry.¹¹⁴

¹¹¹ Fox, *South-West England*, 164.

¹¹² Welfare and Swan, 25, 53-54.

¹¹³ Fox, *South-West England*, 164; Rivet and Smith, 464.

¹¹⁴ Fox, *South-West England*, 164.

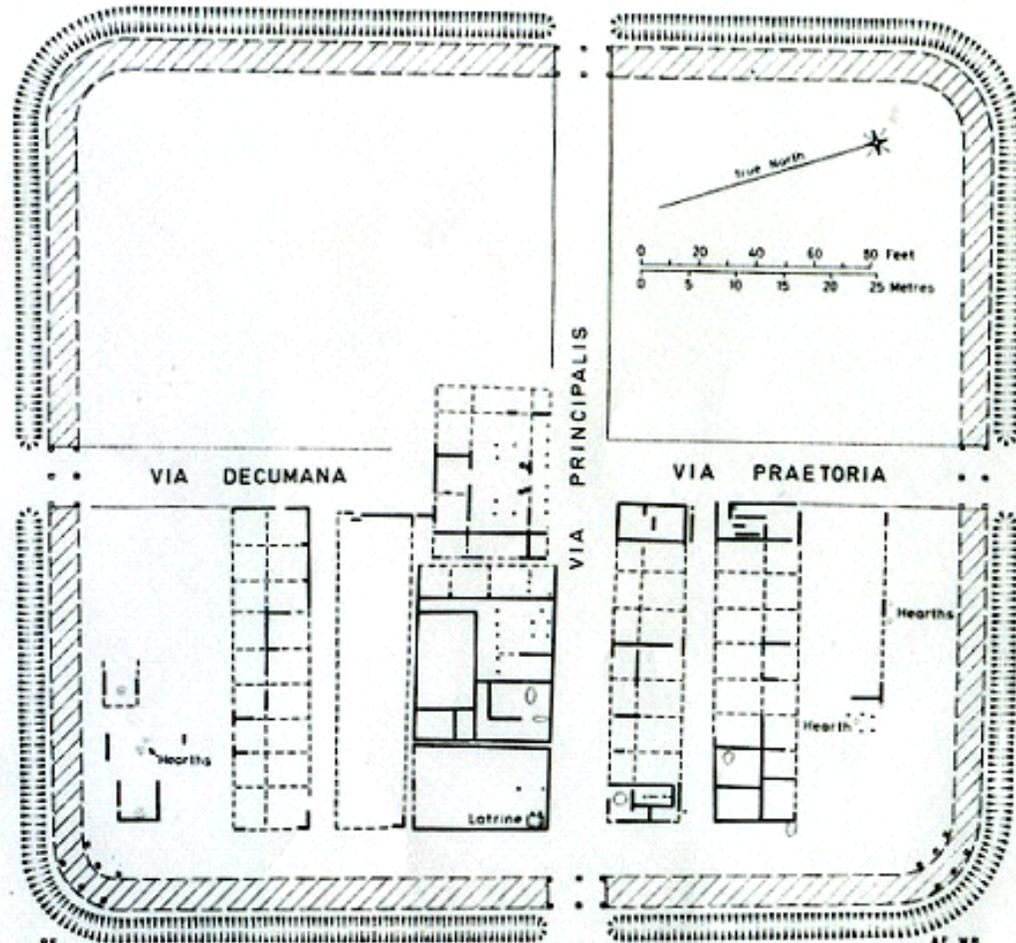


Figure 20. The Roman fort at Nanstallon.¹¹⁵

¹¹⁵ Fox, *South-West England*, 164, Fig. 47.

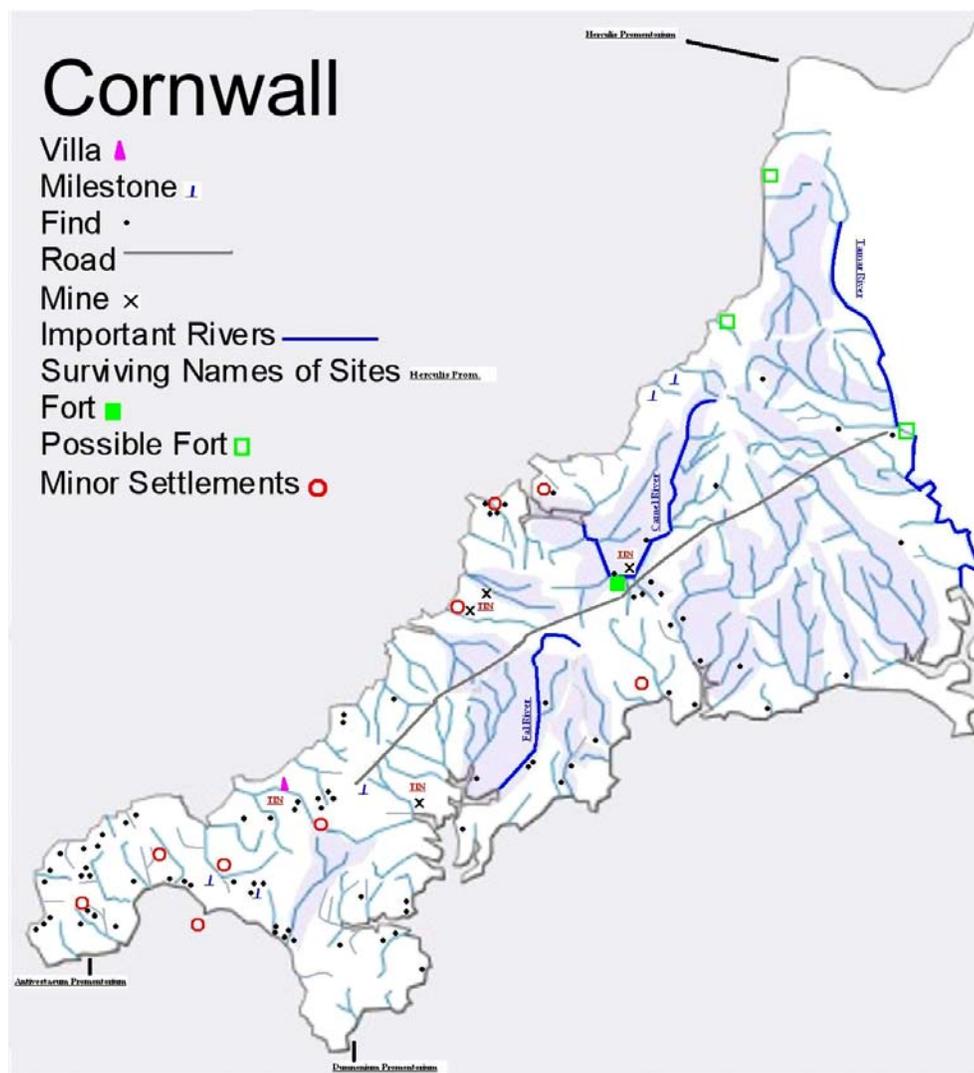


Figure 21. Roman sites and finds in Cornwall.¹¹⁶

In both Devon and Cornwall there was a line of Roman military sites. While this area was not heavily occupied by the Roman military, it clearly was not ignored during the period

¹¹⁶ A great many sources were used by this author to create this map. Sources used are listed below.

Map of Roman Britain (Southampton: Ordnance Survey, 3rd ed., 1956), foldout map; Ivan D. Margary, *Roman Roads in Britain* (London: John Baker, 3rd ed., 1973), 84; Fox, *South-West England*, 158. Map partially created by author, based on: 'Geography,' Cornwall Rivers Project, West County Rivers Trust, 2006, < <http://www.cornwallriversproject.org.uk/geography/index.htm> > [cited October 2006] (Map).

of the conquest of Britain from AD 43-85. If all of the suspected sites turn out to be Roman forts, then a line of military installations is revealed stretching southwest down the middle of the *Dumnonii* territory, along the Roman roads, and possibly extending all the way to the end of the Cornish peninsula. (Figure 22. see below)

The conquest of Britain initiated by Claudius in AD 43 was slow; in fact some parts of the island were never conquered. Unfortunately, literary sources for the period of conquest are few and at times differ over the same event. Archaeology has been used to help paint a clearer picture of southwest Britain in this important period. This is especially true as no accounts survive which discuss the conquest and occupation of Cornwall and Devon. Fortunately, archaeology confirmed by later Roman geographical accounts has provided a better understanding of the southwest in this period. Most importantly they have helped refute the belief that this region was ignored by the Romans.

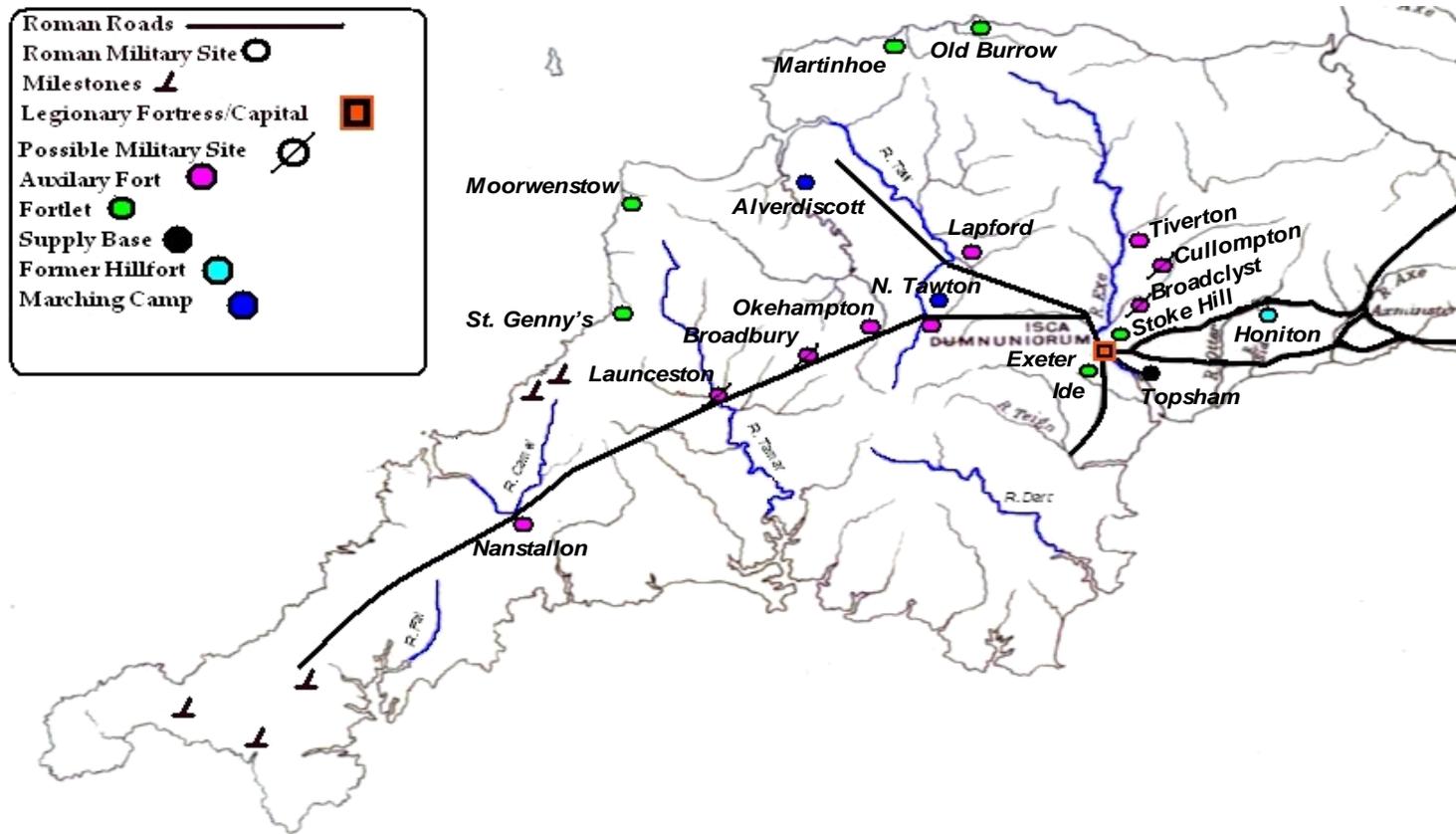


Figure 22. A map showing military sites and theoretical and actual roads in Cornwall and Devon.¹¹⁷

¹¹⁷Original map modified by author: Thomas Codrington, *A Map to Illustrate the Roman Roads in Britain: with Large Chart of the Roman Roads and Small Maps in the Text* (London: Society for Promoting Christian Knowledge, 1903), foldout map.

Locations on map compiled using: Martin Millett, *The Romanization of Britain: An Essay in Archaeological Interpretation* (Cambridge: Cambridge University Press, 1990), 64, Table 3.4; Fox, *South-West England*, 158; Margary, 84; *Map of Roman Britain*, foldout map.

Chapter III

Evidence for Continued Roman Occupation of Southwest Britain (AD 43 – 300)

Having discussed the military conquest of the southwest, now one must try to explore the evidence of continued Roman occupation of this region. This evidence – based on historical sources, archaeological finds and sites, and etymology – can help paint a picture of ongoing Roman control of Devon and Cornwall. This region was marked by the continuation, after the conquest, of native settlements (many of which seem to have been peacefully abandoned over time), building traditions, and trade goods. Because of these facts, it appears that the southwest may have been initially a client kingdom with Roman provincial administration overseeing continued rule of the local elite.¹¹⁸ This would explain a lack of Roman structures in the far southwest. It seems reasonable to argue that, under such an arrangement of governance, any tin extraction would have been conducted with local miners already familiar with the terrain and mineral deposits of their homeland.

Evidence in Primary Sources

The starting point for our understanding of the Roman occupation of southwest Britain is the surviving works of contemporary authors. There were only a handful of ancient scholars who described places, features, and towns of southwest Britain, and those provide only slight detail.¹¹⁹

¹¹⁸ In fact, Caesar established client kings in England as early as 54 BC. [Cicero, IV.18., 330-1.] Scullard writes, “Roman policy was always to accept and adapt to whatever units they found in the provinces, be they cities or tribes. ... In ... Britain, they acted through existing tribal units” [Scullard, 49].

¹¹⁹ The *Notitia Dignitatum* will not be addressed, as it does not refer to sites in this region. It also falls outside the period in question [R. S. O Tomlin, *Oxford Classical Dictionary*, 3rd ed., s.v., “Notitia Dignitatum,” 1049].

Ptolemy's *Geography*, names about thirteen places in Cornwall and Devon. He also mentions the *Dumnonii* tribe.¹²⁰

Gaius Julius Solinus, who wrote around AD 200, also mentions the *Dumnonii* in the southwest.¹²¹ The meaning of the name of this people is unclear. There is evidence of a goddess *Dumnu* and a god *Dumnonu* in Ireland. It has been suggested that the *Dumnonii* were the worshipers of the god *Dumnonos*.¹²²

Marcianus Heracleota (or Marcian of Heraclea) wrote a *Periplus* in the third century AD, in which he mentioned the *Damnum* Promontory, which he describes as also being known as *Ocrinum* Promontory. This point is also known as *Ocrinum* Promontory in Ptolemy. This refers to the Lizard Peninsula in Cornwall.¹²³

The *Antonini Itinerarium* (Antonine Itinerary) is a collection of late third century itineraries that listed stations and distances along Roman roads throughout the empire.¹²⁴ There are fifteen itineraries within the *Antonini Itinerarium* that cover *Britannia*, of which the twelfth and fifteenth itineraries mention *Isca Dumnoniorum*, and the unknown site of *Moridunum* (spelled *Moridono* in the twelfth itinerary).¹²⁵

¹²⁰ Rivet and Smith, 342; Ptolemy, < http://penelope.uchicago.edu/Thayer/E/Gazetteer/Periods/Roman/_Texts/Ptolemy/2/2*.html > [cited February 2005] (Loeb Classic online).

¹²¹ Richard Nicholls Worth, *Roman Devon: Address Delivered to the Members of the Devonshire Association for the Advancement of Science, Literature, and Art, at the second Tiverton meeting of that society, July 28th, 1891* (Plymouth: W. Brendon and Son, 1891), 6; Eric Herbert Warmington, *Oxford Classical Dictionary*, 3 ed., s. v. "Solinus," 786.

¹²² Rivet and Smith, 343; Caii Julii Solini, "De Mirabilibus Mundi," *The Latin Library*, n.d., < <http://www.thelatinlibrary.com/solinus2.html> > [cited April 2005] (The Latin Library; primary source material).

¹²³ Marcian of Heraclea, *Periplus of the Outer Sea: East and West, and of the Great Islands Therein*, trans. Wilfred H. Schoff, (Philadelphia: Commercial Museum, 1927), 43; Rivet and Smith, 429; Worth, *Roman Devon*, 6.

¹²⁴ Nicholas Purcell, *Oxford Classical Dictionary*, 3 ed., s.v., "Itineraries," 775.

¹²⁵ Margary, Appendix, 532-33.

The *Ravenna Cosmography*, originally described in Chapter II,¹²⁶ lists twenty-four places, rivers, or features in Cornwall and Devon.¹²⁷

The *Tabula Peutingeriana* (Peutinger Table) is a medieval copy (c. 1200) of one (or possibly several) Roman road map(s).¹²⁸ The only true map of these sources, it lists only three sites in Cornwall and Devon. This map comprises eleven sheets of parchment, totaling 6.8 meters in length and .33 meters in height, on which are depicted towns and settlements, topographic features such as rivers and mountain ranges, and over 200,000 kilometers of Roman roads. However, it does not depict a realistic representation of the terrain, nor a consistent scale or orientation of topographical or cartographic features.¹²⁹

¹²⁶ Nicholas Purcell, *Oxford Classical Dictionary*, 3 ed., s.v., "Itineraries," 775; Keith Fitzpatrick-Matthews, "South-West Britain," 2006, < http://www.kmatthews.org.uk/Ravenna_Cosmography/southwest_britain_introduction.html > [cited January 2006] (Webpage).

¹²⁷ Rivet and Smith, 248-9, 252-3, 258-9, 271-2, 297-9, 306-7, 335-8, 342-3, 367-8, 378, 414, 421-5, 440, 464-5, 470, 472, 483, 494-5.

¹²⁸ Nicholas Purcell, *Oxford Classical Dictionary*, 3 ed., s.v., "Peutinger Table," 1151; A. M. Gerhartl-Witteveen and P. Stuart, ed., *De Tabula Peutingeriana*, Vol. I and II, (Nijmegen: Vereniging van Vrieden van het Musuem Kam, 2nd ed., 1993).

¹²⁹ Jona Lendering, "Peutinger Map," Livius: Roman Empire, unknown, < <http://www.livius.org/pen/pg/peutinger/map.html> > [cited January 2006] (Webpage); A. M. Gerhartl-Witteveen and P. Stuart, ed., *De Tabula Peutingeriana*, Vol. I and II.

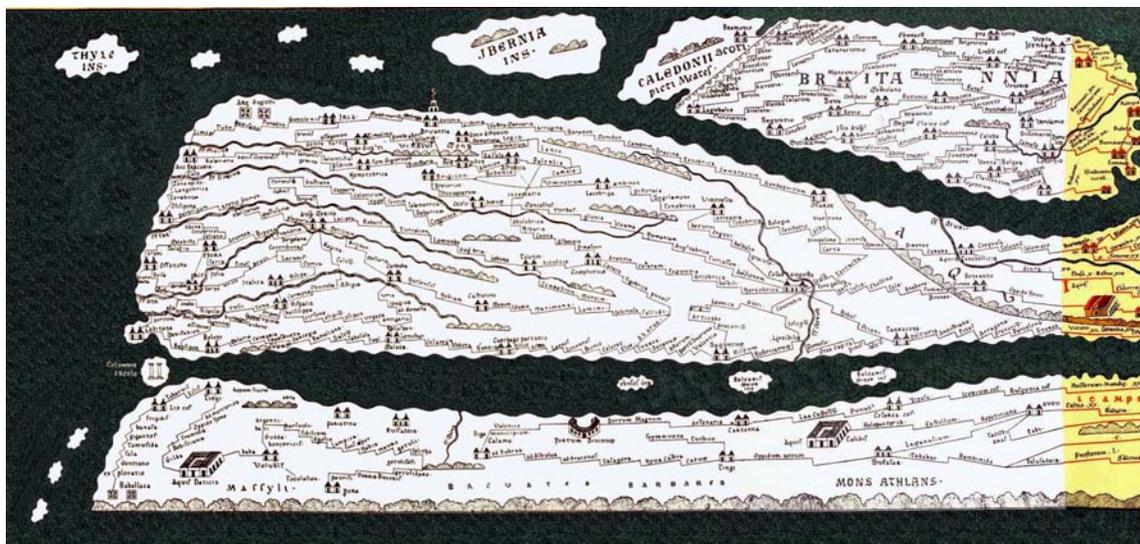


Figure 23. A nineteenth century reconstruction of the first (missing) map sheet showing western Europe in the Peutinger Table, paired up with the first portions of the second (surviving) map sheet (depicted in yellow).¹³⁰

The existing portions of the original map begin with a westernmost border that indicates it clearly was not the westernmost sheet of the original map, which means the first map sheet was lost at some point in time. Figure 23. shows a reconstruction of the missing first map sheet, depicting Ireland, Britain, France, Spain, and North Africa, connected to the surviving second map sheet (shown in yellow).¹³¹ The white section was created in the nineteenth century and does not exist on earlier copies.¹³² However, a close examination of the left-hand margin of the surviving second map sheet reveals the names of towns in England, Spain and North Africa, and the vertical border of that page indicates it was originally connected to another map sheet.

¹³⁰ Ulrich Harsch, Conradi Milleri, 'Tabula Peutingeriana, ca. 250, editio 1887/88, Segmentum I,' Bibliotheca Augustana, n.d., <http://www.fh-augsburg.de/~harsch/Chronologia/Lspost03/Tabula/tab_pe01.html> [cited January 2007] (Map).

¹³¹ Ibid., Conradi Milleri, [cited January 2007] (Map).

¹³² Gerhartl-Witteveen and Stuart, *De Tabula Peutingeriana, Museumstukken II de kaart*, Vol. II, 30.



Figure 24. The earliest surviving folio in the Peutinger Table, c. 1200. The arrow points to the only originally surviving portion of Britain, containing the sites in the southwest.¹³³

The close-up below depicts southern England and several named places. The two sites within the circle are on the surviving copy of the second map sheet map. These are the settlements of *Isca Dumnoniorum* (modern Exeter) and *Moridunum* (which appears as *Ridumo* on the map, modern location unknown).



Figure 25. Two cities in the southwest from the Peutinger Table.¹³⁴

¹³³ Ulrich Harsch, Manuscriptum originale ca. 1200, 'Tabula Peutingeriana, ca. 250, Segmentum II,' Bibliotheca Augustana, n.d., <http://www.fh-augsburg.de/~harsch/Chronologia/Lspost03/Tabula/tab_manu.html> [cited January 2007] (Map).

¹³⁴ Ibid., Conradi Milleri, [cited January 2007] (Map).

Archaeological Evidence

In addition to the various Roman itineraries and maps listing locations in southwest Britain, Romano-British settlements (that is, settlements that existed during the period of Roman occupation) have also been found through archaeological excavation, aerial photography, and other methods, throughout Britain. In the southwest, native styles of settlement construction survived during the period of Roman occupation in ways that they did not in other parts of Britain. In Cornwall, there are several types of traditional settlements, including cliff castles (promontory forts), hillforts, and rounds (with the term “round” referring to a method of building based on a circular plan, though some rounds are rectilinear).¹³⁵ Traditional architecture remained in Cornwall, though there was a new style, known as Courtyard houses (which had a central courtyard with rooms branching off in several directions), introduced around Land’s End on the furthest end of the Cornish peninsula.¹³⁶ In Cornwall, a fair number of sites exist that were in use, though not continuously, throughout the period of the Roman occupation. Many of these sites show evidence of Roman items, such as brooches, coins, pottery, etc. Intaglios have also been found in Cornwall, at least one of these dates to the late second or third century AD.¹³⁷ In Cornwall there are over a dozen Romano-British sites, while in Devon, fewer than half that

¹³⁵ Aileen Fox et. al., "The Roman Fort at Nanstallon, Cornwall," *Britannia* 3 (1972), 59.

¹³⁶ Fox, *South-West England*, 174-5.

¹³⁷ G. J. Walford and Martin Henig, “A Roman Intaglio Found near Callington,” *Cornish Archaeology* 22 (1983):118.

number have yet been discovered.¹³⁸ Most of the Romano-British sites in Cornwall and a number of those in Devon are on or very near the coast.¹³⁹

There are only four known and two possible Roman-era villas in the entire southwest. One was found at Magor Farm (not far from the Romano-British settlement of Carn Brea) in Cornwall. Nothing of this villa can be seen above ground.¹⁴⁰ Since the walls are not at true right angles, it has been suggested that this was either a copy of a Roman villa built by a local leader, or that a Roman hired local craftsmen to construct the villa. The villa at Magor Farms was built mid-second century and abandoned in the third century.¹⁴¹ In Devon, there are three villas: at Crediton (third through fourth centuries),¹⁴² Honeyditches (in Seaton, second through fourth centuries),¹⁴³ and Holcombe (in Uplyme, ca. mid-fourth century, with an Iron Age site lying beneath the villa).¹⁴⁴ Other villas may remain to be discovered at Chardstock (where flue tiles have been found)¹⁴⁵ and Membury (a site of a coin hoard, notably the latest dates for this hoard are AD 43).¹⁴⁶

¹³⁸ See Appendices A and B for list of Romano-British sites in Cornwall and Devon and the period of their occupation.

¹³⁹ Fox, *South-West England*, 170.

¹⁴⁰ Roger J. A. Wilson, *A Guide to the Roman Remains in Britain* (London: Constable and Company Ltd., 1975), 82.

¹⁴¹ Fox, *South-West England*, 173-4.

¹⁴² S. S. Frere, M. W. C. Hassall, and R. S. O. Tomlin, ed., "Roman Britain in 1987," *Britannia* 19 (1988): 473.

¹⁴³ Henrietta Miles, J. M. Price, and M. A. Sheldrick, "The Honeyditches Roman Villa, Seaton, Devon," *Britannia* 8 (1977): 107-148.

¹⁴⁴ M. W. C. Hassall et. al., ed., "Roman Britain in 1971," *Britannia* 3 (1972): 344; D. R. Wilson and R. P. Wright, "Roman Britain in 1969," *Britannia* 1 (1970): 297.

¹⁴⁵ Henrietta Miles, et. al., 147.

¹⁴⁶ *Ibid.*, 147; S. S. Frere, M. W. C. Hassall, and R. S. O. Tomlin, ed., "Roman Britain in 1989," *Britannia* 21 (1990): 350.

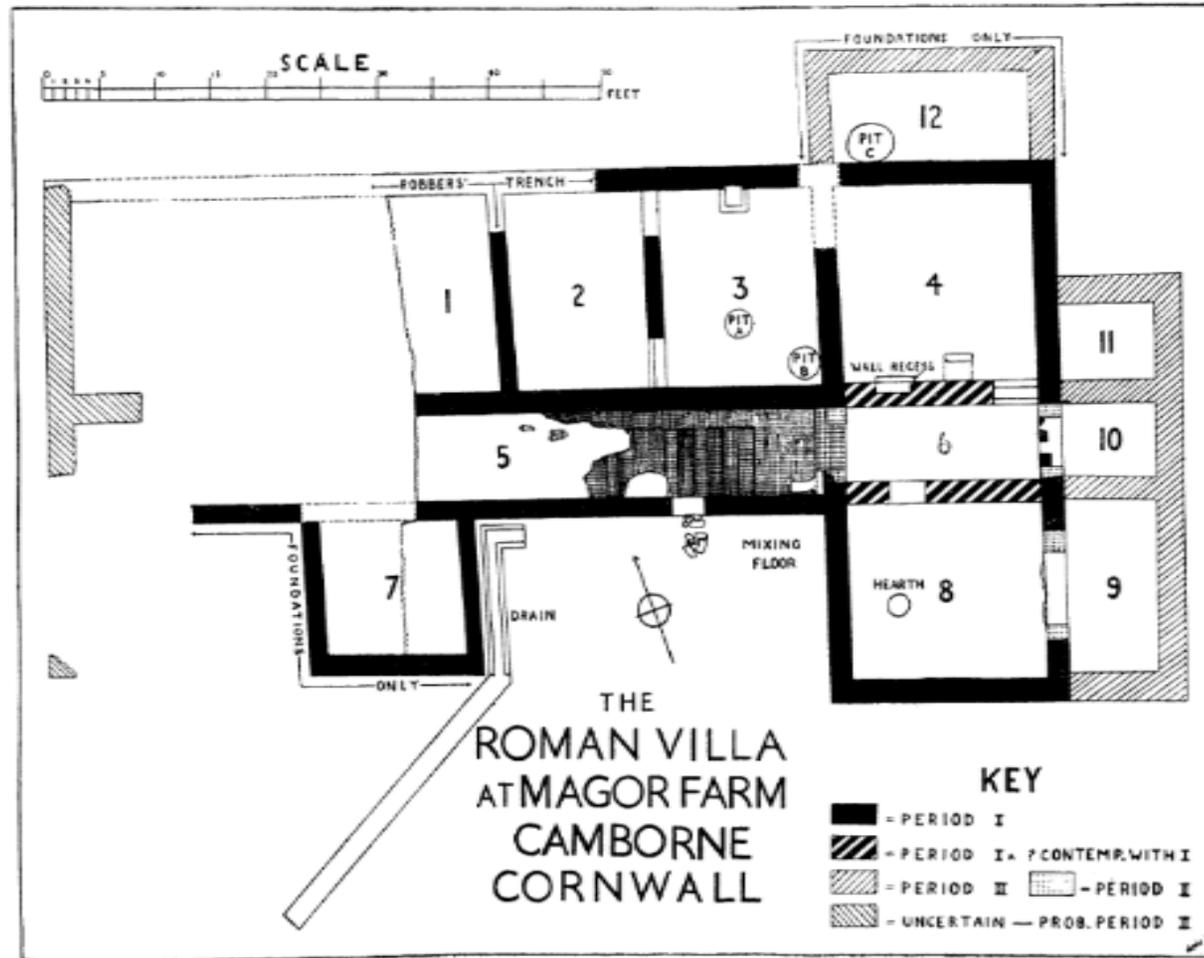


Figure 26. Villa at Magor Farm, showing stages of construction.¹⁴⁷

¹⁴⁷ R. G. Collingwood and M. V. Taylor, ed., "Roman Britain in 1931," *The Journal of Roman Studies* 22, No. 2 (1932): 217, Fig. 27.

There are dozens of villas to the east of Devon around Bath and Ilchester.¹⁴⁸ The lack of villas in the southwest may be because they have not survived (possibly having been destroyed by mining), they have not yet been found, or because few Romans chose to settle that far west in a region that had changed little since before the time of the Roman conquest.



Figure 27. Villa distribution in Britain and Wales. The red line denotes the border (roughly) of Devon. (This does not include possible villa sites).¹⁴⁹

Sacred sites are another subject to consider when examining Roman occupation of the southwest. Many Celtic sites became important to the Romans after the conquest of Britain.

Both the British Celts and the Romans tended to regard bodies of water, including hot

¹⁴⁸ 'Roman Britain Layer Map: Villas,' www.Roman-Britain.org, 2006, < <http://www.roman-britain.org/xml/layermap.htm> > [cited March 2007] (Webpage); *Map of Roman Britain*, foldout map.

¹⁴⁹ Modified by author: 'Roman Britain Layer Map: Villas,' www.Roman-Britain.org, 2006, < <http://www.roman-britain.org/xml/layermap.htm> > [cited March 2007] (Map).

springs, ponds, bogs, and wells, as sacred sites. When the Romans came into a region, they would sometimes utilize a Celtic sacred site. The city of Bath is an example of this; the spring there was sacred to the local Britons (the Celtic goddess *Sulis*) and, when the Romans arrived, they adopted this sacred site and connected it with the Roman goddess of wisdom Minerva (after which it was known as *Sulis Minvera*).¹⁵⁰ In Britain, there were thousands of such sacred or holy wells (purportedly more than 200 wells and springs in Devon alone). When examining thirty wells and springs in Devon, nearly half (fourteen) of these sites included Roman finds or sites in the same area.¹⁵¹ Two known sacred Celtic sites existed at Cadbury (Devon) and Bosence (Cornwall). These consisted of two deep shafts associated with hilltop sites. At both sites, artifacts (many of them metal) were left as offerings in these shafts. However, at Bosence Roman finds were also found at the shrine.¹⁵² Similar offerings have been identified at other Celtic shrines in Somerset and Weymouth (both to the east of Devon).¹⁵³

¹⁵⁰ I. A. Richmond and J. M. C. Toynbee, "The Temple of Sulis-Minerva at Bath," *The Journal of Roman Studies* 45, No. 1 and 2 (1955): 102.

¹⁵¹ My research combined with the list of wells in Laurence Hunt, "Some Ancient and Holy Wells of Devon," *Source* 9 (1989), Source Online Archive, Richard L. Pederick and Katy Jordan, 1999, <<http://people.bath.ac.uk/liskmj/living-spring/sourcearchive/fs9/fs9lh1.htm>> [cited February 2007] (Article).

¹⁵² Fox, *South-West England*, 170; Penhallurick, 214-215.

¹⁵³ Fox, *South-West England*, 182.

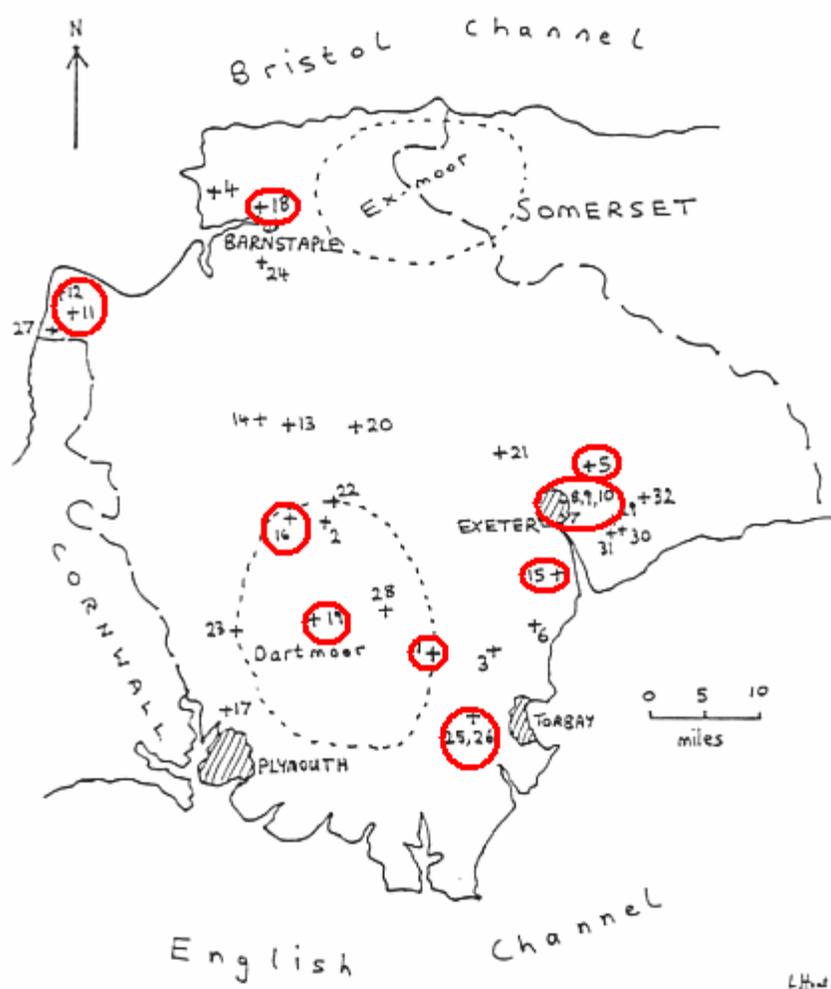


Figure 28. Some Holy Wells in Devon. Sites circled also have Roman finds or sites close by.¹⁵⁴

There is some unusual evidence of Roman occupation or possible influence in the Cornish town of Tregony, where two first century cremation urns were discovered in 2006. Burial evidence in the form of cremations is extremely unusual in Cornish archaeological finds. These urns were associated with a shrine on the Fal river. The site at which these urns

¹⁵⁴ Hunt, "Some Ancient and Holy Wells of Devon," [cited February 2007] (Map). Modified by author.

were found, Roseland Parc, is rectangular in nature, which argues for a possible Roman farmstead or settlement.¹⁵⁵



Figure 29. Two Romano-British burial urns from Tregony, discovered in 2006.¹⁵⁶

Milestones also provide evidence of Roman occupation of the southwest. Five mile (or honorific) stones have been found in this region, all from Cornwall, of which three date to the mid-third century AD. One was discovered near the Romano-British settlement at Carn Brea (near modern Redruth) and dates to Gordian III (AD 238-44).¹⁵⁷ The second was found at Trethevy, on the coast north of Nanstallon, and dates to the reign of Tebonianus and Volusianus (AD 251-3).¹⁵⁸ The third was in Breage near St. Michael's Mount (believed by many scholars to be the *Ictis* of tin accounts) and dates from the reign of Postumus (AD 258-

¹⁵⁵ "Rare Roman burial urns unearthed," BBC News, 2007 (12 April 2006), <http://news.bbc.co.uk/2/hi/uk_news/england/cornwall/4904744.stm> [cited October 2006] (News Report and Image); Richard Moss, "Rare Roman Vase Discovery Sheds Light on Romans in Cornwall," 24 Hour Museum: News, 2007 (18 April 2006), <http://www.24hourmuseum.org.uk/nwh_gfx_en/ART36479.html> [cited October 2006] (News Report and Image).

¹⁵⁶ Moss, [cited October 2006] (News Report and Image). Photo is copyrighted by the Cornwall County Council Historic Environment Service.

¹⁵⁷ Roger J. A. Wilson, 84; Fox, *South-West England*, 170.

¹⁵⁸ Roger J. A. Wilson, 83; 'Station Deventiasteno, Roman Fort, Nanstallon Cornwall, Roman Milestones Near Nanstallon,' www.Roman-Britain.org, 2006, <http://www.roman-britain.org/places/statio_deventiasteno.htm#rib2231> [cited October 2006] (Webpage).

68).¹⁵⁹ The last two milestones date to the fourth century and show continued Roman interest in the region. It is important to note that two of the three milestones dating to the third century are at the westernmost end of Cornwall, well beyond any known Roman settlements except the villa at Magor Farm. The existence of Roman milestones that far to the west indicates the Romans had established and were utilizing a road network throughout that region with some regularity by that time.



Figure 30. Milestone from Breage.¹⁶⁰

¹⁵⁹ Roger J. A. Wilson, 84; Fox, *South-West England*, 170.

¹⁶⁰ 'St. Breaca,' Breage, n.d., < <http://www.kerrierdeanery.co.uk/images/BreRoMS.jpg> > [cited March 2007] (Image).

The Roman road system in the southwest is unusual in that almost nothing of the actual roadways survive. The situation in the southwest is remarkable because hundreds of miles of Roman roads have survived elsewhere in Britain, either having been discovered as archaeological finds or buried under modern roads. Certain well-known Roman roads, such as the Fosse Way and the Ackling Dyke, run toward Exeter. Only portions of the Roman roads west, north, and south of Exeter are known. Several sections of the road between Exeter and North Tawton survive.¹⁶¹ Ivan D. Margary has done extensive research on Roman roads in Britain and has suggested that roads existed following the line depicted on the map below.¹⁶² There may have been some coastal roads, though none have survived into modern times. Due to the rise in sea level over time and the continuous mining that has occurred in Cornwall and Devon, we will probably never know how extensive Roman roads were in the southwest. It will be immediately apparent that none of the milestones discovered to date lie along the known or projected routes of the main Roman road through the center of Cornwall; two lie well to the north along the coastline (supporting the premise that a coastal road may have existed) and three lie well to the southwest (implying that the road extended to the end of the peninsula).

¹⁶¹ Maxwell and Wilson, 4; B. C. Burnham, et. al., ed., "Roman Britain in 1992," *Britannia* 24 (1993): 303.

¹⁶² Margary, 113-124.

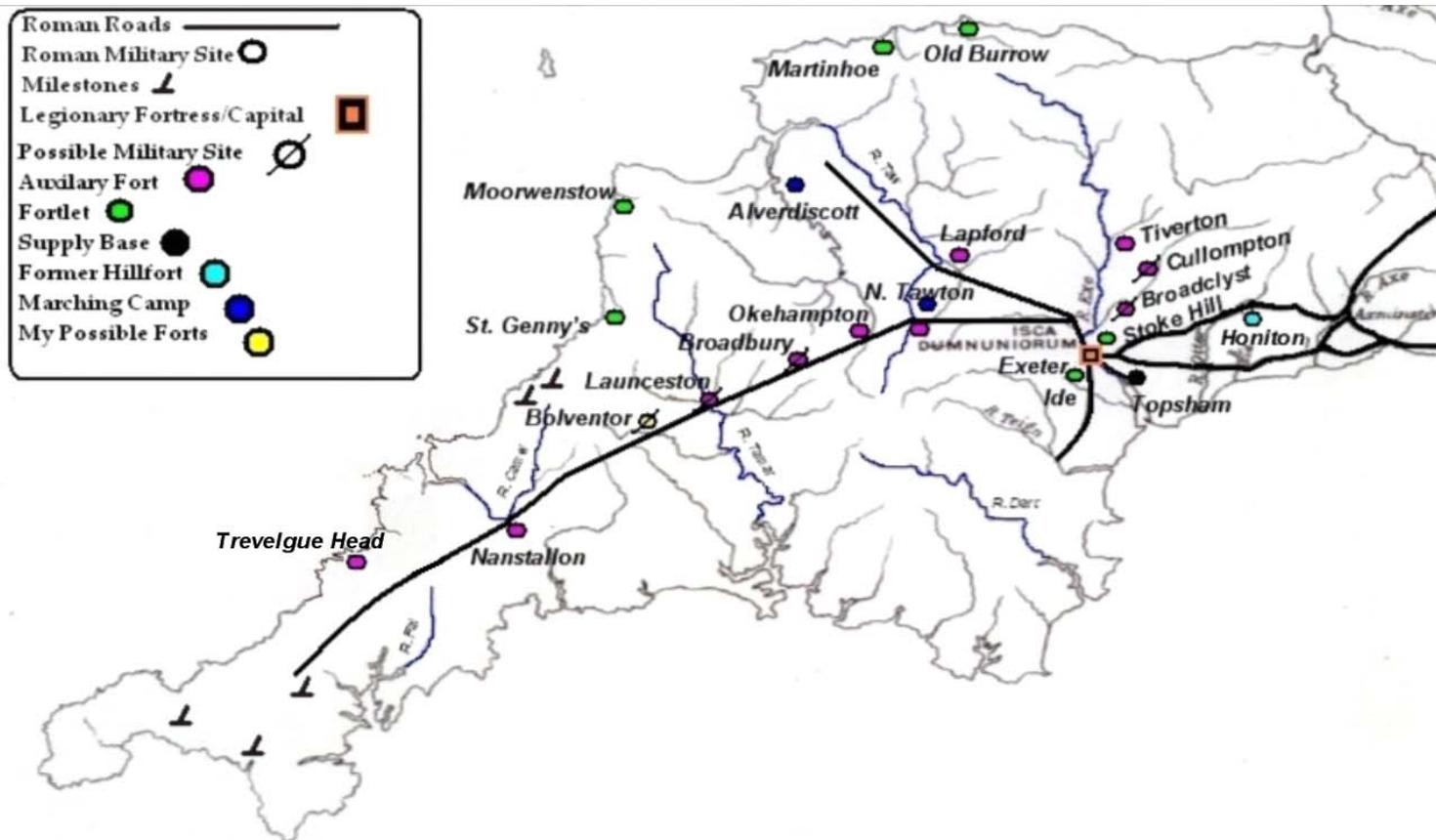


Figure 31. Map showing military sites and road positions.¹⁶³

¹⁶³ Map modified by author; Original map: Codrington, foldout map.

Sites on map derived from: Millett, 64, Table 3.4; Fox, *South-West England*, 158; Margary, 84; *Map of Roman Britain*, foldout map.

There is evidence of only one Roman fort which was constructed or occupied anywhere in the southwest after AD 85. This is the site of Trevelgue Head, Newquay (see the map above) which exists in an older promontory fort and dates to the second through third centuries AD.¹⁶⁴ The locations of Roman forts that were constructed during the period from AD 49-85 are depicted in above on Figure. 31, shown along the possible roads in the southwest.

The Roman Canton Capitol: Exeter

Exeter became a canton capital during the governorship of Agricola (AD 78-89). He encouraged native development and Romanization.¹⁶⁵ The existing structures within the former legionary fortress were either demolished (as in the case of the officers' houses, which apparently were torn down to construct the forum) or modified for another purpose (as in the case of the baths).¹⁶⁶ In addition, new public baths were built. Parts of the city wall survive in places around Exeter. Unfortunately, as with most large Roman/native settlements in England, a modern town has been built on top of Exeter, making excavation difficult. As a result, archaeological finds of the remains of the Roman town have been sparse. Eight tessellated floors thought to be associated with private homes have been found. A temple may have been located (in 1911), as bronze statues of Mars, Ceres, and Mercury had been found nearby (1778). Around AD 160, a rampart and ditch were built around the city; these earthworks encompassed 92 acres – more than twice the size of the fortress of the *Legio II Augusta*. The rampart was more than 21 feet wide and 5 feet high. Sometime around AD

¹⁶⁴ R. P. Wright, "Roman Britain in 1939 I. Sites Explored: II. Inscriptions," *The Journal of Roman Studies* 30 (1940): 175.

¹⁶⁵ Scullard, 47.

¹⁶⁶ Fox, *South-West England*, 166.

200, a stone wall was added which was about 10 feet wide and at least 20 feet high.¹⁶⁷ Four gates, oriented as those of the Roman fortress, remained in the city, though they no longer survive.¹⁶⁸

Isca Dumnoniorum would have been the administrative center for the entire region and all of its inhabitants. The *Civitas Dumnoniorum*, would have been governed by a council (*ordo*) made up of local nobility (*decurions*) and magistrates. These individuals would have run not only the canton, but also collected taxes for the imperial *procurator*.¹⁶⁹

The city flourished, trading with other parts of the Roman Empire. Coins with eastern Mediterranean mintmarks have been discovered. Glass and pottery have been found during excavations of the legionary fortress, showing the presence of luxury goods.¹⁷⁰ Pottery at Exeter includes *Samian* ware from Lezoux (Gaul),¹⁷¹ amphorae from North Africa, and Black Burnished ware.¹⁷²

¹⁶⁷ Aileen Fox, 'Exeter: the Roman City,' "Exeter Summer Meeting," *The Archaeological Journal* (for 1957) 114 (1959): 180.

¹⁶⁸ Fox, *South-West England*, 166-8.

¹⁶⁹ Fox, *South-West England*, 168-9.

¹⁷⁰ Fox, "Exeter Summer Meeting," 179.

¹⁷¹ Fox, *South-West England*, 166; David Williams and César Carreras, "North African Amphorae in Roman Britain: A Re-Appraisal," *Britannia* 26 (1995): 234.

¹⁷² S. S. Frere, M. W. C. Hassall, and R. S. O. Tomlin, ed., "Roman Britain in 1988," *Britannia* 20 (1989): 335.



Figure 32. Surviving portion of the Roman wall at Exeter.¹⁷³

¹⁷³ Fox, *South-West England*, Fig. 22.

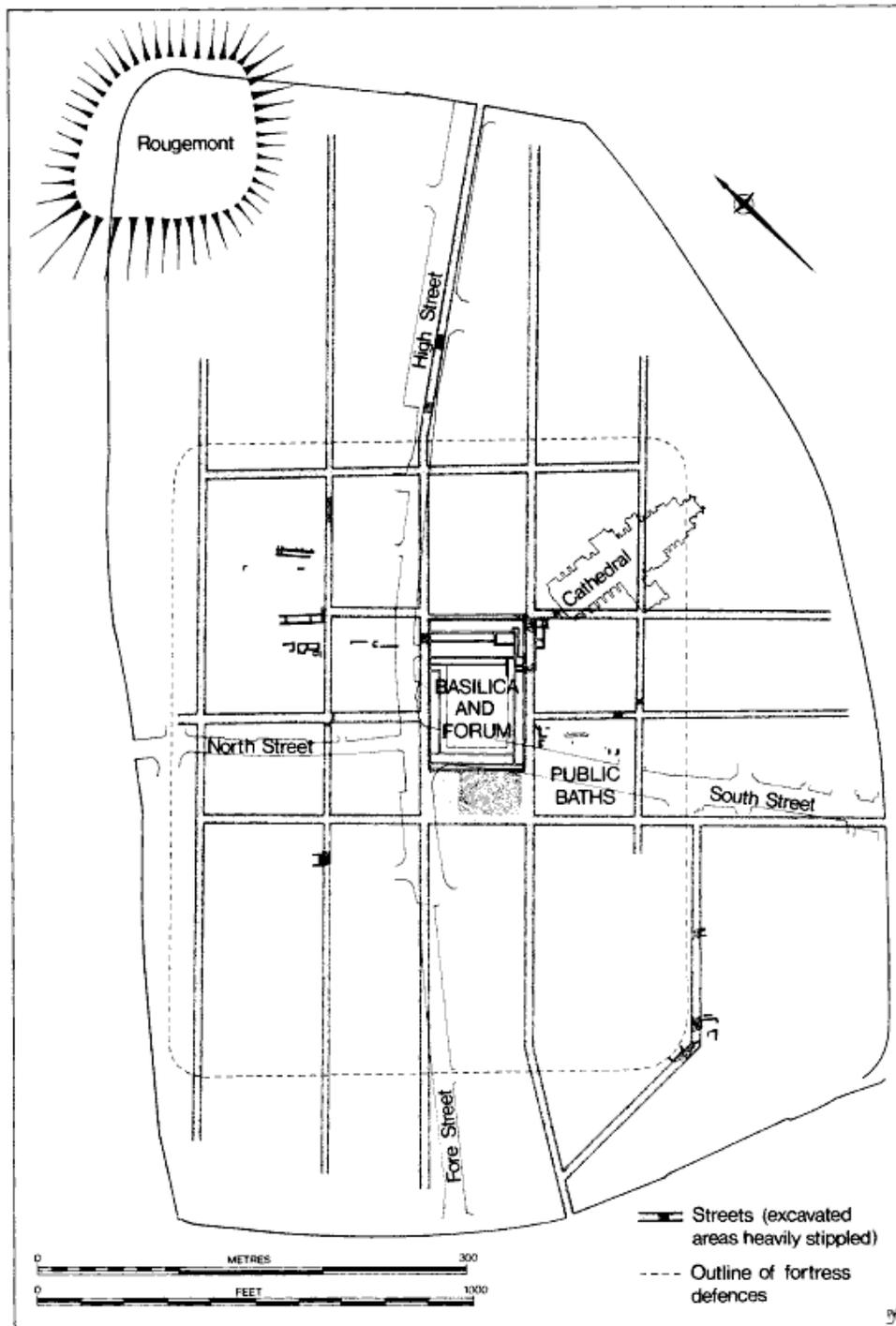


Figure 33. Exeter: Roman street-plan c. AD 300 with outline of first century legionary fortress shown by the dotted line. Scale 1:5000 (Drawn by P.J. English)¹⁷⁴

¹⁷⁴ R. Goodburn, M. W. C. Hassall, and R. S. O. Tomlin, ed., "Roman Britain in 1978," *Britannia* 10 (1979): 325.

Etymology

When examining the names of places and features described in ancient and medieval texts, etymology¹⁷⁵ can play an important role in determining their modern counterparts. Examining the name Exeter provides an example of how etymology assists historians in deciphering the past. Exeter was known in Old English as *Exanceaster* (sometimes *Esanceaster*). The first part, *Ex*, is derived from the Latin *Isca* (taken from the older Celtic word meaning ‘the water’ and used as the name of the river Exe). The second part, *ceaster*, meant ‘the Roman town’ in Old English. *Exanceaster* literally meant ‘the Roman town on the water (or river Exe).’¹⁷⁶ Similar derivations can be uncovered for the British towns (and Roman settlements) of Leicester, Chester, Winchester, Manchester, and Gloucester.¹⁷⁷

Given that travel and trade using rivers was substantially easier and much less expensive than travel overland until very recent times, it is not surprising to note that a great number of rivers are mentioned in the surviving itineraries and maps. These include the Exe (*Isca*), Dart (*Derventio*), Kenwyn or Fal estuary (*Cenio*), Erme (*Armis*), Axe or tributary (*Alanus; Uxella*), Taw (*Tavus*), Tamar (*Tamarus*), and a possible unknown river (*Naurum*). Rivers make up more than one third of the known sites recorded in extant written Roman-era sources.

¹⁷⁵ Etymology is a term derived from Greek which means “true sense”; it is the study of the origin of words, their meanings, and how they have changed over time. [Douglas Harper, “Etymology,” Online Etymology Dictionary, 2001, < <http://www.etymonline.com/index.php?term=etymology> > [cited February 2007] (Online Dictionary).]

¹⁷⁶ Douglas Harper, “Exeter,” Online Etymology Dictionary, 2001, < <http://www.etymonline.com/index.php?term=Exeter> > [cited February 2007] (Online Dictionary).

¹⁷⁷ Douglas Harper, “Ceaster,” Online Etymology Dictionary, 2001, < <http://www.etymonline.com/index.php?search=ceaster&searchmode=none> > [cited February 2007] (Online Dictionary).

Some sites mentioned in historical sources have yet to be connected to specific locations in the southwest. Virtually all of these unknown sites occur in the *Ravenna Cosmography*. It is widely accepted that this document includes corrupted forms of earlier names. In some cases, etymologists and historians have been able to determine the likely original Roman form. For instance, the term *Eltabo* is almost certainly a compound of the words *Fl(umen)*, Latin for river, and *Tavus*. By the eighth century, the Roman “Fl” became “El” and the “v” in the Roman name *Tavus* became a “b” in Vulgate Latin, giving us *Eltabo*.¹⁷⁸ This refers to the river Taw in Devon. Another corrupted word is derived from the Roman name for Exeter, *Isca Dumnoniorum*. In the *Ravenna Cosmography*, it appears as *Scadam Namorum* or sometimes *Sca Damnaorum*. It is not difficult to see now some letters were lost (*Isca* becoming “*sca*” and “*Dumnoniorum*” became “*dum Namorum*” or “*Damnaorum*”).¹⁷⁹

In other cases, the original Roman form of the name has yet to be determined, and the site remains unknown. Names associated with the southwest, but for which there are no known locations, fall into four categories in the *Ravenna Cosmography*: rivers, other geographical features, Roman sites of occupation, and Roman military sites. Unknown sites in the southwest in the *Ravenna Cosmography* include *Aloberium*, *Bolvellaunium*, *Cantia*, *Derventio Statio*, *Glanum*, *Masona*, *Pilais*, *Tedertis*, *Terminus*, and *Vernalis*.¹⁸⁰ There is only one unknown site in the southwest from Ptolemy, which is *Volibia*.¹⁸¹ Another

¹⁷⁸ Rivet and Smith, 470.

¹⁷⁹ *Ibid.*, 378.

¹⁸⁰ *Ibid.*, 248-9, 271-2, 297-9, 335-6, 367-8, 414, 440, 472, 494-5.

¹⁸¹ *Ibid.*, 343.

unknown site is *Moridunum*, which appears in three sources – *Ravenna Cosmography*, the Antonine Itinerary, and the Peutinger Table (where it appears as *Ridumo*).¹⁸²

I would like to suggest a possible location for *Bolvellaunium* from an etymological point of view. In all of Britain, there is only one place whose name starts with ‘bolve,’ and it is in Cornwall. The town of Bolventor lies south of Launceston (the location of a probable Roman fort). Over twenty ancient sites surround Bolventor, including settlements, cairns, and standing stones. This site also is a short distance from one of the highest spots on Bodmin Moor. ‘Bol’ is the word in the Celtic language group for ‘round swelling’ usually referring to a hill.¹⁸³ No Roman finds have been discovered in this region (as far as the author can determine), but the *Ravenna Cosmography* may not limit itself to settlements that were solely Roman in origin.¹⁸⁴

Derventio Statio almost certainly refers to a Roman settlement such as *Nemeto Statio*, which is thought to be the Roman fort at North Tawton in Devon.¹⁸⁵ The name *Nemet* and *Nymet* survives in this region and is derived from a Celtic word for sanctuary or sacred grove.¹⁸⁶ A *statio* was a posting station or a station for tax collection.¹⁸⁷ These taxes would have been collected by Roman officials or local tribal leaders, known as *decurions*.¹⁸⁸ *Derventio* is thought to refer to the river Dart, which opens on to a natural harbor where Dartmouth sits today (see Figure 31). It would have been consistent with known Roman

¹⁸² Rivet and Smith, 421.

¹⁸³ *Ibid.*, 271.

¹⁸⁴ A number of Roman settlements in Britain had Celtic origins.

¹⁸⁵ Rivet and Smith, 425.

¹⁸⁶ *Ibid.*, 368, 425.

¹⁸⁷ *Ibid.*, 336.

¹⁸⁸ Fox, *South-West England*, 168-9.

practices to place a *Statio* on this river to control trade. If this is correct, the *Ravenna Cosmography* could be referring to an as yet undiscovered Roman station on the Dart.

The significant number of locations throughout the southwest of Britain that were recorded by Roman authors implies continued Roman presence in that region. Since so many of the names given are rivers, this may suggest trade with the Romans and metal being transported was via river and channel commutes.

There is strong evidence for the survival of native communities throughout Britain during the period of Roman occupation, including Cornwall and Devon. In addition there have been dozens of Roman finds and evidence of Roman influence in the southwest. The Romans used local administration whenever they could, inserting a few Roman officials as upper-level administrators into preexisting tribal structures. While *Dumnonii* may have initially acted as a client kingdom in early Roman Britain, there is also clear evidence for continued Roman occupation during the two and a half centuries following the conquest. The preferred Roman practice of using client kingdoms allowed a relatively small number of Romans to control large areas of remote provinces. This means mining could have continued by locals before the province was fully Romanized. As will be shown in a later chapter, such a system of local governance was extended to such economic ventures as mining.

Chapter IV

The Nature of Roman Mines and Evidence of Lead and Tin Mining in Roman Britain

During the Roman Empire, mining operations existed from Spain to Cyprus and from Britain to Sardinia.¹⁸⁹ The mines provided gold, silver, lead, cinnabar, sulfur, mercury, copper, iron, zinc and, of course, tin.¹⁹⁰ These metals were used to equip the army, mint coins, build cities, and make everyday items.¹⁹¹ The mining, refinement, and use of metals were at the core of the Roman Empire. Yet we know very little about these mines before the third century AD. This chapter will describe what is known about Roman mines, and examine Roman uses of tin, Roman knowledge of tin mining, evidence for tin mining in Cornwall, and the Romano-British pewter industry to argue that the Romans were mining tin in Britain prior to the mid- to late-third century. Both archaeological and historical evidence will be used to paint as clear a picture as possible.

There is a distinct lack of literature pertaining to mining in the western Roman Empire. The main accounts of mining during the first centuries BC and AD survive in the works of Strabo and Pliny the Elder. Pliny offers particularly good insight, as he was a *procurator* of one of the gold bearing regions of Spain in the later half of the first century AD.¹⁹²

¹⁸⁹ Marcel le Glay, Jean-Louis Voisin, and Yann le Bohec, *A History of Rome* (Cambridge, Blackwell Publishers Ltd., 1996), 352.

¹⁹⁰ Edmondson, 88.

¹⁹¹ Kevin Greene, *The Archaeology of the Roman Empire* (Berkeley: University of California Press, 1990), 143-144.

¹⁹² Edmondson, 85; Pliny the Younger, *Pliny Letters and Panegyricus*, trans. Betty Radice, (Cambridge: Harvard University Press, Vol. 1, 1969), III. 5. 17-19., 178-9. Pliny the Younger states that he was a *procurator* in Spain, but does not state that he was a *procurator* of mines, nor give specific dates during which he was a *procurator*. It seems probable that he served during the Flavian period, that is, sometime after AD 69

Edmondson put it best when he said:

It is...dangerous to argue from the relative silence of the literary sources that mines (especially in the West) were not being worked, since the literary evidence is so partial in its concerns and so heavily weighted in favor of the eastern part of the Empire. In short, the literary evidence is not very helpful and can often prove a deluding guide to the location, nature and scale of later Roman mining.¹⁹³

Where literary sources fail to provide information, archaeology can often help paint a clearer picture by detailing locations of sites, what was mined, and for how long.¹⁹⁴

However, there are problems with this method of study as well.

Direct evidence of ancient mining is rare in Britain as in other countries, probably rarer, for mining is a destructive industry and each succeeding generation of miners erases the evidence of its predecessors as it extends their working in search for more ore. Seldom are really ancient workings found intact and, even when they are, they are difficult to date, for mining methods changed remarkably little until after the advent of machine mining... In the past, miners have had little regard for recording any ancient working encountered, and unfortunately, modern mining methods, with the pressure on reducing costs by moving more and more ground more cheaply with larger and larger machines in open pits, give little opportunity for ancient workings to be seen before they are destroyed, let alone examined and mapped.¹⁹⁵

Scholars also have to recognize the fact that some areas have been surveyed with greater detail than others. There is a tendency to focus on a few large-scale mining operations, rather than the more numerous small-scale mines that probably supported local and regional communities.¹⁹⁶ To describe how difficult it is to get a clear chronological picture of mining and its development based on archaeological evidence, Edmondson notes that in a survey of

and before his death near Naples in 79. [Nicholas Purcell, *Oxford Classical Dictionary*, 3rd ed., s.v., "Pliny the Elder," 1197].

¹⁹³ Edmondson, 86.

¹⁹⁴ *Ibid.*, 86.

¹⁹⁵ Barnes, 45-46.

¹⁹⁶ Edmondson, 87.

100 Roman mines in Lusitania (Spain), only thirteen provided “any archaeological criterion for dating.”¹⁹⁷

When examining mining during the Roman Empire, it is important to know where various metals were extracted. To help answer this question, the map below shows the most common locations for different minerals in the Roman Empire.



Figure 34. Mineral resources of the Roman Empire with locations of tin mining highlighted.¹⁹⁸

Roman Mining

Local inhabitants had worked many of the mines in varying degrees over the centuries before Roman conquest, and these mines continued to be exploited, though often on a different scale, during the Roman Republic and Empire. Some of the most famous

¹⁹⁷ Edmondson, 87.

¹⁹⁸ Map developed by author – basic map of the Roman Empire is from: 'Roman Empire Map,' Roman Empire, UNRV.com History, 2007, < www.unrv.com/roman-empire-map.php > [cited February 2007] (Map); depiction of mineral resources is from, Marcel le Glay, et. al., 352.

examples are the mines in Spain, which the Romans took from the Carthaginians after the Second Punic War. During the Principate, mines were occasionally privately owned, but there were various means by which mines were operated. The emperors owned some, which were state-run, but other state-owned mines were leased out,¹⁹⁹ and still other mining operations were privately owned.

The assertion of complete ownership of mineral wealth by the state is post-Flavian. There is no evidence from Spain setting a definitive date for the abolition of private right to mineral wealth, but gradual absorption of private holdings by the emperors may be, and in many instances must be attributed to factors other than a legal theory of state ownership.²⁰⁰

The Structure and Control of Tin Mining in the Empire

As mentioned earlier, there are very few sources pertaining to the running of Roman mines. What information we have suggests that mines during the empire could be run by the government, by senators, or (at least until after the Flavian period) be leased to private individuals.²⁰¹

Procurators, who often controlled large areas, ran imperial mines. Their staffs consisted of a *subprocurator*, intendant, accountant, secretary, and cashier. Slaves often worked large mines, but some freemen, convicts and soldiers were also used.²⁰² Senatorial mines were less common, but Pliny the Elder did write about them.²⁰³

[Referring to the cinnabar mine at Almaden in Spain] it is not allowed to smelt and refine the ore upon the spot, but as much as about 2000 lbs. per annum is

¹⁹⁹ Edmondson, 97.

²⁰⁰ J.J. van Nostrand, "Two Notes on the Mines of Roman Spain," *The Pacific Historical Review* 4, No. 3 (1935): 284.

²⁰¹ *Ibid.*, 283-4. The Flavian period runs from AD 69-96.

²⁰² Jean David C. Boulakia, "Lead in the Roman World," *American Journal of Archaeology* 76, No. 2 (1972): 140, 143.

²⁰³ Nostrand, 284; Pliny, *Natural History*, XXXIII, 40, 118., 88-89.

delivered to Rome in the crude state under seal, and is purified at Rome, the price in selling it being fixed by law established at 70 sesterces a pound, to prevent its going beyond limit. But it is adulterated in many ways, which is a source of plunder for the company.²⁰⁴

The reference to “the company” in this passage about a senatorial mine is unclear; perhaps it referred to those in Rome who were smelting and refining the cinnabar.

Mining rights would often be leased to private owners, rather than be run by the imperial government. Caches of Spanish ingots that bear the name of the mine’s owner have been found.²⁰⁵ Some ingots discovered in Britain also bear the name of private individuals and societies.²⁰⁶ A mine in the district of *Vipasca* (in Portugal) was leased in a legal document (known as *lex locationis*). Such contracts provide information on the length of the lease (in that case, for one year), indicate that such leases could be obtained by more than one individual (sometimes mining societies leased mines), and provide information on taxes to be paid and other details. In most cases, half of what was extracted was retained by the state with the other half going to the individual or group who leased the mine. Inactivity could lead to the forfeiture of the lease on a mine.²⁰⁷

We have some information on how much it cost to lease mines. Pliny the Elder wrote that the *Antonian* mines in Spain were leased for 400,000 *sestertii* a year, and that cost for the lease on the *Salutariensian* increased from 200,000 to 255,000 *sestertii*.²⁰⁸

²⁰⁴ Pliny, *Natural History*, XXXIII. 40. 118., 88-89.

²⁰⁵ Boulakia, 142.

²⁰⁶ *Ibid.*, 142; Barry C. Burnham and John Wachter, *The Small Towns of Roman Britain* (Berkeley: University of California Press, 1990), 211.

²⁰⁷ Nostrand, 287-88.

²⁰⁸ Boulakia, 142; Nostrand, 100; Pliny, *Natural History*, XXXIV. 49. 165., 246-7.

Mines in Spain and Portugal

Spain and Portugal (known collectively as *Iberia* to the Greek writer Strabo and *Hispania* to the Romans) were among the major producers of metals in the Roman Empire until approximately the third century. Many of the mineral resources sought by the Romans could be found in Spain. Writing in the first century AD, Strabo glorifies this aspect of the region in his *Geography*, writing:

For the whole country of the Iberians is full of metals, although not all of it is so rich in [other agricultural means]. It is rare...for the same country to have within a small area an abundance of all kinds of metals. But as for Turdetania and the territory adjoining it, there is no worthy word of praise left to him who wishes to praise their excellence in this respect. Up to the present moment, in fact, neither gold, nor silver, nor yet copper, nor iron, has been found anywhere in the world, in a natural state, either in such quantity or of such good quality.²⁰⁹

The mines of *Iberia* were extensively worked in the Roman period, both in small- and large-scale operations.²¹⁰ These mines offered an array of minerals even greater than those described by Strabo. The minerals in *Iberia* available for Roman exploitation included copper, tin, lead, mercury, cinnabar, sulfur, zinc, iron, gold, and silver.²¹¹ According to Edmondson, the Iberian Peninsula during the Principate, “constituted the most productive mining area of the Roman Empire.”²¹² To help paint a clearer picture of how massive and structured the mining in Spain was, more than 40,000 slaves were working in the silver mines of New Carthage (Spain) in the second century BC.²¹³

²⁰⁹ Strabo, *Geography*, III. 2. 8., 38-9.

²¹⁰ Penhallurick, 95-109.

²¹¹ Edmondson, 88.

²¹² *Ibid.*, 88.

²¹³ Strabo, *Geography*, (citing Polybius, *The Histories*, Book XXXIV, v. 9), III.2.10., 46-47.

One of the most unusual aspects about the mines of Spain and Portugal is that they stopped being exploited on a large scale in the mid- to late-third century.²¹⁶ This has puzzled archaeologists and historians for decades. The mines are still productive (and not just from the standpoint of today's technological capabilities).²¹⁷ There have been a number of proposals put forward to suggest why the Romans stopped working the mines in *Iberia*. One is that the region became unstable. Another is that it became too difficult to retrieve the minerals.²¹⁸ Some aspects of both these explanations are true, but one has to be careful with generalizations.

There is evidence that parts of the Roman province of *Iberia* became unstable from AD 160 - 170, when Moorish raids began occurring in the south²¹⁹ (however, Roman tin mines were in northern *Iberia*). Barbarian raids have also been associated with the ending of tin mining in *Iberia* in third century.²²⁰ Others have suggested that the smallest remaining works in *Iberia*, which appear to have continued to be occupied as late as the fourth century, were finally closed in the early fifth due to barbarian incursions.²²¹ Since there was large-scale mining of some minerals in Spain, mines in isolated locations were vulnerable to attack. If attacked, Edmondson suggested two possible courses of action – either moving mining operations and working in safer regions (by activating mines in other areas) or decreasing

²¹⁶ Shepherd, 212; Scullard, 130; Fox, *South-West England*, 183.

²¹⁷ Edmondson, 91.

²¹⁸ Fox, *South-West England*, 183. (Fox states that the Spanish mines were exhausted); Richmond, *Roman Britain*, 123. There is little information on the collapse of Spanish mines, and even fewer sources that discuss tin in Roman Spain except in passing. Most information on mines in Spain pertains to its gold and silver deposits.

²¹⁹ Edmondson, 90, 97

²²⁰ Frere, *Britannia: A History of Roman Britain*, 286.

²²¹ Edmondson, 91.

from large-scale to small-scale mining. Where tin was mined in northern Spain, silver, lead, and gold were also extracted. These mineral resources would have been tempting targets.²²² The decline of Roman mining operations in *Iberia* was probably gradual. As incursions threatened areas, larger operations were dispersed to smaller locations. Eventually, it would no longer have been profitable to try to defend mines when the same minerals existed in much more stable regions. This might explain the increase in the production of Cornish tin mines in the third century, even though there is evidence for some continued exploitation of *Iberian* tin into the fourth and early fifth century. (Tin was still mined in Spain and Portugal well into the twentieth century.)²²³

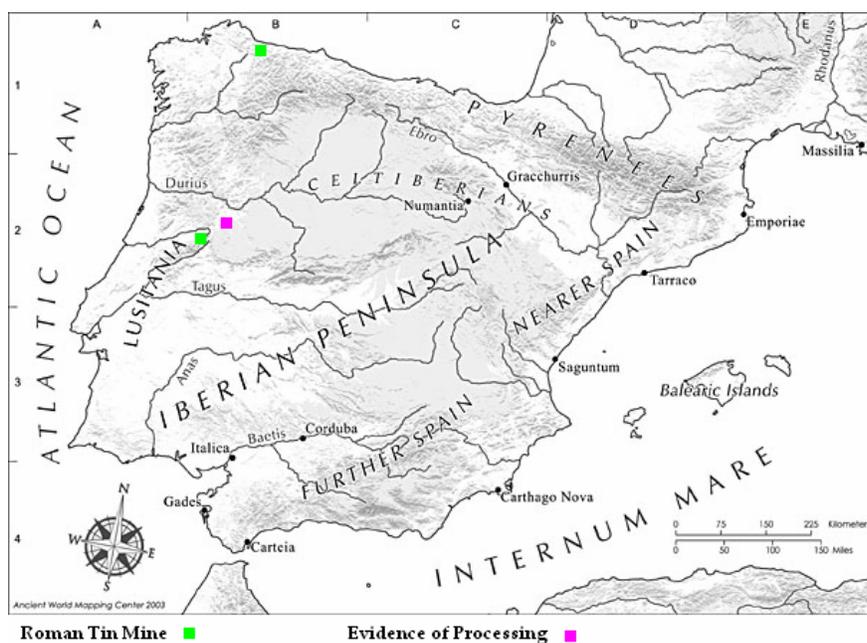


Figure 36. Known Roman tin mines and evidence of processing (i.e. tin slag).²²⁴

²²² Edmondson, 97.

²²³ *Ibid.*, 90-1.

²²⁴ Map constructed using: Edmondson, 91; R.F.I. Jones, "The Roman Military Occupation of North-West Spain," *The Journal of Roman Studies* 66 (1976): 47; P.R. Lewis and G. D. B. Jones, "Roman Gold-Mining in North-West Spain," *The Journal of Roman Studies* 60 (1970): 170; Map: Rachel Barckhaus, Mary T. Boatwright, Tom Elliott, Daniel Gargola, Andrew Hull, and Richard Talbert, "MAP: Iberian Peninsula AWMC

Mines in Southwestern Britain

The mines of southwestern Britain, including the tin workings of Cornwall and Devon and the lead mines of the southwest in Somerset (though outside of Cornwall and Devon), will now be examined. It is important to include the lead mines because they later impacted the tin industry as the use of pewter grew in Britain.

Mines in Cornwall & Devon

The evidence for mining in Cornwall and Devon during this period is scarce due to the nature of the tin deposits in that region. Since tin is found in alluvial deposits, the mineral can simply be streamed out of many rivers. This method has been used in this region for approximately 3,000 years. Even in the twentieth century, people earned extra money by gathering tin as they walked along the beaches in Cornwall.²²⁵ This kind of mining leaves behind little evidence. As a result, one of the most common ways of identifying a tin working is by dating sites that contain tin slag produced during the refining process.

Several sites in southwest Britain show evidence of tin mining in some form during the Roman occupation. Tin working occurred near the Roman fort at Nanstallon. It has been thought that this was to supply the auxiliary fort.²²⁶ Three Romano-British sites at Trevelgue Head (a promontory in Cornwall, pre-Roman occupation 200 BC - AD 120), Treyloy (second through fourth centuries AD), and Carnon (late first through late second centuries AD), also show evidence of tin workings and objects.²²⁷ One Roman fort at the former hillfort of Trevelgue Head, Newquay shows long-term bronze workings and tin slag (200 BC - AD

MAP 29," Ancient World Mapping Center, December 2003, < http://www.unc.edu/awmc/downloads/rve_04_4Sml.jpg > [cited March 2007] (Map).

²²⁵ Penhallurick, 154.

²²⁶ Ibid, 209-212.

²²⁷ Ibid., 201-203; Fox, *South-West England*, 183; R. P. Wright, "Roman Britain in 1939," 175.

120).²²⁸ The site of Carnon on the Fal estuary also bears some evidence of tin mining (late first century through late second centuries AD).²²⁹ A site in Cornwall called Castle Gotha, occupied until the second century (earliest occupation date unknown), shows evidence of tin workings and an ingot mold.²³⁰

Though a connection to mining operations has yet to be found, the only Roman (or Romano-British) villa known to exist in Cornwall sits in a well-established tin region. Perhaps tin mining or refining took place in the area.²³¹

Lead Mining in Britain

J.W. Barnes writes that:

Lead, and its by-product silver, were said by some to have been the principal reason why the Romans came to what Julius Caesar described as a ‘grey land hidden in eternal mists’. The Romans were enthusiastic miners and produced metals during the whole of their occupation [of Britain] but when they left four hundred years later, mining declined as it did everywhere during the Dark Ages. Smiths all over Europe then had to depend on metal scrap for their trade except, oddly enough, for lead, for in Britain lead mining survived, although the metal produced was no longer desilvered.²³²

Lead was so accessible in Britain that Pliny the Elder wrote in the first century AD that, “in Britain it [black lead] is found in the surface-stratum of the earth in such abundance that there is a law prohibiting the production of more than a certain amount.”²³³

Silver was largely a byproduct of lead mining in Europe, for there are few true silver mines. It seems that the British were desilvering lead before the Roman invasion, since

²²⁸ R. P. Wright, “Roman Britain in 1939,” 175.

²²⁹ Penhallurick, 194-195.

²³⁰ Fox, *South-West England*, 183.

²³¹ Penhallurick, 158.

²³² Barnes, 44-45.

²³³ Pliny, *Natural History*, XXXIV .49. 164., 244-5.

Strabo described silver among British exports, along with iron and gold.²³⁴ He also wrote that tin was exported from the *Kassiterides* (believed by some scholars to be Britain).²³⁵

A very famous lead mine exists in Somerset in southwest Britain at Charterhouse-on-Mendip (sometimes referred to simply as Mendip). Though there are other Roman lead mines in Britain, vast quantities of lead have been mined in this location for more than 1,000 years. By as early as AD 49, only six years after the invasion of Claudius, Roman lead mining had begun at Mendip. This suggests that the Romans might have known local and regional sources of important minerals prior to the actual invasion.²³⁶

The lead regions of southwest Britain continued to have an important impact on Roman mining in that region, particularly tin mining, because of the rise of the pewter industry. These deposits also had an impact on the rise of mints in Britain during the third century AD. Both of these aspects will be discussed below.

Roman Uses of Tin

Tin was used in a variety of ways throughout the Roman Empire. The Romans mixed tin and copper to make bronze, which was used for many items such as coins, household items, lamps, and military objects.²³⁷ The Britons also used bronze in a decorative and functional fashion.²³⁸ The Romans also alloyed tin with lead to make pewter. In fact, archaeological evidence indicates that the greatest use of tin in this period was not in bronze production but in the Romano-British pewter industry, which flourished in late Roman

²³⁴ Barnes, 47; Strabo, *Geography*, IV. 5. 2., 254-5.

²³⁵ Strabo, *Geography*, III. 5. 11., 156-9.

²³⁶ Shepherd, 301-309.

²³⁷ Ralph Jackson, "A Roman Stamped Shield-Boss from London," *Britannia* 15 (1984): 246-250.

²³⁸ B. C. Burnham, L. J. F. Keppie, et. al., ed., "Roman Britain in 1996," *Britannia* 28 (1997): 435-437. (Mirror).

Britain. Pewter was used to make tablets, tableware, and amulets. Less common uses of tin included the creation of pure tin objects such as tin coins.

Roman Knowledge of Tin Mining

Citing Poseidonius, Strabo mentioned alluvial mining of tin in Portugal and subsurface mining of the metal in Spain, writing,

Tin, however, is not found there [Turdentania] on the surface of the ground, he [Poseidonius] says, as the historians continually repeat, but is dug up... Among the Artabrians, who live farthest on the north-west of Lusitania, the soil 'effloresces', he says, with silver, tin, and 'white gold'... This soil, however, he adds, is brought by the streams; and the women scrape it up with shovels and wash it in sieves woven basket-like.²³⁹

While this passage specifically discussed the methods by which tin was mined on the Iberian Peninsula, Strabo also wrote of tin mining in the British Islands ("tin is brought to Massilia from the British Islands..."²⁴⁰), though who transported it from Britain is unclear. Caesar only mentioned tin in his *Gallic Wars*, stating it was produced in the midlands of Britain.²⁴¹ He says nothing further about how the tin was extracted or refined.²⁴² These are the only historical accounts that mention tin mining in the first centuries BC and AD.

Tin Mining in Britain: Evidence of Mining, Processing, and Production

Archaeological finds have been recorded from tin streams and other locations in Cornwall and Devon over the last 300 years. Unfortunately, most of the discoveries prior to 1900 have not survived. At times, all we have are sketches of these artifacts. Therefore, items believed in the nineteenth century to be Roman finds may not actually have been

²³⁹ Strabo, *Geography*, III.2.9., 44- 47.

²⁴⁰ Ibid., III.2.9., 44-45.

²⁴¹ Caesar, V. 12. 250. "*Nascitur ibi plumbum album in mediterraneis regionibus...*"

²⁴² Ibid., V.12, 251.

Roman. These lost items are very frustrating to scholars and historians who are trying to determine the level of Roman occupation in the southwest and the extent to which tin resources were exploited. Below is a summary of some important archaeological finds, which demonstrate Roman occupation in the southwest or the possible Roman exploitation of tin in this region.

An extremely interesting archaeological site was found in 2002 in Devon on the edge of Exmoor. This site, near the town of Brayford, was a massive iron factory. Huge amounts of slag have been unearthed. Based on furnaces found during the excavation, along with other pieces of equipment, it is estimated that hundreds of tons of metal were refined here.²⁴³ This is unusual, since iron does not occur in large mineable quantities in Devon or Cornwall, being found further east in Dorset, Hampshire, Kent, and Wiltshire.²⁴⁴ Pottery dates the site's use to AD 100 - 300. The sheer amount of metal produced far exceeds local needs. Some archaeologists now wonder whether the Roman influence in the southwest may have been greater than previously believed.²⁴⁵

That the Romans ran or privately leased an iron factory is not surprising in light of the extensive the use of metal in a Roman legion. Since three to four legions and many auxiliary units were stationed in Britain for several centuries, the amount of metal required must have been significant.

A Roman legion would have contained 5000-6000 men equipped with chain-mail or other body-armor [sic], helmets, swords, daggers and long spears all

²⁴³ "Moor Dig Finds Roman Iron Factory," *BBC News*, BBC, September 2002, < http://news.bbc.co.uk/2/hi/uk_news/england/2279227.stm > [cited October 2006] (News Report).

²⁴⁴ Barnes, 69.

²⁴⁵ "Factory May Have Weapons Link" *BBC News*, BBC, September 2003, http://news.bbc.co.uk/2/hi/uk_news/england/devon/3113028.stm > [cited October 2006] (News Report); L. J. F. Keppie, et. al., ed., "Roman Britain in 2000," *Britannia* 32 (2001): 370; Barry C. Burnham, et. al., ed., "Roman Britain in 2001," *Britannia* 33 (2002): 346.

made from iron; their belts and kilts bore numerous intricate cast bronze fittings. Campaign equipment included several bronze and iron cooking vessels.... [then there would have also been] the demand for repairs and replacements.²⁴⁶

Greene goes on to describe the metal requirements of a Celtic warrior in Britain just before the time of the Romans.

An aristocratic Celtic warrior in Britain on the eve of the Roman conquest might have possessed a chariot with some iron and bronze fittings, an iron sword, and in a few cases a decorated bronze helmet or shield. His poorer followers probably carried simple iron spears....²⁴⁷

The metal requirements of these two different groups are vast, and it should be remembered that this is only dealing with military needs – not those of Roman or native British settlements and towns.

When one considers the quantity and types of metals required to equip and maintain the Roman military and its auxiliary units, construct buildings and settlements (both military and civilian) in widely separated locations, and mint Roman currency for use throughout the province, it is reasonable to assume that the Roman conquest of Britain must have had a dramatic effect on metal mining.

As shown in Chapter I, tin was mined in Britain for centuries before the arrival of the Romans. This chapter will examine how mining was continued in the southwest during the Roman occupation by both Romans and native inhabitants. Actual evidence for tin mining (or any other type of mining) in prehistoric and classical times is rare, but there are several Roman-era sites in Cornwall that demonstrate tin was being mined there.

²⁴⁶ Greene, 143-4.

²⁴⁷ Ibid., 143.

Tin Finds

Near Bodmin in Cornwall, at a site called Boscarne (not far from the Roman fort at Nanstallon) in an area associated with tin deposits, mining tools, pottery, and coins have been found dating from the first to the second centuries AD.²⁴⁸ Nanstallon also has evidence of silver and iron refining.²⁴⁹ The Nanstallon region has an incredible variety of metals, including gold, silver, lead, iron, tin, and copper.²⁵⁰ Nanstallon also overlooks “the most important tin stream in east Cornwall.”²⁵¹ A tin ingot in the Bodmin museum, weighing 3.2 kilograms, supposedly came from Boscarne in Cornwall (date uncertain).²⁵² At St. Erme, on the southwest tip of Cornwall, a furnace containing 95% tin slag and a hand-beaten tin plaque were found in a native British round house, dating to the second and third centuries AD.²⁵³ At the Romano-British site of Carn Euny (AD 50-100), there is evidence of stream tin and smelted tin.²⁵⁴ Caerloggas, at St. Mawgan-in-Pydar, also shows tin smelting, bronze smelting, crucible fragments, and pebbles of unprocessed tin. The smelting site at Caerloggas dates to AD 25 and AD 50 - 70, but the occupation site dates from the first to the middle of the second century AD.²⁵⁵ At Porthmeor, Zennor, one kilogram of smelted tin was recovered along with other, smaller pieces of slag (Porthmeor has a long occupation

²⁴⁸ Shepherd, 342.: C. E. N. Bromehead, " The Evidence for Ancient Mining," *The Geographical Journal* 96, No. 2 (Aug., 1940):117; Penhallurick, 210-11.

²⁴⁹ Fox, et. al, “Roman Fort at Nanstallon,” 108.

²⁵⁰ *Ibid.*, 110.

²⁵¹ Penhallurick, 210.

²⁵² *Ibid.*, 210-11.

²⁵³ L. J. F. Keppie, et. al., ed., “Roman Britain in 1997,” 423.

²⁵⁴ Penhallurick, 221 & 213.

²⁵⁵ *Ibid.*, 204-5, 221.

ranging from the first century through the fifth century AD).²⁵⁶ At Treloy, a Romano-British tin bowl was uncovered in 1826, together with a lid bearing the Latin numerals XX. It is thought to date either to the third or fourth century,



Figure 37. Romano-British tin bowl from Treloy.²⁵⁷

AD, but this is not AD, but this is not certain.²⁵⁸ A tin spindle whorl, 25mm in diameter, was found at Trevelgue. This site is Romano-British and bears evidence of bronze and iron workings. Crucible fragments and what may have been part of a kiln were also discovered. Finds date this site from the second century through the fourth century AD.²⁵⁹ It is also important to note some of the finds recovered from tin streamworks in Cornwall, which included pewter and tin bowls, Roman coins, brooches, rings, ingots, fibula, pottery. Dates for these items, especially those discovered prior to the nineteenth century, are often

²⁵⁶ Penhallurick, 214.

²⁵⁷ Ibid., 201.

²⁵⁸ Ibid.

²⁵⁹ Ibid., 200-202.

uncertain due to lack of context as well as their tendency not to survive into the twentieth century.²⁶⁰

Ingots

Ingots are rare finds and difficult to date. It is very difficult to use ingots to show mining occurred in specific periods. Ingots of tin have been found in Cornwall during the last 300 years. However, many of them were only mentioned in passing and no longer survive. Most ingots that were discovered by miners during the past three centuries were simply melted down. This tended to occur because these finds were “just a bonus to many tanners who sweated long hours for little return.”²⁶¹

However, several ingots known to date to the period of Roman occupation have been found in Cornwall. The St. Austell ingot can be dated to sometime between AD 250 - 550.²⁶² An ingot with Roman letters was found in 1832 at Veryan, but no longer exists.²⁶³ A tin ingot was found in the 1880s at Sancreed. A nearby Romano-British settlement, which bore evidence of smelting and archaeological material dating it to the third and fourth centuries, suggests that the ingot might have come from that site.²⁶⁴ A 40-pound late Roman ingot was found at Carnanton; it contained an inscription that dates to the fourth century.²⁶⁵

Some ingots have also been found in wrecks, such as the Erme estuary wreck in Devon. This wreck, discovered in 1991, included more than forty ingots of tin. These were cast into several different shapes and vary in size. They are thought to date from the Bronze

²⁶⁰ Penhallurick, 219-220.

²⁶¹ *Ibid.*, 173.

²⁶² *Ibid.*, 229.

²⁶³ *Ibid.*, 230.

²⁶⁴ *Ibid.*, 235.

²⁶⁵ Fox, *South-West England*, 183.

Age, but this cannot be proven.²⁶⁶ They might date to the period of Roman occupation in the southwest.

As mentioned earlier, surviving ingots are hard to date because they often lack markings or any kind of context. Though tin mining is known to have occurred in many places in Cornwall over a period of 3,000 years, ingots have been found in less than forty places in Cornwall. Of these, only two survive that can be proved to be Roman²⁶⁷ (the Veryan ingot no longer survives and the Sancreed ingot is only assumed to be Roman due to the nearby smelting site). The inability to date the others speaks volumes on the difficulty of finding conclusive evidence for Roman tin working prior to the middle of the third century.

Possible Mines

Boscarne, Carnanton, Treyloy, and Carnon are possible tin streamworks mined during the Roman control of the southwest. These works are located either on the coast or by a major river (Boscarne is on the Camel River, Carnanton and Treyloy are near Trevelgue Head on the north coast, and Carnon is on the Fal estuary).²⁶⁸ Roman and Romano-British finds have been discovered in the tin streamworks at this site. Dateable finds place these activities from the first through second centuries AD.²⁶⁹

Below is a table showing sites in Cornwall that have bronze slag, tin slag, smelted tin, ingots, pewter molds, or evidence of tin working. Slag, smelted tin, and pewter molds would

²⁶⁶ Mark Clark, "Ancient Tin Ingots Donated to Museum," Press Release, The Maritime & Coastguard Agency, July 2002, < http://www.mcga.gov.uk/c4mca/mcga-dops_pr_newsroom-press-releases-release.htm?mcga_news_id=81&month=7&year=2002 > [cited March 2005] (Press Release).

²⁶⁷ Fox, *South-West England*, 183; Penhallurick, 173.

²⁶⁸ Penhallurick, 210.

²⁶⁹ *Ibid.*, 210-11.

not have been imported. All of these sites fall within the period in question. A map depicting the locations of these sites follows the table.

Table 1. Description of sites with finds that would not have been imported into the region.

See each column for references.

Site	Tin Related Finds	Dateable Finds	Relative Age of Site	Tin Stream Nearby
Carnon (tin stream) Penhallurick, 194-6.	Tin bowl, Roman finds and coins in tin streams	Roman coins (Domitian and Commodus), (now lost) Roman coin hoards	Late 1 st – late 2 nd centuries AD	Yes
Caerloggas (near settlement) Penhallurick, 204-205.	Tin pebble (stream tin), tin slag, smelting site (AD 25 & 50 -70), bronze slag, crucible fragments, bronze object		1 st – middle of 2 nd centuries AD	Yes
Treyloy Penhallurick, 201-2.	Tin bowl, tin spindle-whorl	Romano-British stone bowls, brooch	2 nd - 4 th centuries AD	Yes
Trevelgue Head, Newquay (promontory fort) Wright, <i>JRS</i> 30: 29. Penhallurick, 200-1.	Bronze smelting, crucible fragments, moulds for casting, pure tin spindle-whorl		Pre-Roman promontory fort 200 BC- AD 120 Roman fort 2 nd - 3 rd centuries AD	Yes
Boscarne (near Nanstallon, tin stream) Penhallurick 209-212.	Ingot (supposedly from Boscarne), mining site	<i>Samian</i> ware (Flavian), Roman coin (Trajan)	1 st -2 nd centuries AD	Yes
St. Erme (settlement) Keppie, <i>Britannia</i> 29: 423.	Tin slag, hand beaten tin plaque		2 nd -3 rd centuries AD	Unknown to author
St. Just-in-Penwith (mining region) Penhallurick, 213.	Pewter mold	Roman coins (Antoninus Pius), pewter mold,	3 rd -4 th centuries AD	Yes
Porthmeor, Zennor (settlement) Penhallurick, 214.	Smelted tin (1kg), tin slag		1 st -5 th centuries AD	Unknown to author

Table 1. Continued.

Castle Gotha (settlement)	Tin workings, ingot mold		2 nd century AD	Yes
<i>Fox, South-West England, 183.</i>				
Carn Euny, Sancreed (settlement)	Fused tin, tin pebbles (stream tin)	<i>Samian</i> ware, bones, iron objects	1 st century BC – 1 st century AD	Yes
<i>Penhallurick, 207, 213. Roger J. A. Wilson, 83.</i>				

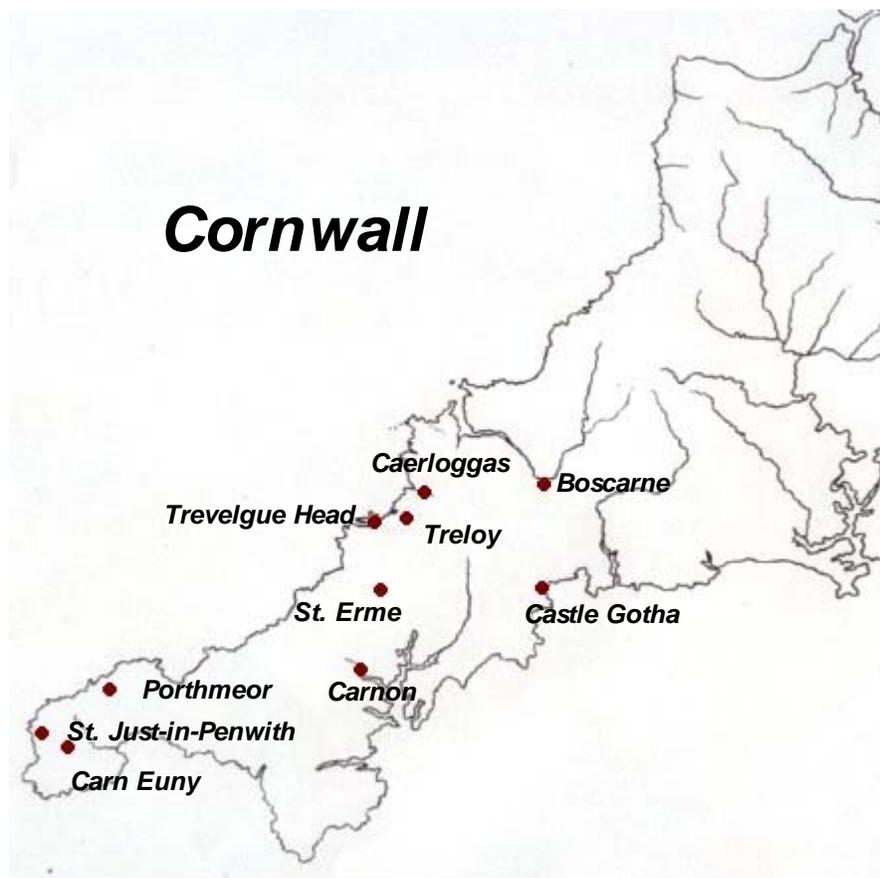


Figure 38. Map depicting the location of sites named in Table 1. ²⁷⁰ (see above).

Transportation

As discussed earlier, archaeological evidence of Roman roads in southwestern Britain is fragmentary. Since the hills, valleys, and windswept moors would have made it difficult to

²⁷⁰ Codrington, foldout map; Modified by author.

export metal – raw or refined – by land, a combination of river and sea routes may have been used to transport tin to Roman settlements farther east. Unfortunately, the sea level has changed significantly over the last 2,000 years, and many Roman-era coastal sites likely have been submerged.²⁷¹

Romano-British Pewter Industry

During the four centuries of Roman occupation, a significant pewter industry flourished in *Britannia*. Pewter requires far more tin than does the production of a similar quantity of bronze. Tin-bronzes, or true bronzes, are commonly 10% tin to 90% copper. It is rare to find a tin-bronze with a tin content of 20% or more. Unlike pewter produced during the medieval period, there was no set standard for defining the composition of Roman pewter.²⁷² A survey of the pewter finds dated to Roman Britain up to 1989 lists over 400 ancient pewter vessels. This number continues to increase as archaeologists conduct additional excavations. The vessels in Beagrie's survey have a diverse tin content, ranging from lead-alloys with less than 50% tin to pure tin.²⁷³ Fox suggests that pewter vessels with a very high tin content were probably made in Cornwall.²⁷⁴ Hughes has suggested that there may have been a preference for pewter with a 62-80% tin content, because of their cooling range and ability to cast well.²⁷⁵

Most pewter vessels from Roman Britain are dated between AD 250 and 410; however, these dates are often debatable. Metal objects can have long lives, so vessels may

²⁷¹ Waddelove and Waddelove, 253-266.

²⁷² Fox, *South-West England*, 184; Beagrie, 169.

²⁷³ Beagrie, 171.

²⁷⁴ Fox, *South-West England*, 184.

²⁷⁵ Beagrie, 173, citing: Dr. M Hughes (appears to be personal reference not based on a published work).

be much older than the archaeological context in which they were discovered. There is a growing body of evidence to suggest pewter manufacture in Britain before AD 250. Second century spoons have been found at several sites, along with other small vessels.²⁷⁶

Pewter vessels occur in the southwest in a variety of settings. These include a pewter cup found in a tin stream at Halviggan (Cornwall, date unknown), a pewter dish with a coin hoard (date unknown) at Carnon (Cornwall), a pewter flagon of 96% tin with a coin hoard at Carhayes (AD 250-75; Cornwall), and a pewter cup and flagon at Boscence in St. Erth (Cornwall, from a sacred site, date unknown).²⁷⁷

Large centers of pewter production, including casting of pewter vessels and molds, have been found at Landsown, Bath, and Camerton, all in southwest Britain just east of Devon. These sites functioned at least between AD 250 and 410, which is the period most Romano-British pewter finds date to.²⁷⁸ At Landsown alone, more than forty fragments of molds were found for pewter objects such as plates, cups, bowls, possibly a flagon, dishes, spoons, handles, and pendants.²⁷⁹

There is considerable evidence pewter was made in other communities as well.²⁸⁰ While the actual pewter vessels and objects did not always survive, a number of molds for pewter objects have been found throughout southwest England. Two pieces of a mold were found at St. Just-in-Penwith (near the tip of Land's End in Cornwall). Stylistically, they date

²⁷⁶ Beagrie, 175-6.

²⁷⁷ Fox, *South-West England*, 183-4; Penhallurck, 213-5.

²⁷⁸ Beagrie, 184.

²⁷⁹ *Ibid.*, 183.

²⁸⁰ *Ibid.*, 178.

to the third or fourth centuries AD. However, a Roman coin hoard as early as Antoninus Pius (AD 138-161) has been found in this region.²⁸¹

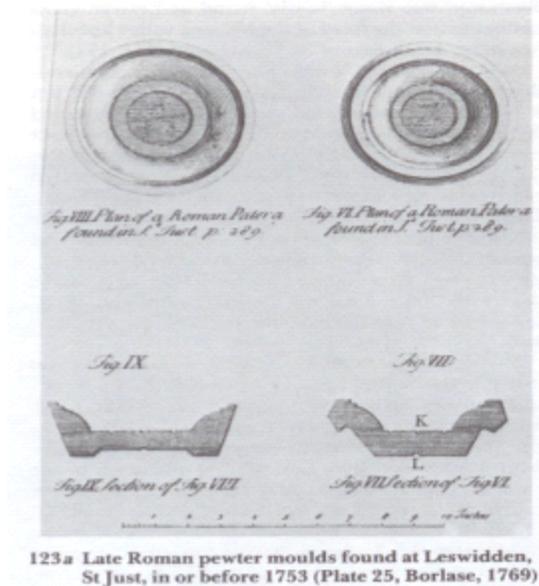


Figure 39. Late Roman molds from St. Just.²⁸²

Curse tablets, which are well known across the Roman Empire, were traditionally made of thin sheets of lead, which were inscribed, rolled, folded and occasionally nailed to an object. In Britain, most curse tablets have been discovered at temple sites (such as at Bath and Uley).²⁸³ Some of the 130 curse tablets from Bath (Roman *Aquae Sulis*) are unique in that they are made of pewter (with a high tin content) rather than lead.²⁸⁴ These tablets were

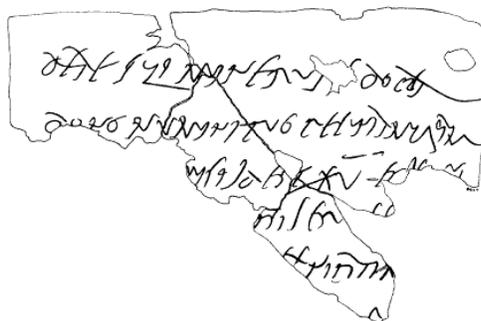
²⁸¹ Beagrie, 186; Penhallurick, 213-4.

²⁸² Penhallurick, 214.

²⁸³ A.K. Bowman, et. al., “ ‘Curse tablets’ and Other Documents on Metal from Roman Britain,” *A Corpus of Writing-Tablets from Roman Britain* (A British Academy Research Project), Center for the Study of Ancient Documents, Oxford, 2005, < <http://www.csad.ox.ac.uk/RIB/RIBIV/jp4.htm> > [cited January 2007] (Webpage).

²⁸⁴ Several pewter tablets have been found in London, but this author has not been able to find a date for them. L. J. F. Keppie, et. al., ed., “Roman Britain in 1998,” *Britannia* 30 (1999): 375-9.

placed in a spring thought sacred even in pre-Roman times. The texts, dating from the second and fourth centuries AD, exhibit a wide range of preservation.²⁸⁵



Deae Suli Minervae Docca
dono numini tuo pecuniam quam
 [c. 5 a]misi id est (denarios) (quinque) et is [q]ui
 [eam involaverit] si ser[vu]s s[i] liber
 [si vir si femina] ex's. igatur [. . .]
 [. . .] . [. . .]

FIG. 31. Bath, Avon: defixio No. 6. Scale 1:1.
 (Drawn by R. S. O. Tomlin)

Figure 40. Fragment of a curse tablet made of pewter.²⁸⁶

Charterhouse-on-Mendip, previously described as being one of the oldest and greatest producers of Roman lead in southern England, is about 20 miles west of Bath. Slightly further west are the tin bearing areas of Cornwall and Devon. These unique curse tablets may have been the result of tin shipments going east to the nearest lead mining and processing operation.

Fox suggested that the number of pewter finds from the entire Romano-British period situated along the south coast, as shown on the following map, implies a seaborne trade network of goods.²⁸⁷

²⁸⁵ J. N. Adams, "British Latin: The Text, Interpretation, and Language of the Bath Curse Tablets," *Britannia* 23 (1992): 1.

²⁸⁶ N. B. Rankov, M. W. C. Hassall, and R. S. O. Tomlin, ed., "Roman Britain in 1981," *Britannia* 13 (1982): 401, 403, 406.

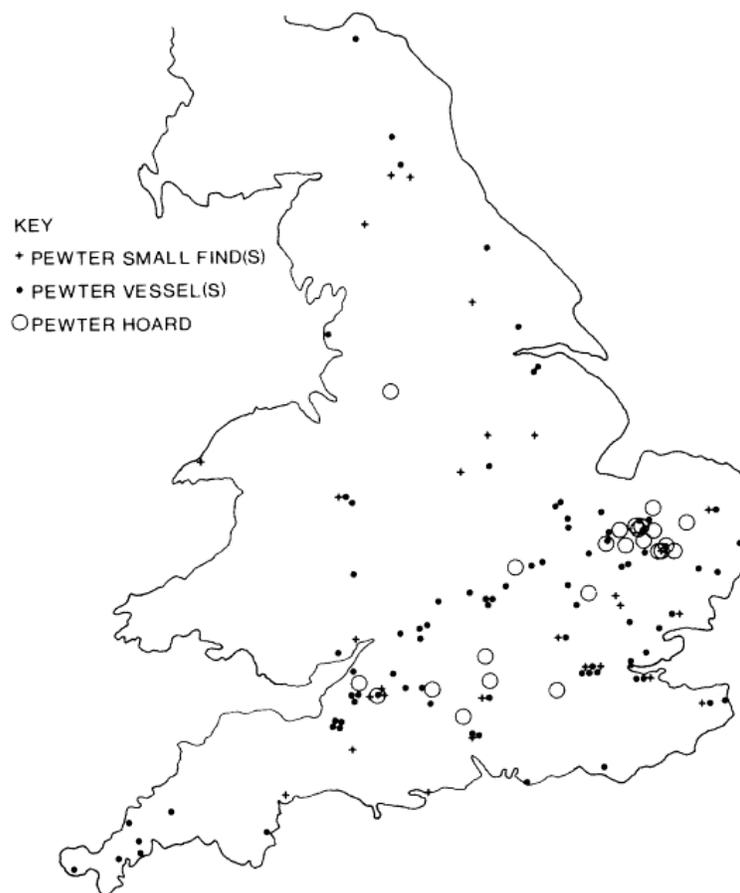


Figure 41. The distribution of many of the pewter finds in Britain.²⁸⁸

Tin Coins

Tin coins have been discovered on occasion in Britain, France, and Spain, with most dated to the second and early third centuries. Tin coins are rare finds and their use has been debated. It has been suggested that tin coins were used to “eke out scanty silver coinage.”²⁸⁹

²⁸⁷ Fox, *South-West England*, 184.

²⁸⁸ *Ibid.*, 184.

²⁸⁹ Shepherd, 342; Bromehead, 117.

Another suggestion was that the coins were used in religious offerings, either on purpose or as a way of cheating.²⁹⁰ The last possibility is that they were for a counterfeit purpose.²⁹¹

Finds of tin coins in France and Spain are extremely rare. In Lyon, France, a coin hoard consisting of 700 tin *denarii* dating to the reign of Septimius Severus (193-211) was found. In Cordoba, Spain, a single tin coin was found (also from the reign of Septimius Severus).²⁹² By comparison, three caches of tin coins have been found in Britain. Two were at Kirkintilloch and Bar Hill along the Antonine Wall. At both sites, the coins seem to have been votive offerings.²⁹³ At Bar Hill, ten coins were found in the well in the courtyard of the *principia*. They were copies of real coins, one from Domitian (AD 81-96), eight from Hadrian (AD 117-138), and one from Antoninus Pius (AD 138-161). All eight of the coins from the reign of Hadrian were made from only two molds (three were identical copies cast from one mold and another five were cast from a second mold). This could mean that they were made at or near the fort.²⁹⁴ These coins were probably deposited between c. AD 140 and 165 (the period the wall was occupied). The third cache of tin coins in Britain was found at Gunard Bay on the Isle of Wight in 1987.

²⁹⁰ H. Mattingly, "Hoards of Roman Coins Found in Britain: And a Coin Survey of the Roman Province," *The Journal of Roman Studies* 22, No. 1: Papers Dedicated to Sir George Macdonald K.C.B. (1932): 92; Richard Abdy, "A Survey of the Coin Finds from the Antonine Wall," *Britannia* 33 (2002): 196.

²⁹¹ Frere, et. al., ed., "Roman Britain in 1987," 447.

²⁹² Bromehead, 117.

²⁹³ Mattingly, "Hoards of Roman Coins Found in Britain: And a Coin Survey of the Roman Province," 92; Abdy, 196.

²⁹⁴ Abdy, 196, 203-4.

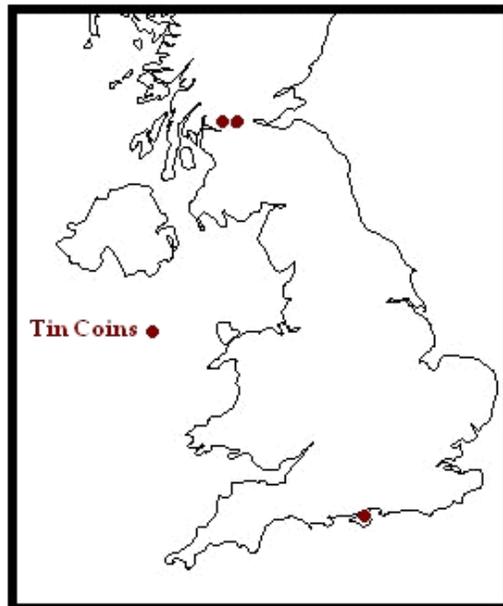


Figure 42. Tin coin finds in Britain.²⁹⁵



Figure 43. Some of the tin coins from Bar Hill.²⁹⁶

²⁹⁵ 'Country Maps,' About: Geography, About, Inc., 2007, < <http://geography.about.com/library/blank/uk.jpg> > [cited February 2007] (Map); Modified by author.

²⁹⁶ Abdy, 199.

These lead-tin *denarii* were found along with evidence of smelting. It has been suggested that this may be evidence of counterfeiting. The coins date to the mid- to late-second century.²⁹⁷

Coin Minting

The Roman Empire, for most of its long history, controlled its silver and gold mints. However, the empire did allow regions and cities to mint their own bronze coinage for a period.²⁹⁸ In Britain, there were at least two mints, one in London and another in unknown location that began with a C (known from mint marks). Colchester (*Camulodunum*) has been suggested as this unknown mint.²⁹⁹ These mints were used by the British emperors Carausius (286-93) and Allectus (293-296) after they broke away from the empire during the crisis of the third century. These mints would have imported some tin to produce their bronze coins.³⁰⁰ Even though many coins were repurposed and reissued, silver currency had continued to be debased until, in this period, most silver coins were actually a bronze coin with merely a coating of silver.

The Late Third and Fourth Centuries AD

A number of scholars argue that, prior to the late third century, Cornish tin mines were ignored in favor of Spanish deposits that were already being worked before the Claudian invasion of Britain. Scholars such as Francis John Haverfield, Ian Archibald Richmond, Sheppard Frere, Aileen Fox, Howard Hayes Scullard, Robert Shepherd argue that

²⁹⁷ Frere, et al., ed., "Roman Britain 1987," 477.

²⁹⁸ There will be no discussion of forger's molds found in Britain within this thesis; Greene, 57-9.

²⁹⁹ H. Mattingly, "Hoards of Roman Coins Found in Britain: And a Coin Survey of the Roman Province," 94.

³⁰⁰ H. Mattingly, "Mints of the Empire: Vespasian to Diocletian," *The Journal of Roman Studies* 11 (1921): 260; Quinnell, 129.

tin mining under Roman control did not begin in Britain before the late third century AD (John Wachter in fact argues that it did not begin until the fourth century), though several admit that prospecting and small attempts might have occurred in the middle of the first century AD.³⁰¹ This is usually attributed to the reduction in Spanish mining at this time (either due to a lack of mineable materials or problems controlling the region due to barbarian raids).³⁰² However, little to no evidence is given to support such an argument.

Francis John Haverfield names only one exception to the idea that mining did not begin in the southwest until the late occupation period: "...portions of the country [southwest] were inhabited, but ... the inhabitants did not learn Roman ways, like those who lived east of the Exe [River]. Even tin-mining was not pursued very actively until a comparatively later period, though the Bodmin settlement may be connected with tin-works close by."³⁰³

Ian Archibald Richmond concedes that some "slight" evidence for mining activity in the third century, writing:

Even when the island became a province and the Dumnonii one of the philo-Roman allied communities, it does not appear that the Roman government took much interest in developing the tin. There is slight evidence for activity in the first century A.D.: somewhat later the best evidence is the occurrence of two *stationes*, or Treasury Offices, in the area, presumably connected with the workings or leasings of stannaries....only in the third century A.D., and particularly after the ruin of the Spanish mines in its last quarter does government interest in the area begin.³⁰⁴

Sheppard Frere states simply:

³⁰¹ Richmond, *Roman Britain*, 123; Haverfield, 24-26, footnote; Frere, *Britannia a History of Roman Britain*, 282; Fox, *South-West England*, 183-4; Scullard, 130; Shepherd, 341-2, 348; Wachter, 220.

³⁰² Shepherd, 212; Scullard, 130; Fox, *South-West England*, 183; Frere, *Britannia: a History of Roman Britain*, 286.

³⁰³ Haverfield, 26.

³⁰⁴ Richmond, *Roman Britain*, 123.

In the first century B.C. the tin-trade of Cornwall had been interrupted by Caesar's wars in Brittany, and probably did not fully recover thereafter; for the Romans made no serious attempt to open up Cornwall before the third century. By the time of Nero, when the peninsula was occupied, sufficient tin was being obtained from Spain; and the limited exploitation of Cornwall, which is all we find in the later first century, shows that the industry could not compete with this nearer source.... About the middle of the third century the Roman government began to take a renewed interest in Cornwall, for milestones prove road building in that period and also in the early fourth century. The purpose of this was certainly to assist the revival of the tin industry, perhaps because of the decline in Spanish production consequent on barbarian invasion, and certainly because of renewed demand for it in Britain from the manufacturers of pewter.³⁰⁵

Aileen Fox stated local production continued in some instances and that military prospecting probably occurred in the mid- first century AD, but that "...since the Romans were well supplied with this metal [tin] from northern Spain, it was not profitable to work.... When the Spanish mines were exhausted in the mid-third century, the situation was changed and there was a renewed demand for tin in north-western Europe."³⁰⁶

Howard Hayes Scullard writes, "by Flavian times Rome drew all the tin she needed from Spain, but when the mines there and in Dacia (Romania) were closed, the British source was opened up again [referring to activities in prehistoric times] in the mid- third century."³⁰⁷

In 1986, Henrietta Quinnell wrote the article "Cornwall during the Iron Age and the Roman Period" in the journal *Cornish Archaeology*. This is the only scholar this author has found who called for further examination of tin mining in Cornwall during the first several centuries of Roman occupation,³⁰⁸ and writes that,

³⁰⁵ Frere, *Britannia: a History of Roman Britain*, 282, 286; (These exact sentiments are reiterated in the later 1978 edition of *Britannia: A History of Roman Britain*, 320, 324).

³⁰⁶ Fox, *South-West England*, 183.

³⁰⁷ Scullard, 130.

³⁰⁸ Quinnell, 111-34.

Palynological evidence from old workings such as those at Colliford ... hints that the extent of surviving early tin workings may have been underestimated.... Further environmental studies, following up the work at Colliford, are necessary finally to pull perceptions of Cornish tin out of the realms of semi-myth to firm reality.³⁰⁹

Yet other portions of her article agree with the traditional point of view,

A major and distinctive feature for Cornwall was the production of tin. This is generally considered to have been of little importance during the 1st and 2nd centuries AD, when Iberian mines were supplying the Empire's needs....In the 3rd century the Iberian mines were in decline, tin was increasingly used in coinage, and in Britain the demand for tin went up because of the growing popularity of pewter table ware.³¹⁰

Ironically, and in contrast to the principal reason these authors cite for Roman tin mining efforts shifting to Cornwall in the third century (that is, the decline or exhaustion of Spanish deposits), there is evidence for some continued exploitation of tin in *Iberia* into the fourth and early fifth century. In fact, tin was still being mined in Spain and Portugal well into the twentieth century.³¹¹ The claim that Spain dominated or outdid their competitors is not a sufficient argument to conclude that tin was not mined by the Romans in Cornwall during the first and second centuries. Given the paucity of sources that discuss Roman mining in the west, it is inadvisable to make an argument that mining did not occur in Cornwall based on silence of primary sources concerning Britain during the first through late third centuries AD, especially in light of existing archaeological evidence that tin mining had occurred in Cornwall for centuries before the Roman invasion and that such mining continued during the first two and a half centuries of Roman occupation.

³⁰⁹ Quinnell, 130-1.

³¹⁰ Ibid., 129-30.

³¹¹ Edmondson, 90-1.

This does not mean that Cornish tin mining did not increase during the late third and early fourth centuries. Archaeological evidence clearly indicates that the Romans' interest in exploiting the mines in southwest British increased during that time. As mentioned in Chapter III, the five Roman milestones in Cornwall date from the mid-third to the fourth century, indicating that the Romans becoming more interested in Cornwall and Devon after the mid-third century. There are more Roman coins in Cornwall dated to the late third and fourth centuries than from earlier times (six fourth century coin hoards have been found in Cornwall). Aileen Fox has suggested that this increase in coinage indicates that mining was bringing money into the region.³¹²

One of the greatest indications of an increase in British tin mining is the rise in pewter production. There is significant evidence for pewter manufacturing in the late third through fourth centuries.³¹³ Most Romano-British pewter is found in contexts dating between AD 250 and 410.³¹⁴ Production evidence is found throughout Britain. Mold fragments have been found in Brislington, Camerton, Lansdown, Bath, Wick, St. Just-in-Penwith, Gloucester, Witcombe, Neatham, Silchester, Wroxeter, Nettleton, Westbury, Langton, and York.³¹⁵ Pewter waste, slag, scrap, and ingots have also been found, including archaeological evidence discovered at Gatcombe, Bladock, Ickham, Thames (ten ingots), Walbrook, Hockwold, Benwell, Corbridge, Nettleton, and Bath (where an ingot was found).³¹⁶

³¹² Fox, *South-West England*, 183-4.

³¹³ Peter Salway, *The Oxford Illustrated History of Roman Britain*, 445; Richmond, *Roman Britain*, 124; Beagrie, 175; Frere, *Britannia a History of Roman Britain*, 286; Barry Cunliffe, *Roman Bath Discovered* (London: Routledge & Kegan Paul Ltd., 1971), 87.

³¹⁴ Beagrie, 175.

³¹⁵ *Ibid.*, 183, 185-88, 91.

³¹⁶ *Ibid.*, 188-91.

The Romans were engaged in mining throughout the empire they controlled, and certain resources were more highly prized than others, such as gold, silver, and tin. This chapter has examined what little is known regarding mining practices in Spain, Portugal, and Britain. It is important to note how little information exists on mines, especially small-scale operations. Tin mining in Spain, which may have dominated the market for more than three hundred years, did not die out completely in the third century; in fact archaeology suggests that it survived on a smaller scale until the early fifth. In Britain, tin mining continued to occur as small scale operations from the first through the third centuries AD. It is crucial to note that often the only evidence we have for mining (both small and large scale) is archaeology, which can create a very different picture than that of contemporaneous literary sources.

Trying to find dateable evidence of alluvial mining in southwest Britain covering a span of less than 300 years in a region that has been mined for more than 3,000 years would seem to be a nearly impossible task. However, evidence does exist in the form of tin, pewter, and bronze objects that can be dated to that specific period. In fact Carnon, Caerloggas, Trevelgue Head, Boscarne, St. Erme, Castle Gotha, and Carn Euny all bear finds such as tin slag, ingot moulds, tin pebbles, or evidence of mining which date from the first through the third centuries AD. Roman and native objects also occur in streamworks, which provide an indication that mining may have occurred, even when there is no other evidence for it. The Romans needed tin – either unaltered or alloyed – for coinage, the military, everyday items, and decorative metalwork. It seems likely that they would have taken advantage of local mines that had been known since well before the time of the Claudian invasion, rather than going to the unnecessary expense of importing it from Spain. This evidence shows that the

Romans, either through native mining or their own efforts, took what they needed from this region during the first two and a half centuries of their occupation of Britain. As the Romano-British pewter industry flourished at the end of the third century, Roman exploitation of Cornish tin increased.

Conclusion

Was tin in southwestern Britain mined under Roman control between the first and third centuries AD? No legal documents pertaining to Roman tin mining from this period survive. There are no historical accounts that tell us Cornish mines were leased to individuals or societies. In fact, there are no definitive historical accounts that state this region was mined under the control of the Romans. This is not surprising, since most of the historical accounts from Roman Britain during the entire four centuries of occupation are short personal accounts of daily life, such as the *Vindolanda* tablets. However, there is archaeological evidence that Cornish tin continued to be mined, processed, and turned into finished products during these centuries, and the Romans would not have allowed this to happen in their province without being involved in the process.

The period in question, the mid-first century AD to the third century, is very short – given that tin mining took place in Cornwall over a period of more than 3,000 years. Trying to prove that Cornish tin was extracted, refined, and used to manufacture items during this short period seems daunting. Yet the fact that there are close to a dozen sites pertaining to tin mining and production during the period in question, together with an impressive number of objects made of tin or pewter, is significant.

Where historical sources are silent, archaeology offers us a wealth of information into Cornwall and Devon's past. Archaeological finds cannot be ignored in examining the history of the region. The Romans were present in the southwest within a few years of the Claudian invasion, even if their presence was limited. Historical sources describe geographical features, including settlements (only some of which have been discovered). Many sites in the southwest named by Greek and Roman sources still lie undiscovered or are now lost. Yet the

extent of what is written about the southwest by classical authors makes it clear that the Romans knew about the region.

There is one other author who agrees that the southwest and its resources were not ignored by the Romans. R. D. Penhallurick wrote:

Caesar's action must have curtailed the Cornish tin trade and may have even stopped it for a time. His action may also explain the rapid rise in the importance of Iberian tin in the 1st century BC, and may also be a clue to Caesar's own poor knowledge of the location of British tin mines when he arrived....*This disruption of cross-channel trade did not mean an end to Cornish tin production, for there was still the home market and a good deal of northern Europe to satisfy. Although it appears true that the Romans were more interested in Cornish tin from the 3rd century onwards, a later section will give archaeological evidence that tin production in Cornwall was continuous from the beginning of the early bronze age [sic] to the present day, a span of some 4000 years.*³¹⁷ [Unfortunately, that later section does not address the issue in any great detail.]

As shown in this paper, archaeological discoveries since Penhallurick wrote *Tin in Antiquity* in 1986 have further strengthened the case for Cornish tin production during the first two and a half centuries of Roman occupation of *Britannia*.

Archaeological information available at this time, Roman knowledge of geographical details of the southwest, and the manner which the Romans ran their provinces all combine to make it extremely improbable that the Romans ignored the valuable mineral resources of Cornwall and Devon before the mid-third century. It is not yet possible to accurately determine the level at which tin mining occurred in the southwest during this period, but it can no longer be doubted that such mining operations took place. Hopefully, further archaeological finds and excavations will shed more light on this subject.

³¹⁷ Penhallurick, 146, emphasis added by author.

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Appendix A
Romano-British Sites in Cornwall

Romano-British Sites in Cornwall

Bosence, St. Erth (Romano-British) ³¹⁸	Sacred
Caerloggas ³¹⁹	Settlement
Carn Brea, Redruth (1 st century AD – late imperial) ³²⁰	Hillfort
Carn Euny, Sancreed (1 st century BC- 1 st century AD) ³²¹	Settlement
Carvossa, St. Kew (at least 1 st century AD) ³²²	Settlement
Castle Gotha, Trethurgy (1 st century -2 nd century AD) ³²³	Promontory Fort / Settlement
Crane Godrevy, Gwithian ³²⁴	Homestead
Chysauster, Gulval (1 st century BC – 4 th century AD) ³²⁵	Settlement
Goldherring, Sancreed (Iron Age, later 3 rd century AD occupation) ³²⁶	Settlement
Grambala, Wendron (1 st century-2 nd century) ³²⁷	Settlement
Mulfra Vean, Madron (pre-Roman to 2 nd /3 rd century AD) ³²⁸	Settlement
Norton Fitzwarren (?- 2 nd century AD) ³²⁹	Hillfort
Pencarrow ³³⁰	Hillfort
Porth Godrevy, Gwithian (1 st century BC to 2 nd /3 rd century AD) ³³¹	Homestead

³¹⁸ Fox, *South-West England*, 182.

³¹⁹ Fox, et. al., "The Roman Fort at Nanstallon, Cornwall," 59.

³²⁰ Fox, *South-West England*, 175.

³²¹ Roger J. A. Wilson, 83.

³²² D. R. Wilson and R. P. Wright, ed., "Roman Britain in 1968: I. Sites Explored: II. Inscriptions," *The Journal of Roman Studies* 59, No. 1/2 (1969): 228.

³²³ Fox, *South-West England*, 175.

³²⁴ *Ibid.*, 174.

³²⁵ Roger J. A. Wilson, 83.

³²⁶ Fox, *South-West England*, 177.

³²⁷ *Ibid.*, 174.

³²⁸ *Ibid.*, 177.

³²⁹ *Ibid.*, 175.

³³⁰ Fox, et. al., "The Roman Fort at Nanstallon, Cornwall," 59.

Porthmeor, Zennor (c. 1 st century – 5 th century AD) ³³²	Settlement
Probus, St. Kew ³³³	Settlement
Rumps ³³⁴	Promontory Fort
Shortlandsend, Truro (Romano-British) ³³⁵	Settlement
St. Mawgan in Pyder (1 st century-2 nd century AD) ³³⁶	Settlement
Trebarveth (c. 2 nd century AD). ³³⁷	Industrial Site
Trevelgue Head (2 nd century to 3 rd century AD) ³³⁸	Promontory Fort
Trevinnick, St. Kew (1 st century-2 nd century) ³³⁹	Settlement

³³¹ D. R. Wilson and R. P. Wright, ed., "Roman Britain in 1969," *Britannia* 1 (1970): 297; R. P. Wright and D. R. Wilson, ed., "Roman Britain in 1962: I. Sites Explored: II. Inscriptions," *The Journal of Roman Studies* 53, Parts 1 and 2 (1963): 146.

³³² Collingwood and Taylor, 214; Fox, *South-West England*, 177.

³³³ Fox, *South-West England*, 174.

³³⁴ Fox, et. al., "The Roman Fort at Nanstallon, Cornwall," 59.

³³⁵ F. O. Grew, M. W. C. Hassall, and R. S. O. Tomlin, ed., "Roman Britain in 1979," *Britannia* 11 (1980): 389.

³³⁶ Fox, *South-West England*, 175.

³³⁷ D. R. Wilson and R. P. Wright, "Roman Britain in 1969," 298.

³³⁸ R. P. Wright, 175.

³³⁹ D. R. Wilson and R. P. Wright, "Roman Britain in 1968: I. Sites Explored: II. Inscriptions," 228; Fox, *South-West England*, 175.

Appendix B
Romano-British Sites in Devon

Romano-British Sites in Devon

Clanacombe (c. AD 200) ³⁴⁰	Settlement
Exeter (1 st century- 5 th century) ³⁴¹	Fort/Capitol
Hembury (?-AD 70) ³⁴²	Hillfort
Holcombe, Uplyme (1 st century AD site, later development a Roman villa) ³⁴³	Villa/Settlement
Milber Down, Newton Abbot (AD 50-150) ³⁴⁴	Unknown/ Farm
Plymouth (extensive settlement, little information) ³⁴⁵	Unknown/ Settlement
Seaton ³⁴⁶	Villa/Town
Stoke Gabriel (late 1 st century –early 2 nd century AD; [later] 3 rd /4 th century occupation) ³⁴⁷	Settlement

³⁴⁰ Fox, *South-West England*, 175.

³⁴¹ Ibid., 166-69; C.A. Raleigh Radford, 'The County of Devon,' "Exeter Summer Meeting," *The Archaeological Journal* (for 1957) 114 (1959): 131.

³⁴² Fox, *South-West England*, 171.

³⁴³ Hassall, et. al., 344; Fox, *South-West England*, 172.

³⁴⁴ R. P. Wright, ed., "Roman Britain in 1938: I. Sites Explored: II. Inscriptions," *The Journal of Roman Studies* 29, No. 2 (1939): 218.

³⁴⁵ Radford, 131.

³⁴⁶ Fox, *South-West England*, 170-1.

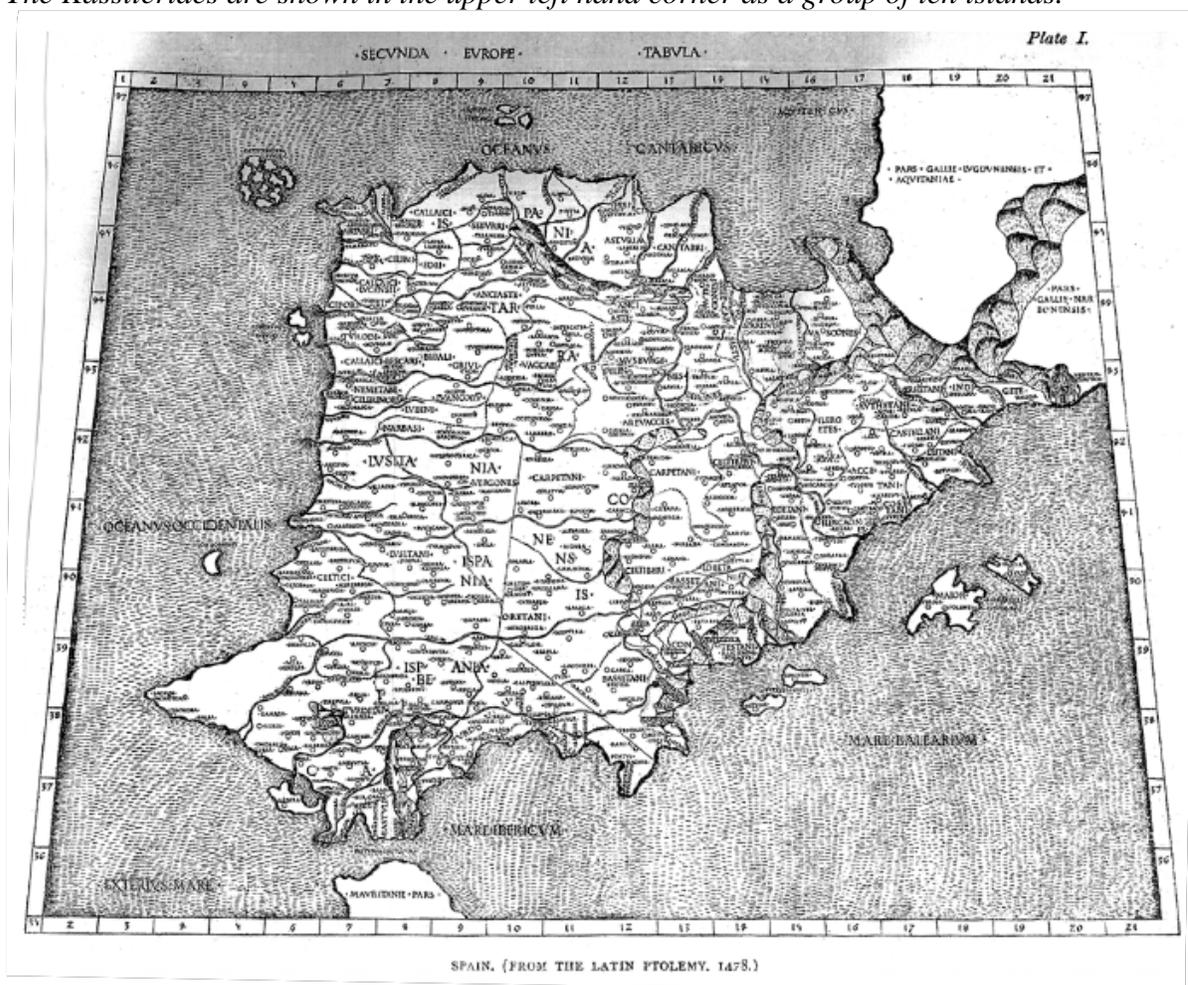
³⁴⁷ R. P. Wright, ed., "Roman Britain in 1959: I. Sites Explored: II. Inscriptions," *The Journal of Roman Studies* 50, No. 1 and 2 (1960): 232; R. P. Wright, ed., "Roman Britain in 1958: I. Sites Explored: II. Inscriptions," *The Journal of Roman Studies* 49, No. 1 and 2 (1959): 130.

Appendix C

Ancient Views of the World
&
A Modern View of Cornwall

**Ptolemy's Spain and *Kassiterides*
Reconstruction of Ptolemy's Spain from 1478.³⁴⁸**

The Kassiterides are shown in the upper left hand corner as a group of ten islands.



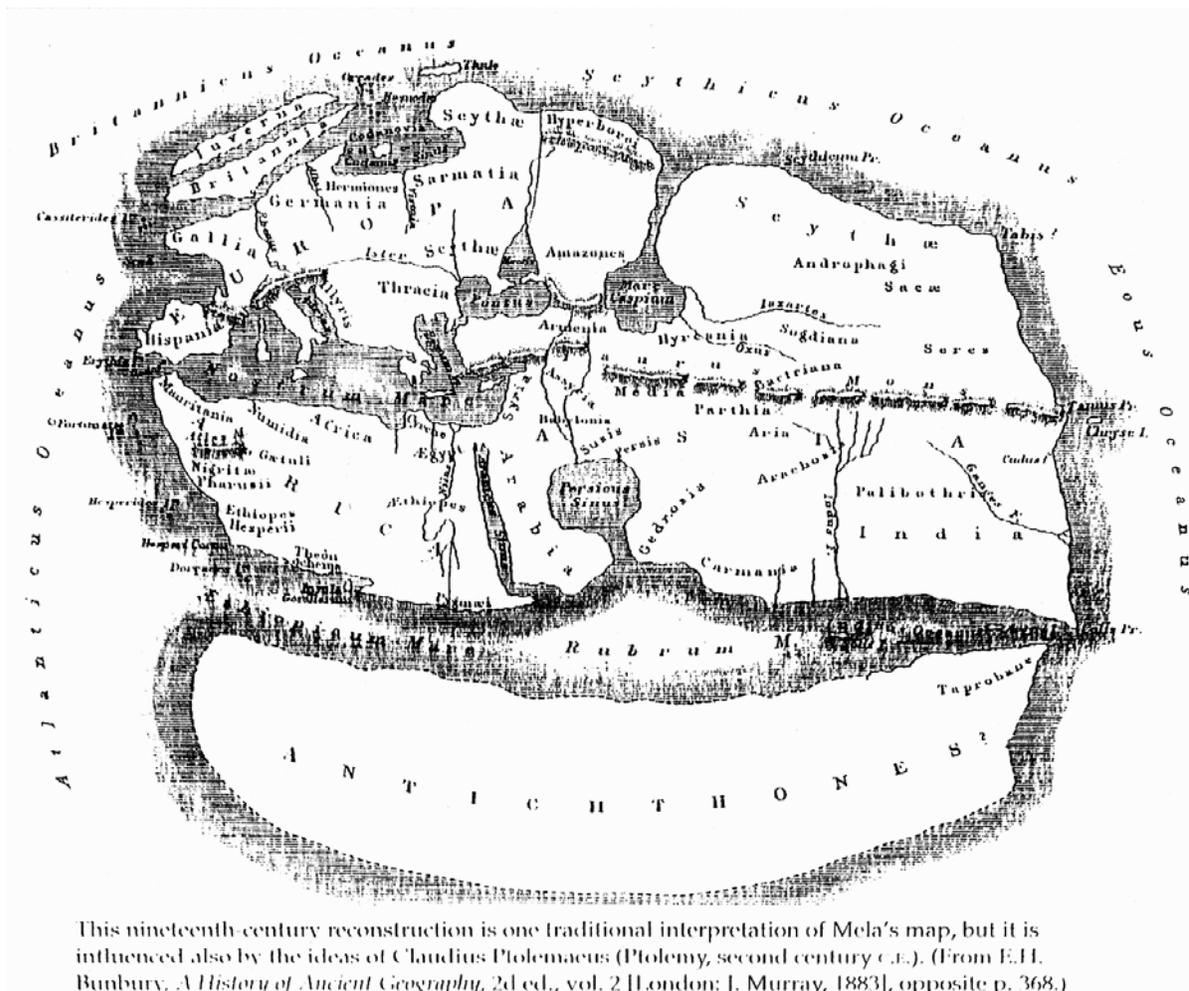
Map 1. Ptolemy's Spain and *Kassiterides*.

A closer view of the Kassiterides.



³⁴⁸ Charles I. Elton, *Origins of English History* (London: Bernard Quaritch, 1882), Plate I.

Pomponius Mela's World Map.³⁴⁹

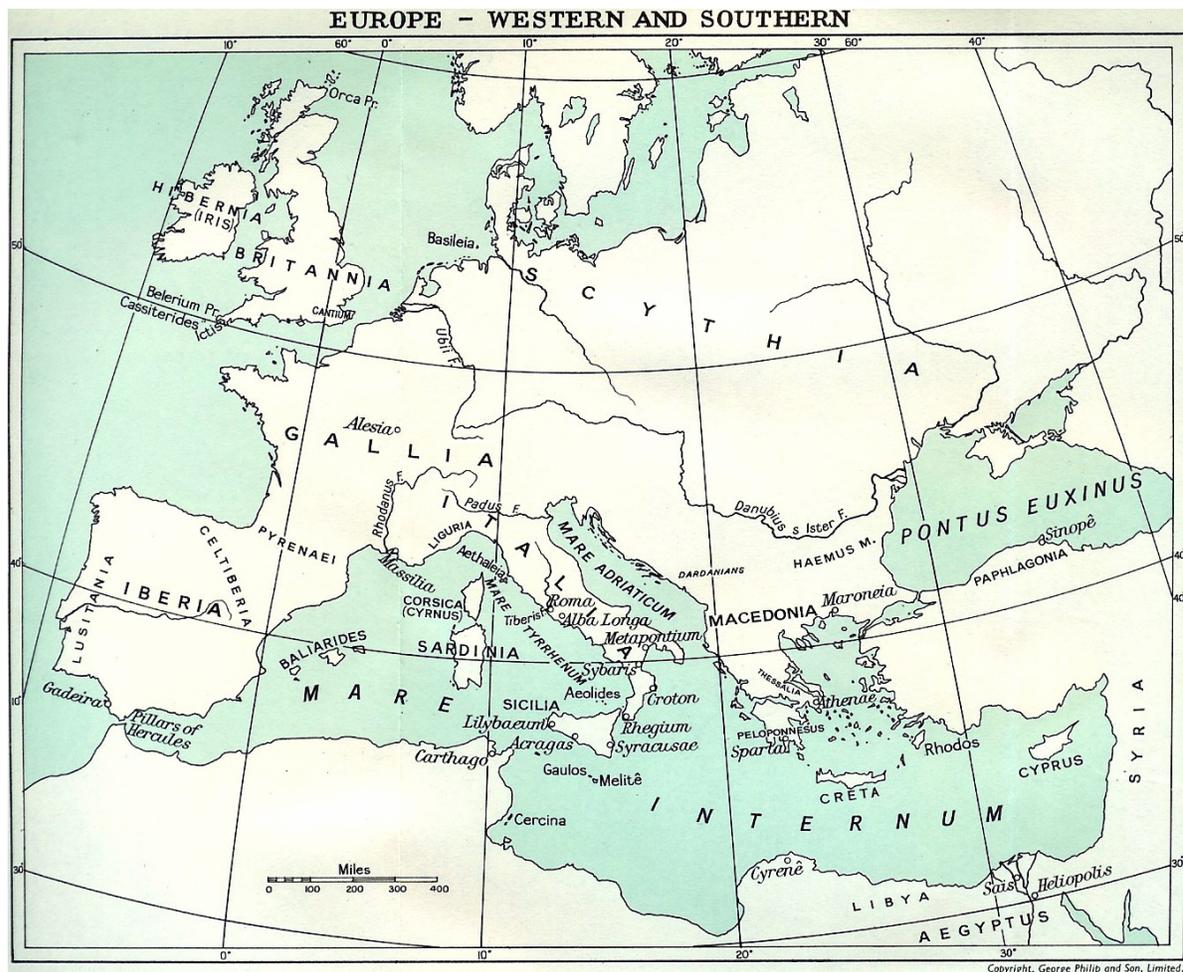


Map 2. Pomponius Mela's World Map.

³⁴⁹ F. E. Romer, *Pomponius Mela's Description of the World* (Ann Arbor: University of Michigan Press, 2001), Opposite Title Page.

Diodorus Siculus' World³⁵⁰

The Kassiterides are shown as being off the coast of Cornwall. This is ironic since Diodorus Siculus places the Kassiterides off the coast of Iberia.

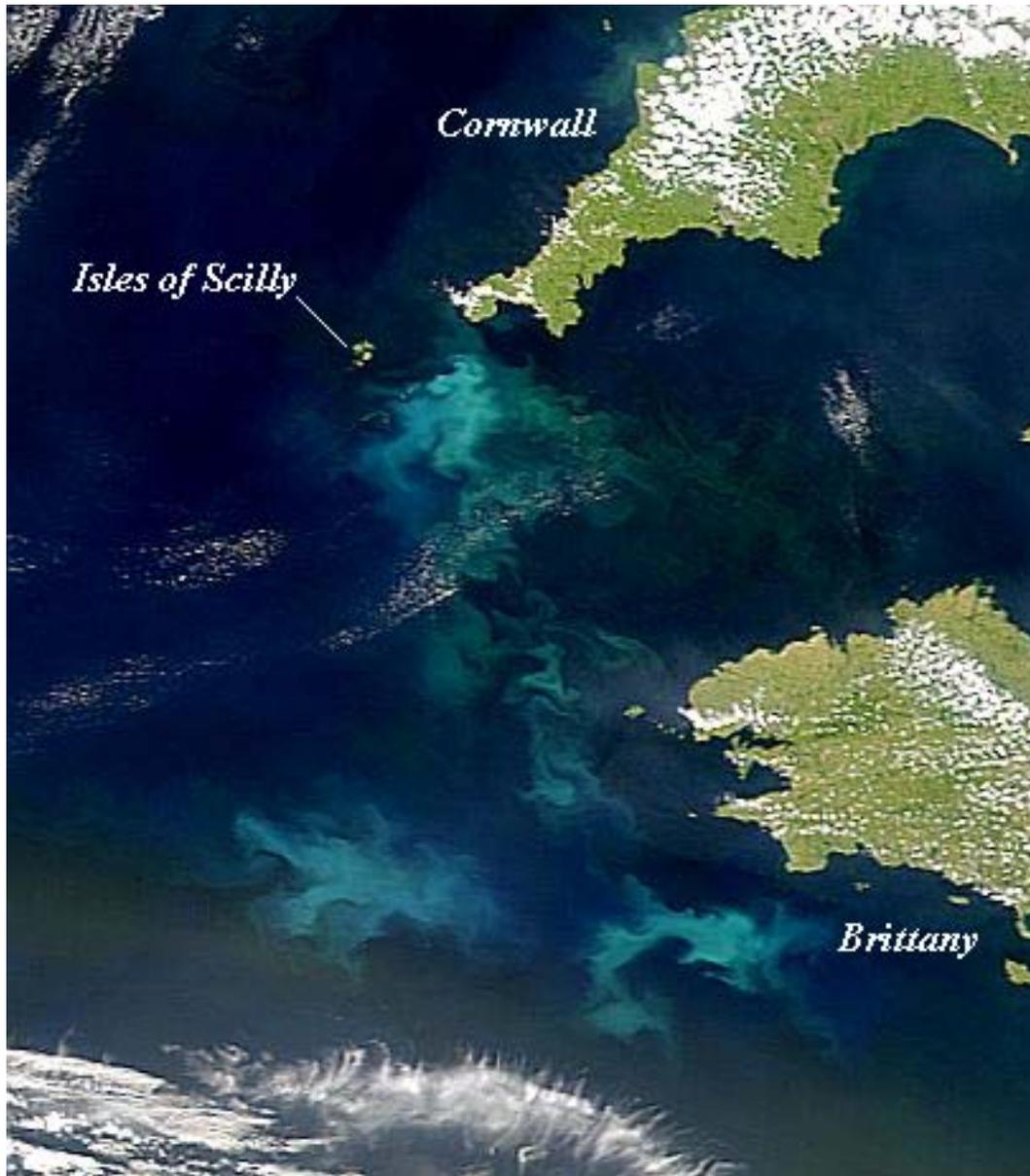


Map 3. Diodorus Siculus' World.

³⁵⁰ Diodorus Siculus, *Diodorus*, foldout map.

Satellite Image Showing Cornwall, the Isles of Scilly, and Brittany³⁵¹

To give an idea of scale, the distance between the Isle of Scilly and the most western part of Cornwall, known as Land's End, is only 30 miles.



Map 4. Satellite Image Showing Cornwall, the Isles of Scilly, and Brittany.

³⁵¹ “Coccolithophore Blooms off Brittany, Cornwall,” *Visible Earth: A catalog of NASA images and animations of our home planet*. March 2005, < <http://visibleearth.nasa.gov/images/705/S2000178125705.jpg> > [cited March 2005] (Satellite Image); Names added by author.