

ENCOUNTERS, EXCAVATIONS AND ARGOSIES

ESSAYS FOR RICHARD HODGES



EDITED BY

JOHN MORELAND, JOHN MITCHELL
AND BEA LEAL

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EXCAVATIONS AND
ARGOSIES

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John Mitchell, John Moreland and Bea Leal

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Butrint's death and resurrection: the medieval lime-kiln in the Roman forum

David Hernandez

Introduction

Ancient Rome did not simply fade away with the passage of time. The Pantheon endures in the care of the Catholic Church. The mausoleum of Hadrian remains relatively intact, after its conversion into a papal fortress. To be sure, fires, floods, earthquakes, and warfare, in addition to aging, caused damage to the ancient city over time. But this destruction was mitigated to an extent by continual civic investments to maintain and repair the city's infrastructure. For the most part, the capital of the Roman Empire was dismantled and destroyed systematically in the Middle Ages (Haveland 2015; Lanciani 1899: 180-97; Taylor, Rinne and Kostof 2016: 163; Traini 2013). Its precious materials in stone and metals, acquired over centuries from the conquered provinces of the Roman empire, became a seemingly endless quarry for the small medieval town that survived amidst its ruins. For over a thousand years, culminating with the reconstruction of St. Peter's Basilica, the ancient city supplied valuable materials for the construction and reconstruction of churches, public buildings, private estates, fortresses, walls, and machinery. From the 8th century, and continuing with vigour into the 16th, buildings were pulled down and monuments stripped of their inscriptions and statues in an effort to gather marble and limestone for the production of mortar, which had been the essential bonding agent for masonry construction since Roman times (Traini 2013).

Lime-kilns were built in all the major quarters of the city: at the Basilica Iulia and Atrium Vestae in the Roman forum, at the church of St. Adriano and the Forum of Trajan in the imperial fora, at the Domus Tiberiana on the Palatine, at the mausoleum of Augustus and the Baths of Agrippa in the Campus Martius, at the Temple of Venus in Roma near the Colosseum, at the Baths of Diocletian, in the necropoleis adjacent to the via Appia and the via Latina, and elsewhere (Cortonesi 2002). To facilitate transport, given the greater weight of limestone and marble compared to that of quicklime, which was the product of the process of calcination, lime-kilns were typically built near the source of the stone rather than at the construction site where the mortar was to be used (Adam 1994: 71; Johnson 2002: 37). In Rome, the area of the Circus Flaminius and Theatre of Balbus in the southern Campus Martius became known as the *calcarario* (lime-mortar district), owing to its robust lime-kiln operations between the late 8th and 16th centuries (MNR 2004; Sagui 1986: 345-9). During this time, numerous other lime-kilns were set up across the city for temporary operations until local supplies were exhausted. This process of spoliation and recycling in the Middle Ages occurred in cities throughout the Mediterranean (Ousterhout 2008: 140-5).

Yet in most Mediterranean cities direct archaeological evidence for the phenomenon remains elusive. The end result of this destructive process was essentially the disappearance of buildings and the production of mortar. In *Master Builders of Byzantium*, Robert Ousterhout summarizes the current state of knowledge: 'no lime kilns have been excavated in Byzantine territory, although the remains of two have been studied in Kievan Rus, an 11th-century example from Kiev and a late 11th- or early 12th-century example from Suzdal' (Ousterhout 2008: 133. See also Rappoport 1995). The paucity of remains is not altogether surprising because lime-kilns were typically ephemeral structures. Rome was an exception; few cities were capable of supplying limestone and marble over the long term. Once used, most lime-kilns would have been destroyed, either during the very process of extracting quicklime or shortly after the completion of the construction enterprise for which they were built (Bianchi 2011; Cortonesi 2002; Traini 2013).

This article discusses a unique masonry lime-kiln identified in 2014 at Butrint (Buthrotum), an ancient seaport situated between Greece and Italy that occupied a small headland on the Ionian Sea in southern Albania, in the region of ancient Epirus (Epeiros) (Figure 1). The Butrint headland was settled as early as the second half of the 7th century BC and was occupied almost continuously until the Republic of Venice abandoned the acropolis and its colonial settlement on the headland in 1537 (Hernandez 2017a; Hernandez forthcoming; Hodges 2006; Hodges, Bowden and Lako 2004). Excavations undertaken at the site of the Roman forum since 2004, under the sponsorship of the Butrint Foundation and the Roman Forum Excavations



Figure 1 Lime-kiln at the site of the Roman forum at Butrint, 2014.

Project, have recovered material culture associated with the major urban phases of Butrint over this long period (Hernandez 2017b, 2017c, 2017d). Amidst the ruins of the old forum, the lime-kiln was built during a key phase in the city's history, marking the death of classical Butrint and its resurrection as a 'God-guarded city' of the Byzantine Empire (Hodges 2015).

The lime-kiln

The lime-kiln is situated nearly in the centre of the northern side of the forum (Figure 2). It was constructed above a building located between the Two-Storey Building and the NE Building. It is evident from the original slope of the acropolis hill that part of the superstructure of the lime-kiln was a visible ruin when Luigi M. Ugolini commenced archaeological excavations at Butrint in 1928 (Ugolini 1927, 1937, 1942). The face of the structure was exposed partially by a subsequent archaeological expedition, probably directed by Albanian archaeologist Selim Islami, with the assistance of Skënder Anamali and Dhimosten Budina, who conducted large-scale excavations in the area in 1982 (Budina 1988: 25-6; Mano 1983; Pani 2001: 18-19, 36 Fig. 16). Dhimitër Çondi continued these excavations in the early 1990s (Çondi 1989: 288-9; 1990: 264-5). Both Italian and Albanian archaeologists employed similar methods at Butrint, establishing excavation trenches around standing ruins and excavating metrically (Hernandez 2017b: 19). These earlier campaigns brought to light the Tripartite Building and the Two-Storey Building. The lime-kiln, however, was never published. It is not mentioned in any archaeological scholarship related to Butrint and appears to have remained unidentified until now.

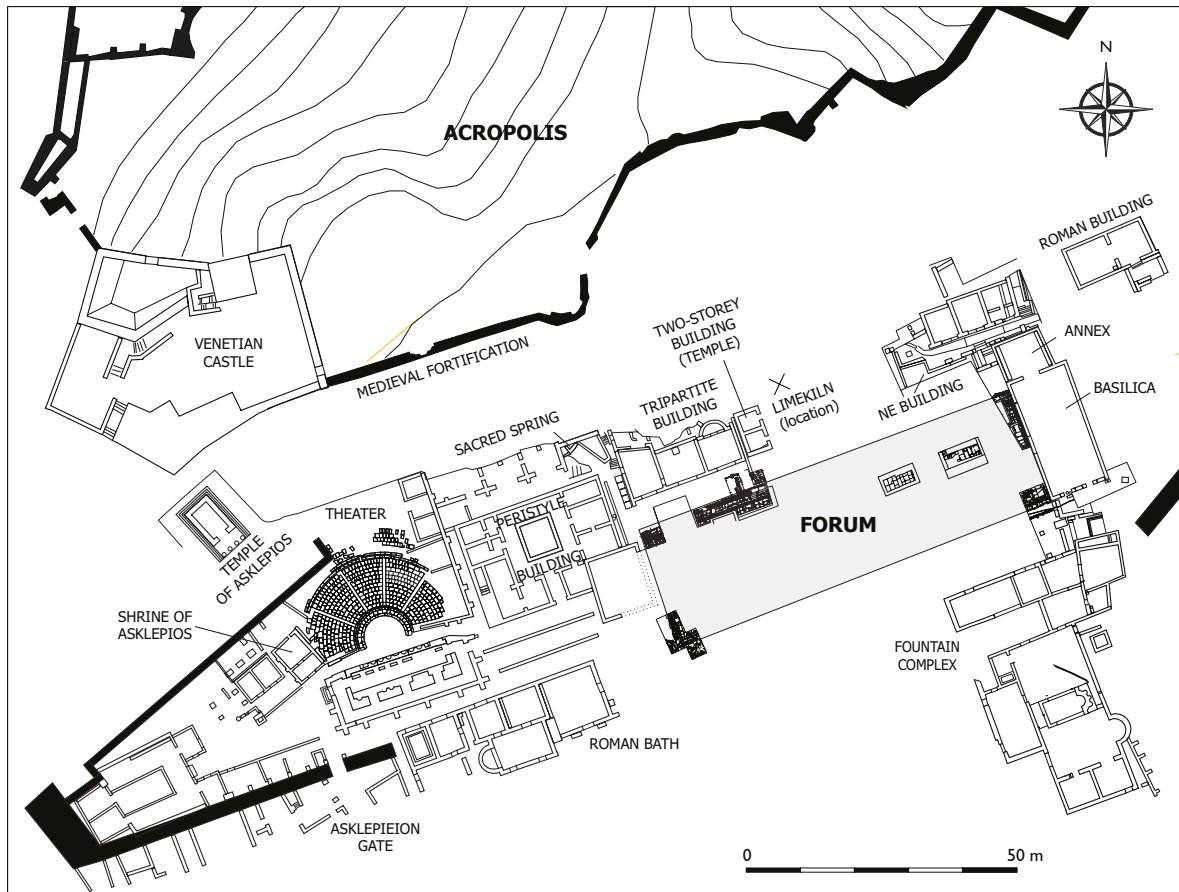


Figure 2 Plan of Butrint's Roman forum and ancient urban centre.

Measured from the basal level inside the structure, the lime-kiln rises to a height of over 7m (Figure 3). It consists of a cylindrical masonry wall, built upon an earlier building that was remodelled to serve as the combustion chamber of the kiln. About 4.2m (width) of the chamber was exposed by the excavators. It features a large, central arched opening, 3.9m wide, which had served originally as the central door of the earlier building. Later, this door was reemployed as the draw-hole arch, or mouth, of the lime-kiln, from which workers were able to draw the burnt lime in dry conditions (Johnson 2002: 44-6). The bottom of this opening and that of the lime-kiln remain buried. The interior of the combustion chamber appears to have been excavated down to floor level, which is over 1m below the current surface-level outside the structure.

The arch of the lime-kiln's mouth is made of a uniform brick masonry in which a series of two bricks, one long and one short, create a decorative external pattern. The opening is set into a wall that is made mostly of medium-sized roughly-hewn limestone blocks embedded in thick beds of mortar. This mortar is of very high compaction, and the wall is well-faced. Part of a window, belonging to the first phase of the building, can be seen at the top western-end of the exposed structure. It appears that the original building featured a central, north-facing door, flanked by an adjacent window. The masonry technique of this first phase is a distinct type utilized at Butrint in Late Antiquity. It is similar, for example, to the central entrance of the Great Basilica (Figure 4) (Bowden and Mitchell 2004: 106-8; Meksi 1985; Molla 2013). This suggests that the first phase of the building dates to the first half of the 6th century. It is probable that traces of earlier structures exist below this building, associated with the Hellenistic agora and Roman forum (for a survey of the known buildings in the forum, see Hernandez and Çondi 2014, forthcoming).

In a second phase, in which the lime-kiln was constructed, the door was rebuilt into a south-facing opening for the kiln. The combustion chamber of the kiln was made in the shape of a semi-circular room, constructed of brick. This firebrick lining, almost a luxury in lime-kiln construction, attests to the high quality construction of the Butrint lime-kiln (Johnson 2002: 44). A thick layer of mortar was applied to the interior walls to add another layer of fire protection. Inside the semi-circular room, the rear wall has a central recess forming a

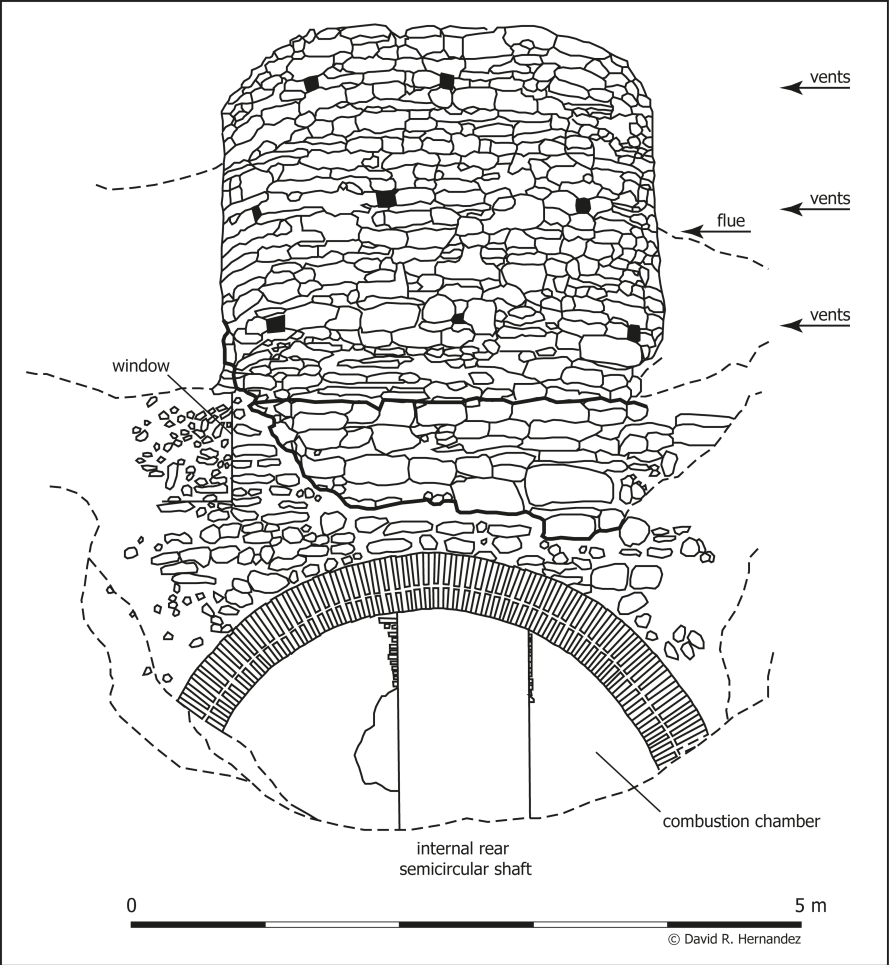


Figure 3 Lime-kiln elevation (drawing by Anna Biller, Roman Forum Excavations Project).



Figure 4 The Great Basilica at Butrint.

vertical semi-circular shaft, c. 1m wide, possibly to aid in the circulation of air and smoke. Several courses of limestone blocks of spolia, interspersed with bricks, were used to reconstruct part of the face of the wall above the draw-hole arch. The wall is very thick and projects partially outward (c. 40cm) from the face of the original wall. A very compact pinkish white mortar was used for its construction. Evidently, the wall was built to project outward in order to provide additional support for the superstructure.

Above the combustion chamber rises a solid cylinder of masonry, made almost entirely of small- and medium-sized limestone blocks. It is 3.3m wide (outer diameter) and is preserved up to a height of 2.7m. The structure is a shell that envelopes a brick-built chimney, which has a diameter of 0.85m, that runs vertically from the roof of the base to the top (Figure 5). On the eastern side of the structure, 1.8m below the top, a horizontal shaft (0.85 x 1.3m), functioning as a flue, intercepts the vertical shaft of the chimney. Small rectangular vents, regularly spaced (c. 0.9m apart) in three rows, are present on the exterior of the structure. Levelling courses, which utilized bricks in some places, are situated directly below the vents, showing that the superstructure was built in stages, which are marked by the location of these vents. The spacing between the vents in the lowest row is c. 1.0m, in the middle row 1.4m, and in the top row 1.3m. A layer of compact creamy-white mortar was applied to the whole exterior shell of the superstructure. The specific building technique of the Butrint lime-kiln and the presence of this particular compact white mortar throughout the structure are characteristic of Butrint's Medieval 1 phase dating to c. 11th century, and this is likely the date when the lime-kiln was built (see Hodges 2015: 201-03; Molla, Paris and Venturini 2013: 263-7. The Medieval 1 phase was previously thought to date to the early-mid 13th century). The technology of lime-processing and the typologies of preindustrial lime-kilns remained largely consistent over the Middle Ages. In fact, the Butrint lime-kiln bears a strong typological resemblance to the preindustrial lime-kilns of the 17th and 18th centuries found in the Yorkshire Dales in northern England (Figure 6) (Johnson 2002: 44-7, Fig. 21, 2010). These well-preserved lime-kilns were built over a century after Butrint's final abandonment in 1537 (Hernandez, forthcoming).

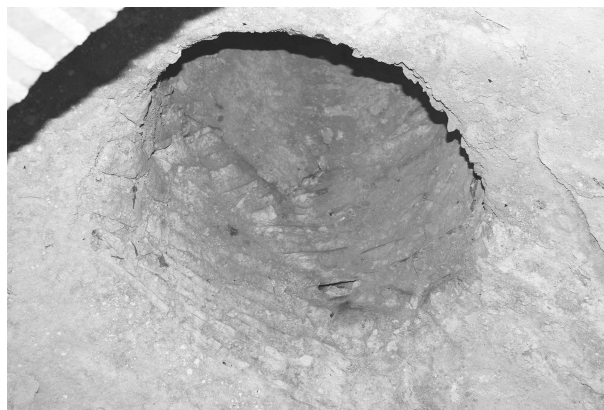


Figure 5 Brick chimney at the top of the combustion chamber.

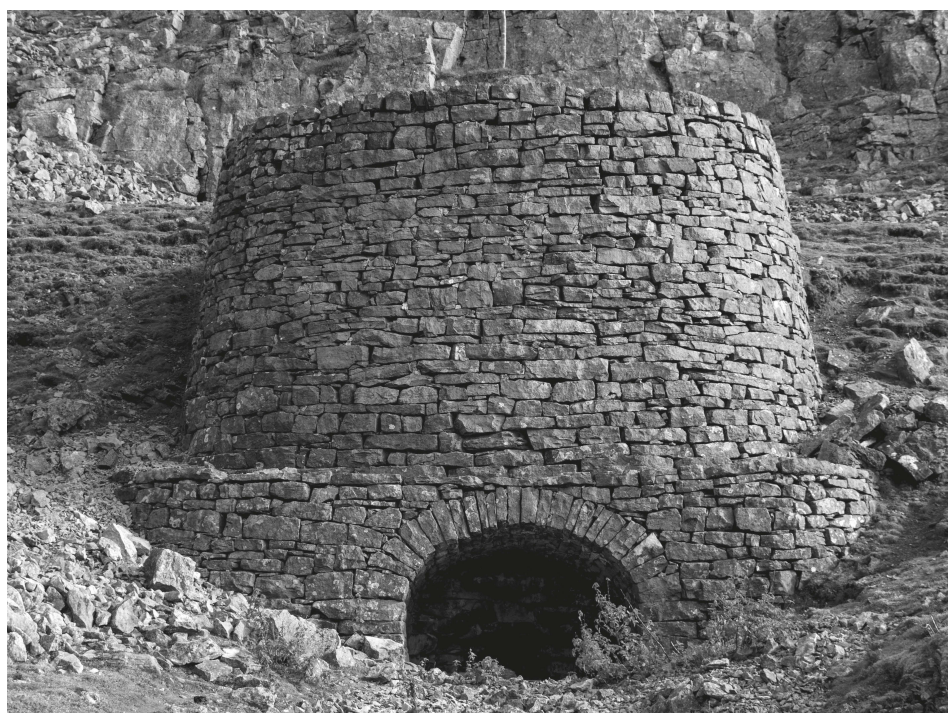


Figure 6 Pre-industrial lime-kiln in Gunnerside Gill, Yorkshire Dales, England (Courtesy Vincent Lowe, Alamy).

Urban resurrection and fortifications

In a recent volume on extinct cities (*urbes extinctae*), Neil Christie categorizes a set of contributing factors responsible for the end of cities: warfare, the natural environment, economic marginalization, institutional redundancy, and state decay (Christie 2012: 11-23. See also Christie 2000; Slater 2000). While the causes and mechanisms remain obscure, there are two periods in which Butrint experienced dramatic decline followed by dramatic resurgence. In anthropomorphic terms, they represent phases of urban death and resurrection.

The first occurred early in the city's history. Shortly after a flurry of activity saw the construction of the Temple of Athena Polias on the acropolis and the city's first fortifications (of large unhewn boulders – so-called 'cyclopean masonry') around it, the site was abandoned c. 475 BC (Hernandez 2017a). An indirect reference to the site by Thucydides (3.85) in connection with the outbreak of the Peloponnesian War suggests that the acropolis served as an isolated fortress during this period of abandonment, protecting the enclave of the Greek island of Kerkyra (Corfu). Butrint was revived by the Chaonians, an indigenous Epirote tribe, who resettled the city in the second half of the 4th century BC. This resettlement was accompanied by a major reconstruction of the fortification wall in polygonal masonry. The unhewn boulders of the original wall had been quarried directly from the summit of the acropolis. The new wall was built from stones quarried at Shkallë, near Çuka e Aitoit (Ceka 2013; Zheku 1963).

For over 1300 years thereafter, no additions or repairs appear to have been made to the fortification walls around the acropolis (Andrews, Bowden, Gilkes and Martin 2004; Karaiskaj 2009; Martin 2004). After Rome's colonization of Butrint under Caesar and Augustus the wall fell out of use during the ensuing centuries of the *pax Romana*. The political and migratory upheavals in the Balkans in Late Antiquity brought about the construction of a new ring of fortifications around the perimeter of the headland, while the old walls on the acropolis continued to deteriorate (Chrysos 1997b: 182-4; Molla, Paris and Venturini 2013; Veikou 2012). Butrint witnessed a period of remarkable flourishing during first half of the 6th century, with major new buildings, such as the Baptistery, the Great Basilica, the Acropolis Basilica, and the Public Building in the area of the old forum (Bowden 2003; Chrysos 1997a; Hernandez and Çondi 2014, forthcoming; Hodges 2008, 2013). Before the turn of the century, however, all these buildings and, indeed, the entire city were in tatters (Bowden and Hodges 2012: 209). The headland was once again abandoned, serving as a burial ground, probably for itinerant shepherds who took up seasonal residence at the site. Associated small-scale and sporadic material remains, likely rubbish, found by archaeologists around the dilapidated buildings on the headland indicate that this activity continued to the mid-7th century. There is no evidence to suggest that Butrint was inhabited, even seasonally, during the 8th century. However, excavations have revealed that the towers of the western defences in the lower city were occupied in c. 800 (Hodges, Kamani, Logue and Vroom 2009; Kamani 2011). In the 9th and 10th centuries, the headland appears to have served as an appendage to an aristocratic oikos on the Vrina plain (Greenslade and Hodges 2013). During this second period in the early Middle Ages, from the 8th to 10th centuries, Butrint seems to have teetered between phases of abandonment and limited occupation. In these centuries, no structures were built on the headland. Substantial traces of mussel processing in the 9th and 10th centuries suggest that the headland continued to serve some economic function, perhaps as a seasonal trading place and a Byzantine enclave in the region of Vagenetia, located in Thesprotia, in southern Epirus (Bowden and Hodges 2012: 210; Hodges 2015: 196-8; Soustal 2004: 22).

This age came to an abrupt end at Butrint in the later 10th or 11th century, when the city was vigorously rebuilt and experienced a 'revival' (Hodges 2015). It is at this time that the acropolis fortification circuit was rebuilt on a massive scale (Figure 7). Indeed, the focus of this investment was the defence of the acropolis. The circuit wall encompassed an area of c. 1.5ha. within a perimeter of c. 600m (Hernandez 2017a: 250). It was built largely of hewn medium-sized limestone blocks, but also incorporated spolia from ancient Greek and Roman buildings



Figure 7. Medieval fortification wall on the acropolis, c. 11th century (Courtesy Martin Smith, Butrint Foundation).

in some places. The wall included four two-storied, rectangular towers, and five gates (Molla, Paris and Venturini 2013: 264-6). An additional fortified area was built at the north-eastern end, near the West Gate, to serve as a citadel within the stronghold. In the lower city, the late antique fortifications around the headland were refurbished, running for c. 970m long and covering an area of 6ha. (60,300m²) (Hernandez 2017a: 250). The acropolis circuit-wall must have operated in conjunction with a small castle built at the time.

It is noteworthy that the two reconstruction phases of the circuit-wall on the acropolis, in the 4th century BC and the 11th century AD, occurred after the two phases of urban death at Butrint. Thus, urban resurrection is linked directly to the principal phases of urban fortifications that were ultimately responsible for furnishing the city with the defensive network that it came to rely upon for centuries. In the case of Butrint's revival in the 11th century, the fortification circuit around the acropolis marked a key transitional point at which the city re-emerged as a *kastron*, a regional defensive and administrative outpost of the Byzantine Empire (Hodges 2015: 201-02).

The end of classical Butrint and the creation of the Byzantine *kastron*

It is now evident that these construction enterprises at Butrint were part of a larger defensive investment undertaken by Byzantium in the western Balkans in the course of the 11th century (Hodges 2014). In respect to the Butrint region, the defensive program included the reconstruction of the Dema wall, which was a large, double-curtain fortification, almost 10m wide with a 5m-wide rubble core, that separated Butrint's territory on the peninsula from its northern neighbours. In c. 1020, the Byzantine Empire retook substantial territories in the western Balkans from the Bulgars, probably including Butrint. Later, between 1080 and 1083, the Normans under Robert Guiscard captured and occupied Butrint twice. It was in the context of these major conflicts that Byzantium took measures to invest heavily in the defences of Butrint and its region.

Major earth-moving operations are evident in the archaeological record, involving the creation of extensive terraces running down from the acropolis hill. This enterprise presumably involved a new demarcation of property boundaries. Nevertheless, all these major investments in the town and its defences seem to have been on an inordinate scale, given the relatively small size and modest infrastructural disposition of the town at the time. The houses and wells, the refurbishments to churches, and the roads are generally modest. Moreover, no clear civic centre has been identified. These characteristics indicate that Butrint was rebuilt as a robust defensive and administrative outpost, or *kastron*, but the town and its settlement were modest in scale. The primary intention of the building program therefore was probably symbolic. As a seaport, Butrint reaffirmed Byzantine power in the region at a time when territorial possession of the western Balkan coast was being challenged by regional powers (Hodges 2015: 203).

Up to the time of this large-scale construction of the *kastron*, the infrastructure of the town was defined by its ancient Greek and Roman ruins, many of which were maintained and refurbished in Late Antiquity. The construction and operation of the lime-kiln mark the definitive end of classical Butrint. It was built near the middle of the Roman forum in order to facilitate the systematic destruction of the surviving stone buildings in the forum and possibly the entire urban centre, conceivably operating with others, as yet unidentified. The

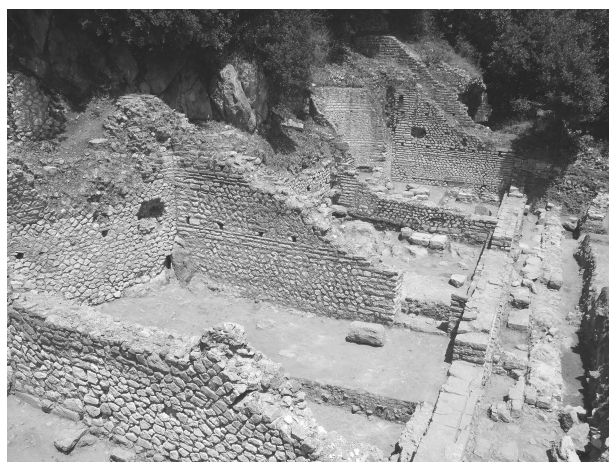


Figure 8. Tripartite Building in the Roman forum.

Roman Forum Excavations Project has found no standing ancient stone structures above the level marking the 11th-century surface. All visible monuments in the ancient urban centre were demolished and quarried for limestone and marble to be fed into the lime-kiln. Along the northern side of the forum, the sloping wall-profiles of Roman buildings represent the outline of the hillslope in the 11th century (Figure 8). The only structures that survived this demolition episode were of *opus testaceum* (brick-built), such as the northern annex of the Roman Basilica (Figure 2). This explains why no trace of the forum was evident to Ugolini (1937: 45, 148-9; 1942: 46, 76-80) when he commenced excavations at the site, despite his desire to locate it.

As outlined above, the construction of the *kastron* demanded large quantities of mortar. The construction of the acropolis circuit-wall, the refurbishment of the headland fortifications and town buildings, and the rebuilding of the Dema wall would not have been possible at this time without access to a large supply of mortar. The lime-kiln was thus at the heart of the city's resurrection. It converted the stone structures of ancient Butrint into lime and thereby provided the means by which Butrint was brought back to life after almost three centuries of limited activity and abandonment.

Conclusion

Like Rome, the ancient city of Butrint was systematically demolished and quarried for limestone and marble in the Middle Ages. The lime-kiln discovered in the middle of Butrint's Roman forum is one of the best examples in Byzantine territory dating to the Middle Byzantine period. Comprehensive studies of the medieval fortifications of Butrint by the Butrint Foundation permit a dating of the structure to the c. 11th century. The construction is of high quality, consisting of a brick-lined combustion chamber and chimney, and a thick outer shell of limestone masonry, with a flue and exhaust vents. The draw-hole arch, ingeniously redesigned from the door of a late antique public building, allowed the operators of the kiln to feed it continuously with fuel, probably wood, and to work the burnt lime without risk of exposing the quicklime to moisture. Despite being one of the best preserved medieval structures at Butrint, the lime-kiln remained unidentified until now, after it was left unpublished by its original excavators in the 1980s. Overgrown in thick woods at the southern foot of the acropolis, the structure remained a curiosity until it was cleared and studied in 2014.

The lime-kiln represents a watershed in Butrint's history. It brought a decisive end to classical Butrint. The ruins of the ancient city were systematically demolished for the procurement of stone. At the same time a new town arose, fashioned from the mortar supplied from the kiln. Resurrected in the course of the 11th century, this city achieved the status of a *kastron*, boasting impressive terraces and defences around both the acropolis and the headland. Yet the town itself was modest, in respect to its buildings, dwellings, wells, and infrastructure. These conditions are invariably tied to the lime-kiln's extraordinary survival. The fact that it was never demolished and came to be buried within the hillslope by natural processes suggests that the lower city never became an urban centre again. This underscores the importance of Butrint's new role as a defensive outpost, centred around the castle and walls on the acropolis. It reinforces the idea, advanced by Richard Hodges, that with the creation of the *kastron*, Butrint became 'once again God-guarded, effectively one of many strategic enclaves serving first and foremost the empire's western political ideals' (Hodges 2015: 218). The lime-kiln was the catalyst in converting the ruins of classical Butrint into this 'God-guarded city' of the Byzantine Empire.

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