

Hiding in plane sight: the unrecognised impact of aviation on the Maltese landscape

Anthony Burgess

In many ways, the impact aviation has had upon Malta is obvious; one only has to see how its airport dominates Malta's landscape, the importance of tourism to its economy (an industry almost wholly reliant upon civil aviation) or even walk into its capital to be confronted by the bombed remains of the Royal Opera House to evidence this. In this paper, in addition to briefly outlining some of the ways aviation has directly impacted upon the archaeology of Malta, its other more subtle, hidden and unacknowledged impacts will also be examined. In doing so, new information and insights are revealed to uncover the true depth of Malta's aviation archaeological heritage, and how it continues to influence and shape Malta to this day.

Keywords: Aviation; Malta; Gozo; heritage; Word War II; landscape

Introduction

Whilst there are few countries (if any) that remain untouched in some manner by aviation, the impact of it upon Malta, both benign and otherwise, has been especially profound. However, not all traces of aviation, in Malta or elsewhere, are so visible. For example, it can be found underground in the form of air raid shelters, or underwater as aircraft wrecks. These are all direct manifestations of aviation, physical evidence that can trace its existence immediately to aviation. Other examples include airfields, aircraft and lighter-than-air vehicles of all descriptions (such as helicopters, hot air balloons and airships), radar and acoustic listening stations, aircraft observation posts, and anti-aircraft sites.

Aviation also has significant indirect influences upon the physical landscape. Like all structures, aviation-related ones need supporting infrastructure, such as links to transport, power and utilities. They also need people to construct and operate them, who in turn need housing and

access to national programmes such as health and education, which need to expand to absorb the extra strain on their services. The construction this entails does not always betray its origin to aviation, being simply an expansion of what already exists, but its impact is there nevertheless. Aviation also acts as an enabler, facilitating the spread of people, ideas and cargo.

Aviation also influenced form, and led to the alteration and displacement of buildings and landscape features that had little, if anything, to do with aviation per se. Fortifications, with their efficacy so closely entwined with changes in technology, provide excellent examples of this, as existing military structures must constantly adapt if they are to still be of relevance, whilst new structures need to reflect the latest technological developments. Aviation represented perhaps the greatest change to warfare since the adoption of gunpowder, and its influence on both terrestrial and maritime warfare was (and is) profound.

Finally, the expansion of aviation has entailed the loss of physical features and landscape. This



Figure 1: Image of Malta with Luqa. The length from the furthest north-west and south-east points (marked in red) is 4.4 km (source: Bing Satellite).

can be as a direct result of construction, for example the rich agricultural land and archaeological remnants found west of London consumed by London Heathrow Airport (Pascoe 2001, 82-86). It can be for other consequences of aviation, such as the demolition of landmarks that either impeded aircraft by existing along flight paths or conversely aided the navigation of enemy aircraft. Most tantalising of all, it can be what would be there if aviation did not exist.

All of these four manifestations (direct, indirect, influenced and absent) can be found in abundance in Malta, both visible and hidden. This short paper cannot of course hope to cover all instances, but by highlighting some examples, it is hoped that a flavour of Malta's rich and under-appreciated aviation heritage can be imparted.

Airfields and Flightpaths

Perhaps the most obvious manner in which aviation can impact a landscape is through its airfields. One has only to look at a satellite image of Malta (Fig. 1) to see how the airport at Luqa dominates the physical landscape, acting almost as a scale bar for the archipelago. What is now Malta International Airport (MIA) does in fact contain the footprint of two previous airfields; Luqa and Safi, and relics of both these airfields

can still be seen at MIA. Luqa and Safi were just two of six airfields that were operational (over varying periods) during the Second World War, this peak being reached in the lead up to the invasion of Sicily in July 1943 (Hamlin 1994).

The impact of these airfields on Malta was immediate and dramatic. The first airfield built was in the south of Malta at Hal Far in 1923 (Hamlin 1994, 113), a process that involved the removal of at least 42 miles (68 km) of rubble farm walls (Coldman 2001, 44). Further airfields were then built in the lead up to the Second World War at Ta'Qali and Luqa. Two of the ideal topographical and geologic requirements for an airfield (flat, well-drained) are similar to that of ideal arable land, and its large-scale acquisition was especially impactful in Malta, which throughout its modern history has combined a relatively small land mass with a high population density.

The topography of the landscape was also instrumental in deciding the locations of airfields. As can be seen in Figure 2, land in the west and north of Malta, and most of Gozo, is riven with valleys and rocky outcrops. The only reasonably level land is to the west and south of the Grand Harbour area, and a small area of southern Gozo. Combined with existing settlements in these areas, the actual land

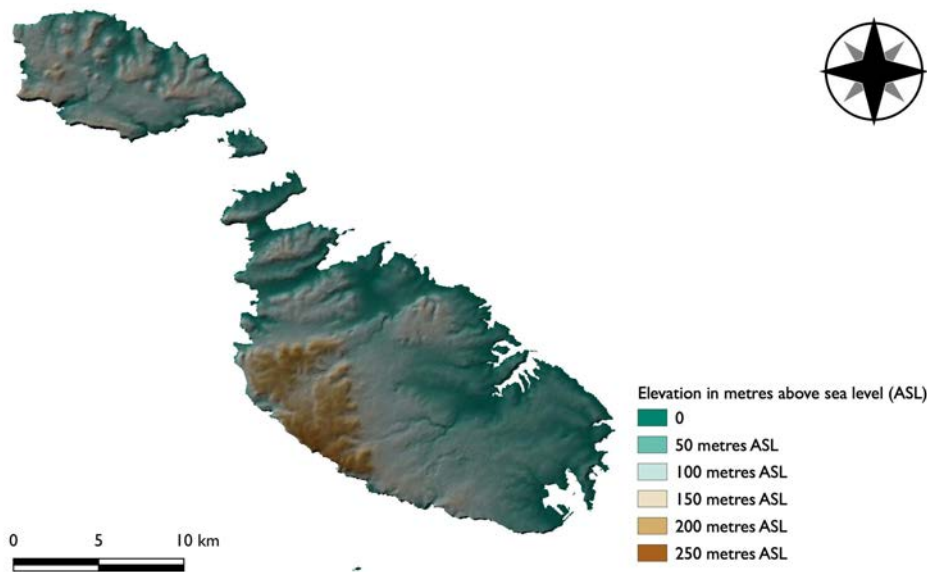


Figure 2: Relief map of Malta and Gozo highlighting the areas of high ground and valleys, especially to the west and north of Malta and Gozo. (source of terrain data: European Environment Agency (EEA) under the framework of the Copernicus programme).



Figure 3: German reconnaissance images from January (left) and December (right) 1941 showing the creation of the Luqa/Safi/Hal Far taxiway and dispersal network (within the red box) (source: NARAA-b).

available for an installation that requires such a relatively large amount of land becomes very limited indeed. Between 1928 and 1938, 2% of all land (not just available land) on the island of Malta was acquired for defence purposes (NAM 1940, 30). Whilst this figure would also have included land acquired for non-aviation purposes, it must also be borne in mind that this figure does not include the land acquired for the

airfield at Hal Far, as it had already been built by 1928, or indeed the seaplane base at Kalafrana, built in 1916 (Hamlin 1994, 229). The inevitable consequence (one compounded by a growing population) was a spike in land prices and an increased reluctance amongst landowners to sell agricultural land (NAM 1940, 30). Other consequences, such as the end-use for the increased wealth acquired by landowners for the



Figure 4: Satellite images of Malta highlighting a number of existing roads whose origin are either aircraft taxiways or runways. Anti-clockwise from top left: Ta'Qali, Qrendi and Luqa/Hal Far (source: Bing Satellite).

land and properties they sold, or the social impact the loss of such land had on communities and families that had tilled the land for countless generations, are much harder to quantify, but must have been extensive. These all reflect indirect – but deep – consequences of the impact of airfield construction upon Malta.

Furthermore, the direct impact airfields had upon the physical landscape did not end at the boundary fence. In order to mitigate the effects of German and Italian bombing during the Second World War, a policy of dispersing aircraft into protected pens, both at the airfields and the surrounding countryside was adopted (TNA 1941). The close proximity of the airfields at Luqa, Safi and Hal Far to each other meant that these dispersal areas in effect constituted a connected series of taxiways and pens (Fig. 3).

Some remnants of this network (including around the airfields constructed at Ta'Qali and Qrendi) remain in use today as roads, including the main runway at RAF Krendi (Fig. 4).

This extra-mural influence also extended to demolition. When the SW-NE runway at Luqa was expanded in 1942-43, this necessitated the removal of structures beyond the airfield perimeter so as to provide a clear flightpath for the bombers that used Luqa as their base (Fig. 5). This influence still extends to the present day, with height restrictions in place in line with the runways at Malta International Airport (MEPA 2014, 38). The influence of flightpaths on structures in Malta was not restricted to Allied aviation, with their perception of what could be useful to hostile aircraft influencing Malta's landscape. A prime example of this can be found



Figure 5: Images showing location of demolished buildings on the flight path of the SW-NE runway at Luqa. Top Left: location of area (delineated by a red box) just to the west of Luqa village. Top right: area as it looked on 24 October 1942 – buildings in centre of image. Bottom left: area as it looked on 14 January 1943 after demolition. Bottom right: area as it looks today (sources: NARAA-b; Bing Satellite).

in the capital, on the cavalier of Fort St Elmo. Situated at the tip of the Sciberras Peninsula on which Valletta now stands, it commands the entrance to both the Grand Harbour and Marsamxett. These same considerations made the cavalier (the highest point in Valletta) a natural choice to locate a lighthouse, and so it is little surprise that one was present here from the Knights of St John (KOSJ) period and was for centuries a prominent feature of the Valletta skyline (Fig. 6). After the outbreak of hostilities in June 1940, the lighthouse came to be regarded as an aiming mark for attacks on the defences in and around Valletta, and the order to demolish it was given shortly after (TNA 1940).

Air Raid Shelters

The mass construction of public rock-cut shelters in besieged Malta, almost entirely by hand, must rank as one of the most impressive civil engineering projects of the entire war. By June 1942, enough rock-cut shelter spaces existed to provide virtually all civilian areas in Malta and Gozo with cover during air raids, the vast majority of which were created in the preceding 18 months (NAM ARP). These (by necessity) hidden spaces, which number over 1,000 in Malta alone (NAM 1953), stand today as mute testament to this remarkable achievement, with only a handful of them now open to the public.¹ In this regard alone, symbolising as they

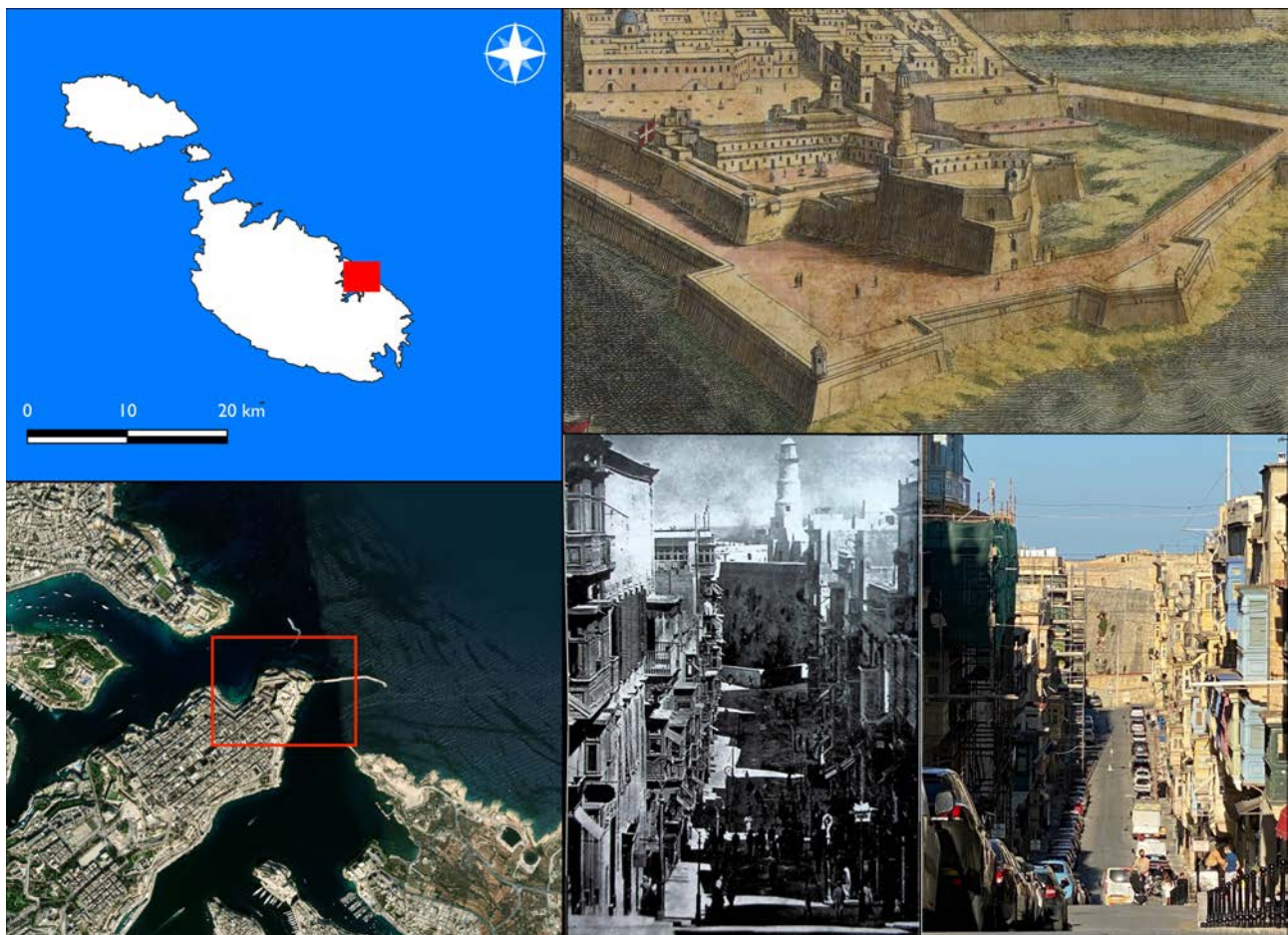


Figure 6: Images showing the location and timeline of the lighthouse at Fort St Elmo. Top right: Close up of Fort St. Elmo from an 18th century engraving showing the lighthouse of that time. Bottom right: (L) Late 19th century photograph looking down the main street of Valletta (Strada Reale, now Triq ir-Repubblika) to Fort St Elmo, with the lighthouse dominating the skyline. (R) The same photo taken in 2020 (sources: MUŻA (top right), Ballou 2020, author; (bottom right), Bing Satellite).

do 'local endurance at a time of adversity' (Magro Conti 2009, 126), and the fora for a universal and traumatic experience from farmer to governor alike, they are a core part of the archaeology and communal memory of wartime Malta.

The large amounts of excavation waste created by the rock-cut shelter programme also needed to be disposed of, and in doing so provided another example of how aviation affected the physical landscape, in effect, modifying the landscape both above and below the ground, visibly and invisibly. The populated areas west of Valletta, such as Pietà, Msida and Hamrun, saw large amounts of shelter construction (NAM ARP), and generated a consequently large amount of excavation spoil,

spoil which was then used for the landfill at Msida Creek (Alonsio 2005, 28). Examination of German reconnaissance photos for January 1941 shows the original condition of both Msida Creek and nearby Pietà Creek, while the image of May 1941 shows the beginnings of the infill at Pietà (Fig. 7). Eyewitness testimony states that debris had already begun to be placed in Msida Creek by the end of March 1941, with significant progress made by the end of July (Mifsud Bonnici 2017, 382, 530); this was likely still below the waterline and thus not visible to aerial reconnaissance. By January 1942, both creeks show clear evidence of land reclamation.

The images by themselves do not of course prove that air raid spoil alone was used to facilitate this land reclamation, and indeed other

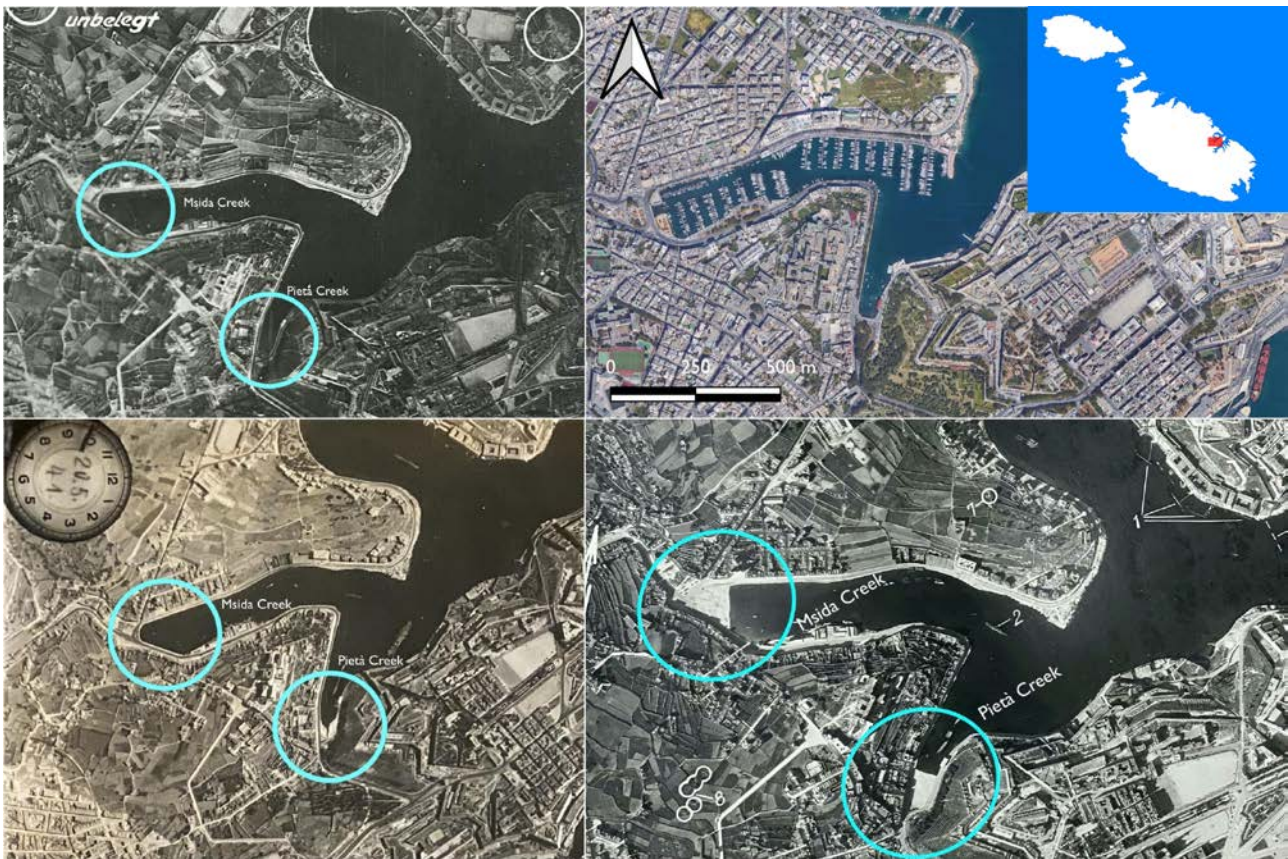


Figure 7: German reconnaissance images from January 1941 (top left), May 1941 (bottom left) and January 1942 (bottom right) of Msida and Pietà creeks (circled in blue and labelled by author) with a modern satellite image of the area (top right). No trace of any landfill can be seen in January 1941, whilst by May, Pietà has the first indications of landfill, with substantial amounts of landfill at both sites present by January 1942 (sources: NARAb-c, Bing Satellite).

sources indicate that the wreckage of bomb-damaged buildings and just general debris was also used in this endeavour (NAM 1942; Turner 2004; Mifsud-Bonnici 2017, 530). No one walking on this reclaimed land today would associate this area with aviation, yet this is a clear example of how the consequences of aviation as they manifested in Malta (air raids and thus the need to construct rock-cut shelters and dispose of bomb-damaged material and excavation spoil) had a very tangible effect on Malta's physical landscape, one that persists to this day.

Fort Campbell

Fort Campbell,² completed in 1937-38 on the Selmun Peninsula in north-east Malta (Spiteri 2017, 178), holds a similar place in British military architecture in Malta as Fort Tigne does within the military architecture of the KOSJ era, namely the last examples of their kind, and thus

evidence of the latest in military architectural design for those eras. In common with many fortifications in Malta, Fort Campbell's focus was not landward, but seaward, to defend the Selmun Peninsula and environs from seaborne attack, as an examination battery for vessels approaching the Grand Harbour from the north, and to fulfil a need for a counter-bombardment role in that part of the island (Rollo 1999, 281, 439; Spiteri 2017, 178). It is in the novel design of the fort, however, one that represented 'a complete break from the previous manner of construction of coastal defences' (Cachia Zammit 2015, 137), that the influence of aviation can most clearly be seen (Fig. 8). Nothing about Fort Campbell's shape suggests that it is a military structure. The bulk of the barracks for example were built lining the side of a road, in a similar manner to how they would appear in a village (Cachia Zammit 2015, 144). Regarding the built features



Figure 8: Fort Campbell as it appears today [date of satellite image June 2023] (sources: Bing Satellite; Google Earth Pro).

themselves, the perimeter wall was much thinner when compared to previous fortifications and lacked a ditch (Cachia Zammit 2015, 138), and was irregularly patterned to mimic the surrounding countryside (Spiteri 2017, 178), thick ramparts and a ditch being eschewed as being too diagnostic of a military installation. The barracks and Officers Mess were designed to mimic the profile of traditional farm buildings (Cachia Zammit 2015, 144-45). Removable measures included the spreading of rubble on and around gun emplacements (Cachia Zammit 2015, 141). Fort Campbell's design and purpose were completely focused on non-aviation matters, yet its entire design was warped by the above measures, which were taken to avoid detection from the air (Spiteri 2017, 180). These measures proved to be extremely effective. Even when the fort saw action in the Second World War (Rollo 1999, 255), its absence from any of the intelligence reports or annotated

reconnaissance photos of that period, and the almost entire lack of bombardment it received, would suggest that its existence continued to be hidden from the Axis powers for the duration of the war.

Conclusion

The great impact aviation has had and continues to have upon the physical landscape of Malta – both above and below the waterline – in the century or so since the construction of the seaplane base at Kalafrana in 1916 is undisputed. The numerous aircraft wrecks left behind from the Second World War's longest siege, and its postwar period, are still being discovered, both on land (Tihn 2023) and underwater (see for example underwatermalta.org). Malta International Airport continues to expand and modernise (MIA 2023), whilst the neighbouring island of Gozo is set to have its own (much smaller) airfield in the near future (Times of

Malta 2022), a distant echo of the short-lived, though larger airfield that existed on the outskirts of Xewkija in mid-1943 (Hamlin 1994, 225-28). However, despite the innumerable books, articles and television shows dedicated to certain aspects of this, in particular its role in the Second World War, the far-reaching consequences of aviation upon Malta's landscape continue to be little known, let alone studied. The above details only a fraction of the impact airfields and air raid shelters have had, and has further restricted itself to the purely physical impacts on the landscape, whilst the effects of other installations such as anti-aircraft sites and long-range detection facilities have, for reasons of space, been omitted entirely.³ Further study would enrich our understanding of how one of the most significant developments in human history altered the physical and cognitive landscape of Malta, in all its forms.

Anthony Burgess
 201, Triq San Mikiel
 COSPICUA BML2113
 Malta
 anthonyburgess@gmx.co.uk

References

- ALONSIO, F. 2005. *Msida*. In Programm tal-festa San Guzepp, 28-29. Msida: St Joseph's Church Parish Office.
- BALLOU, M.M. 2020. *The Story of Malta. 1893 Travel Guide for a Mythical Island – Volume 1*. Rabat: Wise Owl Publications.
- CACHIA ZAMMIT, B. 2015. *Conflict Archaeology in the Landscape: A Survey of World War II Defences at Selmun, Malta*. MA dissertation, University of Malta.
- COLDMAN, A. 2001. *Malta – An Aviation History*. San Gwann: PEG.
- HAMLIN, J.F. 1994. *Military Aviation in Malta G.C. 1915-1993*. Peterborough: GMS Enterprises.
- MAGRO CONTI, J. 2009. Public access to Second World War British heritage in Malta, in N. FORBES, R. PAGE and G. PÉREZ. (eds) *Europe's Deadly Century. Perspectives on 20th Century Conflict Heritage*. 123-33. Swindon: English Heritage.
- MALTA ENVIRONMENT AND PLANNING AUTHORITY (MEPA) 2014. *A Planning Policy Guide on the Use and Applicability of the Floor Area Ratio (FAR)*. Available at: cdn-others.timesofmalta.com/4457a3b2c93bd7e772245d04f59394331906785103.pdf (accessed on 5 December 2023).
- MALTA INTERNATIONAL AIRPORT (MIA) 2023. *The Terminal Expansion Project*. Available at: malairport.com/media-kit/terminal-expansion-project/ (accessed on 18 December 2023).
- MIFSUD BONNICI, M. 2017. *A Malta Teenager at War. Vol 1 June 11 1940 to December 31 1941*. Marsa: Union.
- MUŻEW NAZZJONALI TAL-ARTI (MUŻA). *Malte. Vue de L'Entrée du Port by P.M. Milcent*. Available at: w3id.org/vhmmml/museum/view/2140 (accessed on 5 December 2023).
- NATIONAL ARCHIVES MALTA (NAM). ARP Bundle 30 1/2/3.
- NATIONAL ARCHIVES MALTA (NAM) 1940. CSG 01 1342/1940 RAF Seaplane station at Marsaxlokk; Acquisition of land for RAF purposes in Malta.
- NATIONAL ARCHIVES MALTA (NAM) 1942. CSG 01 5673/1942 Dumping of rubble and spoil at Pietà Creek.
- NATIONAL ARCHIVES MALTA (NAM) 1953. CDE CD/4052/10 1953 Tabulated List of Air Raid Shelters.
- NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARAA). RG 242.51 War Diary of X Fliegerkorps.
- NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARAB). RG 373 GX Dick Tracy Misc 5 German Aerial Photography.
- NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARAC). RG 373 GX 11130 German Aerial Photography.
- PASCOE, D. 2001. *Airspaces*. London: Reaktion Books.
- ROLLO, D. 1999. *The Guns and Gunners of Malta*. Valletta: Mondial Publishers.
- SPITERI, S.C. 2017. *A Visual Guide to the Fortifications of Malta*. Malta: BDL.
- THE NATIONAL ARCHIVES, UK (TNA) 1940. FCO 141/9522 Demolition of St Elmo Lighthouse.
- THE NATIONAL ARCHIVES, UK (TNA) 1941. CAB 79/12/3 Chiefs of Staff Committee: Minutes – 7. Underground Hangars in Malta.
- TIHN, D. 2023. World War II plane parts discovered during St Vincent de Paul garden works, *The Times of Malta*, 8 March 2023. Available at: timesofmalta.com/articles/view/world-war-two-plane-parts-discovered-st-vincent-de-paul-garden-works.1018005 (accessed on 18 December 2023).
- The Times of Malta. *Gozo rural airfield plans submitted to the planning authority*, 30 September 2022. Available at: timesofmalta.com/articles/view/gozo-rural-airfield-plans-submitted-planning-authority.984293 (accessed on 18 December 2023).
- TURNER, C.F. 2004. *Interview with the Imperial War Museum Catalogue #27092*. Available at: iwm.org.uk/collections/item/object/80024623 (accessed on 6 December 2023).

Anthony BURGESS was awarded a PhD in 2022 from the University of Malta, having previously graduated with an MA in Maritime Archaeology from the University of Southampton in 2013, and a BSc (Econ) (Joint Hons) from the University of Wales in 1996. He is currently a guest lecturer at the University of Malta, and is actively involved in Malta and abroad in the recovery of missing United States service personnel.

Notes

- 1 At the time of writing, the Superintendence of Cultural Heritage (SCH) has nine shelters listed in the National Inventory, with a further 69 listed under Cultural Heritage Discoveries. Details on the SCH, its work, publications and a GIS Interface to see these and other listed heritage can be found at <https://schmalta.mt>.
- 2 Fort Campbell was originally Campbell Battery, not being referred to as a fort until 1945. For ease of reference, Fort Campbell will be used to denote this fortification regardless of time period.
- 3 The interested reader can find details on these in the PhD. thesis upon which this article was based, available for download at <https://www.um.edu.mt/library/oar/handle/123456789/95299>.