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14. ABSTRACT

This paper applies the modern precepts of JFEO to the operations conducted by the Roman military during the campaign of Syracuse (213 – 212 BCE). A survey of the ancient campaign reveals that the asymmetry generated by the technologically advanced defense of Syracuse is analogous to future scenarios facing the Marine Corps involving forcible entry operations in a contested environment. This paper examines the successes and failures of the attacking Roman forces in the light of the modern articulation of the precepts of JFEO. The goal of this comparison is to achieve an enhanced understanding of these precepts and enable contemporary planners to consider alternative approaches to future operations based on the lessons of history.

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MASTER OF MILITARY STUDIES

MODERNITY IN ANTIQUITY: THE ASYMMETRY OF THE CAMPAIGN OF SYRACUSE (213-212 BCE)

SUBMITTED IN PARTIAL FULFILLMENT
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MASTER OF MILITARY STUDIES

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AY 2019-20

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Executive Summary

Title: Modernity in Antiquity: The Asymmetry of the Campaign of Syracuse (213-212 BCE)

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Thesis: This paper applies the modern precepts of JFEO to the operations conducted by the Roman military during the campaign of Syracuse (213 – 212 BCE). The goal of this comparison is to achieve an enhanced understanding of these precepts and enable contemporary planners to consider alternative approaches to future operations based on the lessons of history.

Discussion: As the U.S. military emerges from the period of strategic atrophy marked by the wars in Iraq and Afghanistan, challenges to the operational access of U.S. forces from revisionist powers and peer adversaries are increasing in scope and efficacy and will likely be a preferred method moving forward. Although modern JFEO doctrine is constantly evolving to address the challenges of maintaining operational access in contested environments, it remains unvalidated. One less-considered way of addressing the uncertainties of unvalidated doctrine is to examine the parallels between the Marine Corps' current challenge(s) with historical examples. The campaign of Syracuse, in the 3rd century BCE provides a relevant case study as temporally removed as modern military planners are likely to get within the realm of historical accuracy. A survey of the ancient campaign reveals that the asymmetry generated by the technologically advanced defense of Syracuse is analogous to future scenarios facing the Marine Corps involving forcible entry operations in a contested environment. This paper examines the successes and failures of the attacking Roman forces in the light of the modern articulation of the precepts of JFEO.

Conclusion: The ability to correlate the modern precepts of JFEO to the success of the Romans at Syracuse lends credence to the idea that there are durable precepts associated with forcible entry that exist independently of time or place.

DISCLAIMER

THE OPINIONS AND CONCLUSIONS EXPRESSED HEREIN ARE THOSE OF THE INDIVIDUAL STUDENT AUTHOR AND DO NOT NECESSARILY REPRESENT THE VIEWS OF EITHER THE MARINE CORPS COMMAND AND STAFF COLLEGE OR ANY OTHER GOVERNMENTAL AGENCY. REFERENCES TO THIS STUDY SHOULD INCLUDE THE FOREGOING STATEMENT.

Illustrations

Page

Figure 1. Map of ancient Syracuse by Kelly Reaves (2020). 36

Figure 2. Map of Syracuse by Philip Cluverius (1619) 37

Figure 3. Map of Syracuse by Pieter van der Aa (1725) 38

Table of Contents

	Page
EXECUTIVE SUMMARY	i
DISCLAIMER	ii
LIST OF ILLUSTRATIONS	iii
ACKNOWLEDGEMENTS	v
INTRODUCTION	1
JFEO IN FUTURE U.S. CONFLICT	4
THE CAMPAIGN	9
The Assault	10
The Siege	14
The Fall	17
THE APPLICABILITY OF THE PRECEPTS OF JFEO	19
LESSONS FROM THE CAMPAIGN OF SYRACUSE	30
CONCLUSION	33
APPENDIX A: THE GEOGRAPHY OF SYRACUSE	34
BIBLIOGRAPHY	41

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Introduction

Following the dissolution of the Soviet Union in 1991, the United States, emerged as the world's sole surviving superpower and assumed a position of virtually uncontested dominance on the world stage. Peer competitors, once the mainstay of U.S. strategic concern, gave way to nonstate actors and rogue regimes as the primary threats addressed by military planners. Over time, and with the proliferation of more advanced and cheaper technologies, challenges from revisionist powers began to emerge. By the 2010s military thinkers began observing trends that, if left unaddressed, had the potential to threaten the recently unlimited operational access (OA) of U.S. forces.[a] In 2012, then-Chairman of the Joint Chiefs of Staff General Martin Dempsey authorized the release of the *Joint Operational Access Concept* (JOAC).[1] This document highlights the strategic challenge posed by future adversaries employing anti-access/area-denial (A2/AD) as part of the operational approach to their defenses. General Dempsey described the JOAC as his vision for, "how joint forces will operate in response to emerging anti-access and area denial capabilities around the globe."[2] The document sets forth the central idea of cross-domain synergy[b] to describe, "how future joint forces could achieve operational access in the face of armed opposition."[3] The JOAC became the basis of JP 3-18, *Joint Forcible Entry Operations*, published in 2018 and reestablishing JFEO as a major element of current US military planning.[4]

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[a] "Three trends in the operating environment promise to complicate the challenge of opposed access for U.S. joint forces: (1) The dramatic improvement and proliferation of weapons and other technologies capable of denying access to or freedom of action within an operational area. (2) The changing U.S. overseas defense posture. (3) The emergence of space and cyberspace as increasingly important and contested domains. United States Joint Chiefs of Staff, Joint Operational Access Concept (JOAC), i-ii (Washington, D.C.: Department of Defense, 2012). "Operational access is the ability to project military force into an operational area with sufficient freedom of action to accomplish the mission." Staff, Short Joint Operational Access Concept (JOAC), i.

[b] The JOAC describes Cross-domain synergy as, "the complementary vice merely additive employment of capabilities in different domains such that each enhances the effectiveness and compensates for the vulnerabilities of the others – to establish superiority in some combination of domains that will provide the freedom of action required by the mission." Staff, Short Joint Operational Access Concept (JOAC), ii.

This paper will compare the modern precepts of JFEO with the operations executed by the Roman military during the campaign of Syracuse (213 – 212 BCE) at the height of the Second Punic War. The goal of this comparison is to achieve an enhanced understanding of the modern precepts of JFEO by examining them in a context that modern military planners are unlikely to consider. This enhanced understanding is achieved by identifying those historically durable aspects of forcible entry operations that transcend the temporal and technological constraints of the ancient Mediterranean world. And even though modern planners faced with the challenge of long-range precision fires may be unfamiliar with the revolutionary, mathematically driven defenses of Archimedes, many of the strategic and operational problems facing the ancient Romans and contemporary U.S. forces are the same. This analysis of a historical case of a successful forcible entry operation in a war between two great powers is intended to help contemporary planners understand the problems they face and allow them to consider alternative approaches to future operations based on the lessons of history. However, in many respects the ancient world is a foreign country to most modern students and military officers. To learn from antiquity, it is important to put it into the proper context. For this paper that means several things; First, it is important for the reader to understand that this is a military study, not an historical one. Its analysis and conclusions will appeal more to military professionals than to a general audience and the important distinctions between ancient commanders and modern military officers must be highlighted and kept in mind while reading.[c]

[c] Roman leadership decisions and motivations differed radically different from those of modern military commanders. First, most Roman commanders were elected officials, the consulship being the highest political and military office in Republican Rome. Roman generals could, therefore, be either skilled and adept practitioners of the martial arts or incompetents seeking political advantage. Roman history is rife with examples of both. "It is true that Roman generals were 'amateurs' not merely in the sense that there was no separate career structure for officers, but also that the Roman political system put a premium not so much on ability and experience as on family background. But one should not assume that, as a result, all the generals who faced Hannibal and other Carthaginian commanders were incompetent and inexperienced. Most, if not all, would have had some military experience as *tribuni militum* at the beginning of their careers, and many would probably have had further experience as staff-

Secondly, it is a cautionary tale about the value of the contributions of planning and joint staffs. Although the Romans commanders did have staff officers, their training and functions were not the equivalent of modern planning staffs and the Romans were unaware of the modern precepts of JFEO. Finally, this paper is neither an analysis of the larger conflict between Rome and Carthage, nor a predictor of conflict between the United States and China. Although the potential challenges posed to U.S. forces from a technologically asymmetric defense in the Pacific are analogous to those that initially thwarted the Romans at Syracuse, the United States is not a modern Rome, nor China a substitute for Carthage.

This paper begins with a brief examination of forcible entry operations as they relate to the campaign of Syracuse as well as future challenges faced by the U.S. military. It continues with an historical recounting of the campaign along with a military analysis of those events. Next, a juxtaposition of those ancient events against the modern precepts of JFEO leads to a synthesis and discussion of lessons learned from the campaign and how they are relevant to the modern military planner.

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officers (*legati*) under relatives". Lazenby, Hannibal's War: a military history of the Second Punic War, 6. A closely related distinction between ancient and modern commanders was the fame and prestige required of aspiring Romans for political advancement. This would undoubtedly have affected not only the determination to go to war, but once battle was joined would certainly have influenced the commander's judgement and decision-making ability. Before he attacked Syracuse in 212 BCE, Marcus Claudius Marcellus was already famous for his previous military exploits, including winning the highest military honor available to a Roman commander, the *spolia opima*. Following the sack of Syracuse, he supplemented his military victory with the cultural appropriation of the prosperous city's Greek heritage, which, at that time, was largely unknown or unappreciated at Rome. "When Marcellus was recalled by the Romans to the war in their home territories, he carried back with him the greater part and the most beautiful of the dedicatory offerings in Syracuse, that they might grace his triumph and adorn his city. For before this time Rome neither had nor knew about such elegant and exquisite productions, nor was there any love there for such graceful and subtle art;… he made them idle and full of glib talk about art and artists, so that they spent a great part of the day in such clever disputation." Plutarch and Bernadotte Perrin, "Lives," in Loeb Classical Library (Cambridge, MA: Harvard University Press,, 2014), 495. Although there have been politically ambitious U.S. military officers, a brazen act of this magnitude is something no modern commander would contemplate. Another element absent from the concerns of the modern military officer, is the Republican Roman commander's unique and intense personal financial stake in the outcome of a campaign or battle. For most of its history, Republican Rome did not employ standing professional armies funded and equipped by the state. Forces were raised to meet threats as necessary, and largely at the individual commander's expense. The tremendous financial burden associated with the acquisition of a political office, or military command, was offset by the potential, not only for debt relief, but also for extreme personal enrichment in the event of a favorable outcome. This system applied to both successful generals as well as later proconsular governors of Rome's foreign provinces.

JFEO in future U.S. conflict

Forcible entry is a well-developed and constantly evolving capability of the U.S. military.[d] However, despite nearly eight decades of battlefield successes and continuous refinement, this capability is not without its shortcomings. For instance, although the Army has extensive experience with forcible entry, it has been many years since an operation was conducted against a genuine peer adversary.[e] Similarly, the Navy & Marine Corps have not been called upon to execute a large-scale amphibious forcible entry operation against a near peer since the landings at Inchon in 1950. This state of affairs does not reflect a lack of initiative or ingenuity on the part of military planners, rather it is a manifestation of the changing character of war. In the modern era of advanced standoff weapons, drones, and stealth aircraft, the prospect of amphibious forcible entry may seem outdated, particularly in light of rapidly evolving technologies fueling ever more sophisticated A2/AD defenses. The question becomes, is amphibious JFEO still viable, and if so, what should it look like? Speaking for the Marine Corps, the answer is yes, according to Commandant Berger, but not as the U.S. has experienced it in the past, nor, as many envision it in the future.

In the first two decades following the dissolution of the Soviet Union, the United States dominated global geopolitics. The sudden collapse of its longtime Cold War foe left no serious military competitor to offset U.S. prevalence. Terrorism and non-state actors became the focus of policy makers and military planners alike. In the aftermath of the September 11 attacks, the

[d] "A Marine Corps core competency is the conduct of JFEO, which enable maneuver, allow access to critical infrastructure, or establish a lodgment to enable joint force RSOI." Robert S. Walsh, (MCWP) 3-10, MAGTF Ground Operations, 3-6 (Washington, D.C.: Department of Defense, 2017).

[e] The U.S. Army possesses both the capability and the recent experience to conduct successful JFEO (ie. Golden Pheasant, Urgent Fury, Just Cause, Desert Storm, Uphold Democracy, Enduring Freedom and Iraqi Freedom). Carl Stiner and Daniel R. Schroeder, "The Army and Joint Forcible Entry," March 26, 2020 (2009). https://www.ausa.org/sites/default/files/FC_Stiner_1109.pdf. But these campaigns are not applicable to the potential challenges described later in this paper because they were either not large-scale operations or not amphibious in nature.

Marine Corps and its sister-services responded. The Marine Corps moved away from its expeditionary roots and effectively became a second land Army in Iraq and Afghanistan. As a result, seabasing,[f] one of the foundational concepts of the Marine Corps' 21st century amphibious strategy, fell by the wayside.[5] Retrospectively, the 2018 *National Defense Strategy* (NDS) describes this period as one of, "strategic atrophy", marked by the erosion of the United States' traditional military advantage.[6] But today, the geopolitical world is moving beyond its brief experiment with the uncontested supremacy of a sole superpower, and back toward a state of multi-polarity. As other nations begin to flex their economic and military muscles, the emergence of revisionist powers has reintroduced the possibility of a peer conflict. The NDS points out that, "interstate, strategic competition, not terrorism, is now the primary concern in U.S. national security."[7] In short, the brief era of uncontested U.S. hegemony is at an end and is unlikely to be seen again in the near term. As in the years following World War II, The United States' ability to project power beyond its borders depends on its military's capacity to ensure operational access anywhere in the world. In the preface to the JOAC, General Dempsey writes, "The ability to ensure operational access in the future is being challenged—and may well be the most difficult operational challenge U.S. forces will face over the coming decades."[8] The JOAC further warns that, "Future enemies, both states and nonstate actors, will see the adoption of an anti-access/area-denial strategy against the United States as a favorable course of action for them."[9] In order to execute the JOAC's mandate that the U.S. military, "maintain the freedom of

[f] "At its conceptual core, it purports to move traditional land-based functions to sea, from billeting and logistics to the employment of force. Its roots date back centuries, but its pinnacle lay in the World War II push across the Pacific, when the United States created a vast armada capable of carrying its air, sea, and land forces inexorably westward towards Japan. Planners looked to this legacy when the 1990s Navy shifted its focus from fighting on the seas to fighting from the seas. It was a novel and allegedly transformational vision for a unipolar era." Gregory J. Parker, *Seabasing Since the Cold War; Maritime Reflections of American Grand Strategy* (2010), 4, https://www.brookings.edu/wp-content/uploads/2016/06/0630_seabasing_parker.pdf.

action to accomplish any assigned mission", the ability to overcome A2/AD defenses will be a key component of any future conflict.[10] Who would be a likely adversary?

The NDS identifies both China and Russia as revisionist powers seeking to compete with the United States. And even though both countries employ authoritarian governments, possess large stockpiles of nuclear weapons, and clearly intend to extend their hegemonic influence over their neighbors, the threats from the two are dissimilar. In spite of its nuclear capabilities, Russia is unlikely to choose direct military confrontation with the United States as its ability to project power globally remains limited.[11] Much of the danger it presents to U.S. interests comes not from conventional arms or competitive economic activity, but rather from disinformation campaigns designed to sow internal dissent among adversaries and disrupt the traditional alliances that have strengthened the West. Economically, Russia is far weaker than either the United States or China and is limited, for the most part to exporting its natural resources. China, on the other hand possesses the second-largest economy in the world and the third-largest military including a burgeoning blue water navy.[12] Commandant Berger identified China as the current pacing threat, describing it as a, "long-term existential threat to the U.S."[13] Accordingly, he ordered an organizational and structural redesign of the Marine Corps specifically to counter this threat.[14] Although it is difficult to predict the nature or location of a confrontation between these two powers, a likely objective of the U.S. military in such a conflict would be one or more islands in the first chain or another location somewhere in the littorals of southeast Asia. In this case, JFEO will be amphibious in nature and the Navy/Marine Corps team will be tasked with its execution. However, as the Commandant noted, amphibious JFEO, as executed in World War II and Korea, is no longer realistic given the state of technology today.

> "Visions of a massed naval armada nine nautical miles off-shore in the South China Sea preparing to launch the landing force in swarms of ACVs, LCUs, and LCACs are impractical and unreasonable. We must accept the realities created by the proliferation of precision long-range fires, mines, and other smart-weapons, and seek innovative ways to overcome those threat capabilities."[15]

There is a recognition at the highest levels that in order to proceed, the Marine Corps must restructure and adopt new methods. The intent of the reforms proposed by Commandant Berger is a smaller Marine Corps more readily adaptable to the evolving challenges of future amphibious JFEO.[16] However, regardless of the success or failure of these reforms, modern JFEO doctrine in a contested environment remains unvalidated.[g] One less-considered way of addressing the dangers of unvalidated doctrine is to examine the parallels between the Marine Corps' current challenge(s) with the ancient assault on Syracuse.

The campaign of Syracuse, in the 3rd century BCE provides a case study as far removed from tomorrow's potential battlefields, both temporally and technologically, as modern planners are likely to get within the realm of historical accuracy. This example is relevant because millenia before Clausewitz, Jomini, or Moltke, Archimedes conceived of a defensive strategy that employed a sophisticated A2/AD defense that denied the militarily superior Roman forces the opportunity to employ many of the precepts of operational access described in the JOAC, and later in this paper. An examination of the ancient campaign reveals that the asymmetry generated by the technologically advanced defense of Syracuse is analogous to future scenarios involving forcible entry operations against a peer adversary armed with accurate long-range fires. In the case of ancient Syracuse, the Roman commanders' ignorance of Archimedes'

[g] The closest comparable example where the combatants employed modern weaponry and jet aircraft/missile technology is the Falklands/Malvinas conflict. Unfortunately, this provides only a narrow and dated window as that campaign took place in an era of less capable weapons and sensors against a non-peer adversary. Additionally, "The JOAC development was supported by an experimentation campaign including a multi-scenario wargame, multiple Service-sponsored events, and other concept development venues." Staff, Short Joint Operational Access Concept (JOAC), Foreward.

technological asymmetries led them to attempt a direct frontal assault by both land and sea, resulting in devastating casualties. If the Navy & Marine Corps attempt a World War II-style amphibious JFEO against a technologically advanced adversary on a well-defended island in the Pacific, there is no reason to believe that the outcome would be any different. Therefore, the essential nature of the challenge in both situations is the same; how to conduct forcible entry in a contested environment against a technologically sophisticated, well-prepared adversary. If direct frontal assault was, or is not viable in either case, what options remain to the attacking force? Examining how the Romans were ultimately successful can provide the modern planner some insights into future courses of action.

The intent for this paper is that, by acknowledging the similarities between these two scenarios, namely the dangerous, and potentially insurmountable, asymmetries generated by the technologies of the defenses, and the futility of traditional direct assault against those defenses, that informed debate will result in new ideas and avenues of approach to this challenge.

The Campaign

The campaign of Syracuse (213-212 BCE) was a pivotal struggle in the second of the three Punic Wars that saw the western Mediterranean's two dominant powers vying ag ainst one another for supremacy.[h] Although already an imperial power, having absorbed every Italian city or state south of the river Po, the Punic wars were the first "expeditionary" conflicts for Rome.[17]

In 215 BCE, Heiro II, King of Syracuse and steadfast ally of Rome, died. His reign of more than 50 years was conspicuous for its political stability, which quickly degenerated after his death.[i] In the chaotic environment that ensued, the massacre of the Roman garrison at Leontinoi, compounded by miscommunication and the deception of Carthaginian agents, led to the breakout of hostilities with Rome. Before his death, Hiero recruited the famed mathematician Archimedes to organize the defenses of Syracuse, already one of the largest and best defended cities in the ancient Mediterranean.[j] He accomplished this with such unprecedented effect that, not only was it praised by pro-Roman historians of the time, it is still admired two thousand years later.

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[h] These wars were the result of the nascent Roman state's expanding power and influence in the third century BCE and would shape the course of western civilization. The historian Alvin Bernstein describes these wars collectively as, "The epoch-making struggle between the two superpowers of the Western Mediterranean, which Polybius records, set the course for the future of Western civilization, for after the defeat of the Carthaginians at the end of the second Punic war in 201 BC, no opponent would ever again contest Roman expansion on anything like an equal footing." Colin S. Gray and Roger W. Barnett, *Seapower and strategy* (Annapolis, Md.: Naval Institute Press, 1989), 101.

[i] His grandson, Hieronymous, inherited the throne but, at the age of 15, proved insufficient to the task of governing in the tumultuous political environment following Hiero's death. He attempted, unsuccessfully, to negotiate with Carthage in an effort to expand his influence across all of Sicily and ended up being murdered by a rival political faction in Syracuse. Adrian Goldsworthy, *The Punic Wars* (London: Cassell, 2000), 261.

[j] The Carthaginians, although allied with Syracuse at the time of the campaign, had lain siege to Syracuse four times between 397 – 278 BCE as a result of their conflicts with the Greek colonies in Sicily and their desire to expand their hegemony in the Mediterranean. Born in 308 BCE, King Hieron II would have lived through one of these sieges and undoubtedly been influenced by the memories of the survivors of another. Also referred to as Heiro II, he was the Tyrant and later king of Syracuse from 270 until his death in 215 BCE.

Roman land and naval forces attacked Syracuse's outer defenses in the spring of 213 BCE, the fifth year of the Second Punic War. The resultant siege and capture of the city lasted through the autumn of 212 BCE.[18] This paper divides the campaign into three phases; the assault, the siege, and the fall of Syracuse.

The Assault

The consul Marcellus was in overall command of the operation and personally led the assault from the sea.[k] This attack came to the north of the Small Harbor near a place called the *Stoa Skytike*[l] north of the island of Ortygia.[19] Here, the walls of the city met the water's edge and would have been one of the few potential locations for conducting an amphibious assault. Marcellus began his attack with sixty quinqueremes.[m] As Marcellus' fleet approached the city walls from the sea it began taking heavy casualties.[n] Many were damaged or sunk at long-range, likely the result of Archimedes mathematical refinements to the aiming systems or to the catapults themselves."[20]

Up to this point, artillery and siege engines were primarily offensive weaponry, battering the walls of cities and fortresses with boulders launched from heavy catapults and killing the cities defenders with bolts fired from smaller pieces. Archimedes turned this formula on its head

[k] This is one of the few areas where the primary sources for the campaign disagree, even if it is only through omission or implication. "The seaward assault was under the personal command of Marcellus himself, though contrary to what Polybius implies (8.3.1), he would also have been in overall command of the whole operation, with App. Claudius Pulcher commanding the land forces under his direction". Lazenby, *Hannibal's war : a military history of the Second Punic War,* 106.

[l] The "Shoemaker's Colonnade"

[m] The standard compliment of marines on a *quinquereme* was 40 but Roman ships were capable of surging to 120 for an invasion. Ira Donathan Taylor, *Roman republic at war : a compendium of battles from 498 to 31 BC* (Barnsley, South Yorkshire: Pen & Sword Military, 2017), 18. This means that Marcellus' amphibious assault could have included up to 7200 Roman marines. Assuming their numbers were not reduced by the siege engines themselves, this equates to 960 additional marines onboard the eight *sambucae* ships alone.

[n] Polybius records that some of these projectiles weighed up to 10 talents (roughly 577 lbs.). Polybius, "The Histories," 8.7. It is unlikely that any wooden ship designed during the Hellenistic period, regardless of the quality of its construction, would be able to withstand the impact of even a single hit from such a weapon.

and designed a defensive plan that used outward-facing artillery and defensive engines. As a result, and for perhaps the first time, he exposed the classical world to the effects of a layered artillery defense. In this schema, different types of artillery pieces firing different types and sizes of projectiles were placed in a manner that overlapped their effective ranges of fire. Potential attackers were thus deprived of any respite from artillery fire during an assault.

After penetrating what they anticipated was the inner effective range of the Syracusan artillery, the Romans would have attempted to form up for their final assault on the walls only to be shocked and thrown into disarray by additional barrages of devastatingly effective fire from shorter range artillery pieces. Archimedes' layered artillery defense blunted the Roman advance by denying them the ability to close uncontested on the city's walls after suffering significant losses passing through an anticipated "danger zone". What the Romans discovered too late was that the danger zone extended from the city's walls all the way out to the maximum range of the largest artillery pieces. After realizing the futility of this approach, Marcellus withdrew his ships and troops to a safe distance. The layered and diverse nature of the Syracusan artillery was so effective that the Roman commander was forced to postpone the attack until nightfall in the hope that the long-range catapults and ballistae would lose some of their effectiveness.

Marcellus then ordered a nighttime attack. This is where he discovered, or perhaps confirmed, that the Syracusan defenses were as thorough as they were lethal. In constructing the defenses of Syracuse, Archimedes did not start from scratch. He inherited the walls of Dionysius I which, even after the conquest of Syracuse, were, "to remain the longest defensive circuit known in the ancient Greek world."[21] Polybius records that Syracuse's previously impenetrable defenses benefitted greatly from the fact that the city's walls were strategically built on high ground with, "steeply overhanging crags."[22] Livy also indicates that for most of its length the

wall surrounding the city was high and generally inaccessible.[23] However, both agree that there were stretches of the wall built along more level ground that were lower and flatter. It was along these lower, flatter stretches that Archimedes concentrated his defensive engines both on the landward and seaward facing walls."[24] He also ordered the modification of the walls to provide suitable openings for his own archers.

As the Roman ships made their nighttime approach, they encountered yet another layer of unexpected, and unprecedented, defense. Archimedes, famous for his application of levers and pulleys, devised a series of cranes that swung out over the walls and dropped enormous payloads of either boulders or lead weights onto the decks of the attacking ships. In addition, the attackers had to face Archimedes' now infamous, "iron hand" or "iron claw". These were cranes modified to release an iron hook from a pulley that would affix itself to the prow or side of a ship. The operator, safely behind the city's wall, would then retract the claw causing the ships to capsize or be lifted completely from the water before being released to crash back into the sea.[25]

The remaining ships that were able to approach the walls were equipped, not only with siege machinery, but also with archers and shot slingers brought for the express purpose of suppressing defensive fire from the walls.[26] In theory this would have allowed the marines on board nearly unfettered access via their ladders and *sambucae* to the wall tops and battlements along the quay.[o] The wall openings ordered by Archimedes, manned by archers equipped with bows and scorpions, proved devastating to the Roman archers and marines on the decks of the attacking ships. The Roman ships were either unable to get their men and equipment within range or were cut down by the Syracusan archers. Polybius writes that by this tactic alone

[o] In addition to Marcellus' impressive armada of sixty warships, eight additional quinqueremes were lashed together in pairs and equipped with specialized siege engines called *sambucae*, so named because of their resemblance to the ancient musical instrument (a harp) of the same name, specifically designed to penetrate an adversary's wall defenses from the sea. Polybius, "The Histories," 8.6.

Archimedes' preparations, "not only baffled the enemy, whether at a distance or close at hand, but also killed the greater number of them."[27] Further compounding the effectiveness of these weapons was the fear they inspired in the Romans. The result was as devastating and ineffectual for the Romans as the daylight attack.

Simultaneously, Appius Claudius Pulcher led the land assault in the vicinity of the Hexapylon Gate in the city's northern walls. It is not known exactly how many troops he had at his disposal but Polybius recounts that they were well prepared with siege machinery of their own. These engines, topped with penthouses to accommodate soldiers fighting the defenders at the wall-tops, were protected with what the Romans mistakenly assumed to be very adequate wicker shields.[28] Polybius records that, as the Romans advanced, they began to take considerable casualties at some distance from the walls.[29] Those who got close to the walls were then subjected to withering fire from the archers and scorpions utilizing the same openings that had been prepared in the seaward facing walls. Any assault parties attempting approach under the cover of shields were subject to the same devastating effects of Archimedes' cranes as Marcellus' amphibious forces. Polybius tells of the iron hand picking up armored men and dashing them to the ground. In addition to the cranes, the walls facing the land assault were situated on top of bluffs or outcroppings so that in the places where there were no iron hands, the defenders could just as easily roll or drop enormous boulders onto their attackers.[30] Archimedes defenses at the wall kept the Romans from massing at a critical point of vulnerability and the land assault was no more successful than the amphibious.

After realizing the futility of frontal assault against the defenses of Archimedes, both Marcellus and Appius Pulcher called off their attacks and lay siege to Syracuse.[p] The Romans established a naval blockade of the harbor and no more military activity is recorded until the spring of 212 BCE.

The Siege

The Roman blockade of Syracuse was permeable as Carthaginian ships were regularly able to resupply the city's population.[31] Faced with this reality, and the growing Carthaginian influence among the coastal towns to the south, Marcellus recognized that the submission of Syracuse would be lengthy, and began to look for other courses of action. After a failed attempt to send spies into the city[q] Marcellus' next opportunity came when the Romans intercepted a ship carrying a Lacedaemonian named Damippus. The Carthaginian agent in command in Syracuse was eager to get this man back and proposed that negotiations take place in neutral territory.[r] A place was chosen outside the city walls near the Galeagra tower in the vicinity of the Trogilian Port. One of Marcellus' emissaries took special note of the wall as this parley was the first time any Roman had gotten close enough to observe it carefully. By counting the courses of stones and estimating their height and thickness the Roman was able to estimate the overall height of the wall and determined that it was lower here than in most places.[32] He reported this vital piece of intelligence back to Marcellus who recognized its importance but was

[p] Livy, speaking of Marcellus tells that, "he saw that this place could not be carried by assault, as it was unassailable by sea or land owing to its position, nor could it be reduced by famine, since it was nourished by a free supply of provisions from Carthage." Livius, "Ab Urbe Condita Libri," 25.23.

[q] Sometime before the spring of 212, the Romans sent a slave of sympathetic Syracusan exiles into the city in an attempt to foment a rebellion. Although the slave found a number of like-minded individuals, the plot was uncovered before any action could be taken and everyone involved was tortured to death. Livius, "Ab Urbe Condita Libri," 25.23.

[r] Marcellus was willing to trade Damippus because he was a Lacedaemonian (Spartan) and an ally of the Aetolian Greeks. At that time the Romans were attempting to cultivate Aetolia as an ally and Marcellus believed that this gesture of goodwill would be well received. Livius, "Ab Urbe Condita Libri," 25.23.

unable to act immediately because this section of the wall, being lower than most, was very well protected.[33] Marcellus did not wish to endure the same losses as in the first assault and was forced to wait for another opportunity. He did not have to wait long. Polybius tells that only a few days later a deserter from Syracuse informed the Romans that the people of Syracuse had been celebrating the festival of Artemis for three days.[34] Even though the Roman blockade was unsuccessful in preventing the Carthaginians from bringing supplies to the city, food was not plentiful. As a distraction, Epicydes ordered that wine be distributed freely among the populace for the celebration.[35] After conferring with his tribunes Marcellus decided to launch a surprise night raid at that portion of the wall where the negotiations had taken place. He and his officers hand selected the men who would participate in the attack. Scaling ladders were constructed to meet the height requirement that the negotiator had estimated at the Damippus meeting. After nightfall, one maniple[s] of men, observing strict noise discipline, proceeded toward their objective and, according to Livy, "They got up on the gate without any confusion or noise and others at once followed in order"[36] The intelligence provided by the Syracusan deserter proved accurate and a thousand Roman troops were able to scale the wall without meeting any resistance.[t] This force moved swiftly from the Galeagra tower to the Hexapylon Gate. Once there, they gave a signal to Marcellus who was waiting with a large force outside the gate before sounding their trumpets and attacking the Syracusans at the entrance to the city.[37] The guards at the gate fled in panic and by dawn Marcellus' force was inside the city. They quickly took control of most of Epipolae. Epicydes made a brief excursion from the Achradina thinking that only a few Romans had succeeded in scaling the walls. When he discovered the extent of the Roman presence, he retreated immediately fearing that he and his men would be cut off from the Achradina.

[s] Maniple: a subdivision of a Roman legion made up of 120 men.
[t] Livy notes that after scaling the wall the Romans, on their way to the Hexapylon Gate, killed only a few men sleeping or drunk in their beds. Livius, "Ab Urbe Condita Libri," 25.24.

Marcellus, now in control of all the Epipolae with the exception of the Fort, sent some of the Syracusan exiles in his company to the gates of the Achradina quarter in an attempt to convince them to surrender.[38] They were rebuffed.[39]

Marcellus then turned his attention to the Euryalus Fort, under the command of one of Epicydes' lieutenants, Philodemus. Marcellus, opened negotiations through an intermediary for the surrender of the fort but Philodemus, hoping for Carthaginian reinforcements, delayed for several days. His plan was for the Carthaginian legions to bottle the Romans up inside the city and turn the besiegers into the besieged. Marcellus entrenched his soldiers between Neopolis and Tycha and, after giving orders not to kill any of the free citizens, allowed his troops to loot. Seeing this, Philodemus realized that his position was untenable and, after gaining assurances from Marcellus for the safe passage of the garrison back to Epicydes, handed over the Fort to the Romans. That night, the Carthaginian commander Bomilcar fled Syracuse for Carthage with thirty-five ships.[u] There was an attempt several days later by the Carthaginians to dislodge the Romans. One of their generals, Himilco, attacked the old Roman encampment to the south of the city while Epicydes sallied from Achradina to attack Marcellus' forces inside the city. Both attacks were easily repulsed.

At this point the siege settled down again and Livy records that a great plague swept through the area. The Romans, who, in addition to their presence on Epipolae, had by this point established a supporting camp outside of Syracuse to the north of the city walls, suffered greatly from the sickness. The Carthaginian forces, on the other hand, were devastated. When the death toll began to mount, their Sicilian allies deserted them, and they ultimately lost both of their field

[u] Bomilcar did however leave 55 ships for Epicydes. Livius, "Ab Urbe Condita Libri," 25.25.

commanders, Hippocrates and Himilco, to the sickness.[40] The plague of 212 BCE effectively ended the Carthaginian land threat to the Roman expeditionary force.[41]

After fleeing during the looting of Syracuse, Bomilcar made two brief return trips to Syracuse and convinced the Carthaginian leadership in Africa that the Romans could still be isolated in the city and defeated. A massive relief force of 700 cargo vessels escorted by 130 war ships was organized and set sail for Syracuse. However, before reaching the promontory of Pachinus (modern Portopalo) at the southern end of Sicily, the winds turned against the Carthaginian fleet and they were forced to ride at anchor in the shallows for several days. When Marcellus received the news that an armada of warships was heading his way escorting enough supplies to allow the defenders of Achradina to continue the siege indefinitely, he immediately set out to meet it. When he arrived, the two fleets faced each other for several days, immobilized by the rough seas and the strong east wind. This would have been the decisive battle between Rome and Carthage for Syracuse. Inexplicably, as soon as the seas calmed, Bomilcar ordered the transports back to Africa and set sail himself for Tarentum. To this day, no one knows exactly why he made this decision, which Lazenby described as the supreme moment, not only of the campaign, but of the war itself.[42] Epicydes, who had sailed out to meet Bomilcar's fleet before Marcellus arrived, realized the futility of the situation and, having no wish to return to a city that was now certain to fall to the Romans, sailed to Agrigentum.[43]

The Fall

The summer of 212 was pivotal one for the campaign. Over the course of several months, the previously impenetrable city walls were breached and the Euraylos fort, the strongest defensive position in the city, surrendered to the Romans. The Carthaginian commanders Hippocrates and Himilco perished during the plague and Bomilcar refused to give battle to

Marcellus on the open seas when, for the first time during the campaign, the Carthaginian's warships outnumbered those of the Romans. It was clear to those remaining in the city after the failure of the relief expedition that all hope was lost.

The only parts of the city left to the Syracusans were the Achradina quarter and the island of Ortygia. These were still securely separated from the upper city by their own defensive walls. After opening negotiations, the Romans were able, through clandestine meetings, to convince one of the three remaining Syracusan commanders, a Spaniard named Moericus, to assist the Romans in the last stages of their conquest. By assuring him that not only would his life be spared, but that he would be given the option either to serve as a commander in the Roman legions or to return freely to his own country, they were able to convince Moericus to defect.[44] After the emissaries had returned, Moericus was able to get word to Marcellus that he commanded the section of the city extending from the fountain of Arethusa to the southern tip of the island. In the dead of night, a quadrireme towed a barge filled with Roman soldiers across the harbor and landed at the gate near the fountain. Moericus ordered the gate opened and admitted the Roman soldiers. In the chaos that ensued, the whole of Ortygia and part of the Achradina fell to the Romans. The remaining Syracusan leaders immediately sent a delegation to Marcellus to plead for their lives. Marcellus refused to give assurances and, after setting guards on the houses of the loyal Syracusan exiles and confiscating the royal treasury in Nasos, he gave the entire city over to his soldiers to plunder.[45]

Applicability of the Precepts of JFEO

Marcellus' first battle plan for the capture of Syracuse, if it were ever written down, is lost to us today. Whatever his intentions, the approach was a complete failure as the Romans did not achieved an objective or establish a lodgment in the initial assault. The question becomes, why? The answer to that question will be informed by examining the ancient campaign in the light of the modern precepts of JFEO.

Before beginning a more detailed inquiry into the applicability of the modern precepts of JFEO to the campaign of Syracuse, an assumption must be established. This paper asserts that what is commonly described by modern scholars as the Siege of Syracuse, should be seen as a single military campaign consisting of sub-components: the assault, siege, and capture of Syracuse. The first sub-component is the initial assault which failed utterly. The second, the result of that failure, was the lengthy siege itself. This paper argues that the assault and siege were, for all intents and purposes, one and the same. That, in the context of this particular campaign, the siege was an extension of the initial assault. The fact that Marcellus did not simply lay siege to Syracuse from the outset implies that he was one of two things; either supremely confident in his ability to take the city immediately as a result of a direct assault, or a reckless and negligent planner.

As Goldsworthy has already argued, frontal assaults against fortified positions in the ancient world were costly and generally avoided.[46] Direct assault would only be attempted by a numerically or technologically superior force and/or when time was of the utmost necessity. In the ancient world, more often than not, an attacking force would simply lay siege to a town or city. In due course, the lack of water, food, and other basic necessities of life would compel the town's surrender. In the case of the Second Punic war, which lasted for 17 years, it is difficult to

argue that time was the critical factor in the Romans' decision to attack Syracuse rather than blockading the port and establishing a siege from the outset. Polybius documents that Marcellus believed he could take the city within five days, perhaps because he felt his forces and methods were superior. Whatever his motivation, several days of sustained assaults on both land and sea forced Marcellus to call off the attack and lay siege to the city. Therefore, this paper argues that the siege was an extension of the assault rather than a deliberate, or preferred, strategy from the outset. As a result, all later decisions and actions undertaken during the siege which conform, broadly, to the operational access precepts listed below, are elements of an extended assault rather than a deliberate, premeditated siege.

Precept 1. Conduct operations to gain access based on the requirements of the broader mission, while also designing subsequent operations to lessen access challenges.

Marcellus' decision to attack Syracuse did not occur in a vacuum. Rome's overarching strategic goal of the Second Punic War was to defeat Carthage in order to both counter their influence in the western Mediterranean and expand Rome's own hegemony outside the Italian peninsula. Rome was eager to remove itself from the economic limitations placed on it by the two prior treaties signed with Carthage from a position of weakness. Syracuse, as the largest and wealthiest city in Sicily, was vital to Roman interests in the region. It was situated on a large port and possessed the strongest and most elaborate fortifications in all of Sicily. It was also, according to the terms of the peace treaty the ended the First Punic War, the only independent city-state remaining in Sicily. Numerous smaller towns in Sicily, particularly those closest geographically to Carthage, wavered in their allegiance to Rome over the course of the Second Punic War. However, given Syracuse's unique status, it would have been impossible for Rome

to permit its outright defection. Capturing Syracuse would also secure Sicily and prevent the Carthaginians from using it as a base of operations from which Hannibal could be resupplied and reinforced. This is not only why the Romans attacked and laid siege to Syracuse, but also why they maintained the siege for such a prolonged period even while Hannibal was ravaging Italy.[47]

> "At the same time, because of the mounting lethality of emerging anti-access and area-denial weapons, commanders should design campaigns that do not require attacking into the teeth of an enemy's anti access/area denial defenses where possible."[48]

Although Marcellus was correct in his decision to secure Syracuse, he critically violated the second part of this precept by ordering direct assaults against what was perhaps the most sophisticated A2/AD defense in the ancient world. It is clear that Marcellus did not know what he was facing, or at least not the extent of what he was facing.

Precept 2. Prepare the operational area in advance to facilitate access.

As stated, there is no extant record of Marcellus' preparations for the invasion, and therefore no way analyze what measures he took. However, given the abysmal failure of the initial assault, it is clear that whatever consideration the Romans gave to the intelligence preparation of the battlespace (IPB), Archimedes' technology-based defenses were either disregarded or not taken into account. By the standards of antiquity, Syracuse was a large, prosperous, and well-fortified city even without the benefit of Archimedes' defenses. At the time of the Roman invasion the site had been occupied by Greek settlers for more than six centuries. The Campaign of Syracuse was the first time since its founding, and at least six subsequent sieges, that the city fell to an adversary. The lack of any deliberate element of surprise on the part of Marcellus, combined with the sophisticated nature of Archimedes' layered artillery

defenses, left the Romans completely unprepared for the ensuing barrage of accurate, long-range fire from the walls.

Precept 3. Consider a variety of basing options.[v]

This is one area the Romans took advantage of before they were forced to by either the enemy, or adverse circumstances. After originally basing his forces to the south of the city, Marcellus moved his camp to the north of the city walls in the wake of the initial assault. The effect of this decision was that the Romans did not suffer from the plague of 212 BCE to the same extent as the Carthaginians.

Precept 4. Seize the initiative by deploying and operating on multiple, independent lines of operations.

The Romans could attack Syracuse by land at the time and place of their choosing as they controlled the avenues of approach to the city at the outset of the campaign. Instead they chose a joint attack by land and sea to avail themselves of the synergies described by Chairman Dempsey in the JOAC, "future joint forces will leverage cross-domain synergy—the complementary vice merely additive employment of capabilities in different domains such that each enhances the effectiveness and compensates for the vulnerabilities of the others—to establish superiority in

[v] In today's highly complex and technologically sophisticated military operations, the use of forward bases is a primary means for mitigating the effect of distance on force projection. ""Forward bases, including mobile seabases, constitute critical ―access infrastructure which supports the deployment of forces and supplies. The greater the capabilities and capacity that can be established at or flowed through the base, the greater the force that ultimately can be projected." Staff, Short Joint Operational Access Concept (JOAC), 20. This type of forward-basing would not have as much effect on an ancient army with its lack of reliance on modern consumables such as ammunition and spare parts as it would on a modern amphibious force.

some combination of domains that will provide the freedom of action required by the mission."[49] On land, this joint attack afforded the Romans the advantages of mass and maneuverability over an exclusively amphibious assault against those parts of the walls that reached down to the sea itself. Likewise, a seaborne assault would draw defenders from the northern walls and introduced additional friction into the Syracusan defense. It is not known for certain whether the amphibious assault was intended to divert the city's defenders from the Epipolae quarter, under attack by Appius Pulcher, or vice versa. The initial assaults, both land and sea, took place in what would be described today as an EMCON-type environment. Based on the accounts of the ancient authors, this paper takes the position that Marcellus' commander's intent was for Appius Pulcher's troops to engage in a feint against the north wall that would generate enough friction to allow the amphibious assault to secure a temporary lodgment in the Achradina quarter.[w] The Romans anticipated that the sophisticated siege machinery aboard their ships would result in the quick establishment of a lodgment.

Precept 5. Exploit advantages in one or more domains to disrupt enemy anti-access/area-denial capabilities in others.

The two primary warfighting domains utilized by the Romans were land and sea. Based on the accounts of the ancient authors, the Romans believed that an amphibious assault, executed in coordination with a traditional land attack, would provide them an advantage against the sophisticated fortifications of Syracuse. The Romans, believed their innovative siege engines (*sambucae*), along with their archers and slingers, designed to suppress defensive fire from the

[w] Polybius records that although the land and sea assaults were simultaneous, App. Pulcher was the first to attack. Polybius, "The Histories," 8.6.

walls, would overcome the defenders and allow their marines to breach the walls of Achradina. Under almost any other circumstance, this would likely have proven true. Unfortunately for the Romans, the Archimedian defenses proved too much for their tactics and technologies.[x]

Precept 6. Disrupt enemy reconnaissance and surveillance efforts while protecting friendly efforts.

During the assault, the Romans were unable to achieve this as they were completely overcome by the friction imposed on them by the Syracusan defense. Topography provided the Syracusans with distinct advantages, not only in terms of their physical defenses, but also with respect to their reconnaissance and surveillance capabilities. Against Appius Pulcher's land attacks from the north and west, they controlled the high ground of the Epipolae plain and the Euryalos. From the fort, as well as numerous towers spaced along the city's walls, the Syracusans possessed commanding views of the surrounding landscape and could easily spot any approaching force. This also allowed the Syracusans to monitor the enemy during battle. Likewise, the walls and fortifications that reached in many places down to the sea provided the Syracusan defenders with commanding views of the Grand Harbor and seaward approaches to the city. Marcellus' amphibious assault from the south and east was easily monitored from these vantage points. The initial attack provided the Romans with no opportunity to disrupt the Syracusans' surveillance capabilities and no capability of concealing their own forces or

[x] "An assault begun so vigorously would have undoubtedly succeeded had it not been for one man living at the time in Syracuse. That man was Archimedes. Unrivaled as he was, as an observer of the heavens and the stars, he was still more wonderful as the inventor and creator of military works and engines by which, with very little trouble, he was able to baffle the most laborious efforts of the enemy." Livy et al., "History of Rome," in *Loeb classical library* (Cambridge, Massachusetts: Harvard University Press, 2017), 24.34.

conducting reconnaissance. Not until Marcellus had taken the Epipolae many months after the initial attack, was he able to finally look down on Achradina.[y]

Precept 7. Create pockets or corridors of local domain superiority to penetrate the enemy's defenses and maintain them as required to accomplish the mission.

This precept was at the heart of Marcellus' plan for the initial joint attack in the spring of 213 BCE. "Joint forces will open limited pockets or corridors of superiority in the necessary domains and maintain them long enough to accomplish required tasks."[50] By diverting enough Syracusan forces with a land assault near Hexapyloi and simultaneously conducting an amphibious assault at the walls of the Achradina, Marcellus planned to open a temporary corridor of local domain superiority. By successfully inserting a shock force of Roman marines at an unlikely location, he could neutralize the local wall defenses and introduce follow-on forces. These troops would then be in a position to neutralize the Syracusan defenses at one of the city's gates to allow access to the land forces. The Romans were unable to accomplish this during the initial attack and reverted to a siege. However, for a commander ignorant of the dangers presented by the Archimedian defenses, this was a good strategy for assaulting the most strongly defended walled city in the Hellenistic world.

[y] The ancient sources give no indication that this was in any way militarily advantageous to Marcellus during the final stages of the campaign.

Precept 8. Maneuver directly against key operational objectives from strategic distance.

"Some elements of the joint force will operate directly against key objectives from points of origin or other points outside the theater without the need for forward staging."[51] None of the original sources describe the conditions or location of the staging area(s) used by the Romans before the initial assault against Syracuse in 213 BCE. Given the technology of the day, the Romans' only long-range offensive assets were their ships. Their standard warships, capable of being propelled either by sails or oars, were versatile enough in good weather to strike from a forward base or directly from Italy. On the other hand, whether they assembled their specialized tandem quinqueremes in Italy and sailed them to Sicily or were forced by the limitations of naval architecture to assemble them near Syracuse is unknown. Additionally, the *sambucae* themselves were complicated and unwieldy siege engines when placed on ships.

Precept 9. Attack enemy anti-access/area-denial defenses in depth rather than rolling back those defenses from the perimeter.

The Romans were unable attack the Syracusan defenses in depth during their initial assault. Marcellus' attack on the seaward facing walls of Syracuse was an attempt to exploit what he perceived as a vulnerability in the enemy's defenses. This is why he did not conduct a multi-pronged land-based assault to achieve penetration as a result of the friction imposed by defending the walls at multiple locations. Marcellus applied this principle when his surprise nighttime attack at the Galeagra Tower penetrated the walls of Syracuse and allowed his forces to enter the city. The Romans also applied this precept when their fleet, through a blockade, attempted to nullify the Syracusan logistics train provided by the Carthaginian ships. "The

penetration is designed to disrupt the integrity of the enemy defensive system, the preferred defeat mechanism, by striking at critical hostile elements, such as logistics"[52] However, with the exception of the confrontation between Marcellus and Bomilar at the promontory of Pachinus, this approach was largely unsuccessful.

Precept 10. Maximize surprise through deception, stealth, and ambiguity to complicate enemy targeting.

In the campaign Syracuse the concept of deception is illustrated in a very clear and impactful way through the information operations (IO) of the Carthaginians.[z] Prior to the Roman attack on Syracuse, the Roman garrison in neighboring Leontinoi was slaughtered.[aa] Upon learning of this news Marcellus proceeded there with his legions and took the town by force. The Carthaginian agents Hipocrates and Epicydes then spread a false rumor to the approaching Syracusan troops that the Romans had engaged in wholesale slaughter not only of the guilty parties, but of the townspeople themselves. As a result, the talks between Marcellus and the Syracusan leadership broke down and war ensued. Why didn't Marcellus attempt to mitigate this damage after the fact? By their actions the Carthaginians demonstrated that the value of IO was well known and understood in the ancient world. In fact, this episode was one of the most successful Carthaginian operations of the entire campaign. Perhaps now that their longtime ally Hiero was gone, the Romans were no longer interested in mitigation. The possibility exists that

[z] "As defined in Marine Corps Reference Publication (MCRP) 5-12C, Marine Corps Supplement to the Department of Defense Dictionary of Military and Associated Terms, information operations (IO) are the integration, coordination, and synchronization of all actions taken in the information environment to affect a relevant decisionmaker in order to create an operational advantage for the commander." United States. Marine Corps. and United States. Department of the Navy., *Marine Air-Ground Task Force Information Operations* (Washington, DC: Dept. of the Navy, Headquarters, U.S. Marine Corps, 2018), 1-1, https://www.marines.mil/Portals/1/Publications/MCWP%203-32.pdf?ver=2019-07-18-151737-430.

[aa] At this time Leontinoi was under the control of Syracuse.

the Romans were simply looking for an excuse to assert control over all of Sicily once the war was over.

Apart from Marcellus' disastrous order to assault the walls under the cover of darkness, the Romans made no attempt during the initial assault to incorporate deception, stealth, or ambiguity into their plans. During the siege , deception, stealth and ambiguity were the primary means by which Roman soldiers gained access to the city at the Galeagra Tower.[bb] Later, the Romans employed a combination of deception and ambiguity when they recruited the Syracusan commander Moericus and, through his treachery, gained access to the island of Ortygia.

Another possible IO of the Syracusan campaign was the later reporting on the death of Archimedes. Due to the the fragmentary nature of Polybius' surviving books, first-hand accounts of his death are missing. There are several versions of the story, but all agree that he was killed by the Romans, that Marcellus gave specific orders that Archimides was not to be harmed, and that Marcellus was angered by the death and personally paid for his funeral. While these facts may be true, it is also possible that they were later inventions by pro-Roman historians to make them appear more sympathetic and appreciative of the intellectual arts to future audiences/subjects.

Precept 11. Protect space and cyber assets while attacking the enemy's space and cyber capabilities.

[bb] From the JOAC, "For the purposes of this paper, deception means convincing an enemy that the joint force will adopt one course of action while adopting another. Successful deception therefore depends less on one's own efforts than on the enemy's inclination to accept misleading evidence. In other words, successful deception tends to be less about creating false expectations than about understanding and exploiting enemy expectations that already exist." Staff, Short Joint Operational Access Concept (JOAC), 25.

This precept is not directly applicable to the ancient campaign of Syracuse.

There are eleven precepts of JFEO listed in the JOAC. According to the information we have from the original sources, the Romans effectively utilized two during the initial assault. Neither was successful in terms of enhancing the Romans' ability to capture the city and, faced with the asymmetries posed by Archimedes' defenses, this meager showing all but assured the Romans' initial defeat.

Lessons from the Campaign of Syracuse

The history of the Roman conquest of Syracuse is important to modern practitioners of the operational art because it highlights two important concepts that are just as relevant today as they were two thousand years ago. The first is the potential, and danger, of asymmetry in warfare. The second is the historical durability of the precepts of JFEO as articulated in the JOAC.

The Romans' initial efforts at Syracuse were completely thwarted by a series of tactical asymmetries driven by the innovative, technology-based defenses of the mathematician Archimedes. Their inability to neutralize the Syracusan defenses by traditional military methods necessitated a new approach to the siege. It was only after many months of stalemate, when the Romans modified their approach and began to explore other courses of action, that they made any headway in the campaign. They penetrated the walls of Syracuse by employing subterfuge and deception, qualities not normally associated with Roman military strategy. They adopted additional precepts of forcible entry which led to the breaching of the walls at the Galeagra Tower and culminated in the conquest of Syracuse. By the time the Romans looted Achradina in the late summer of 212, they had employed, or attempted, all applicable modern precepts of JFEO. The lesson here is clear; the Romans did not overcome the technological asymmetry of Syracuse through traditional tactics or conventional military superiority. They were successful because they adapted.

Although the scenarios addressed in this paper are separated by over two millennia and describe conflicts with radically different tools and tactics, the basic premise of an invading force trying to establish a lodgment against a well-armed, well-prepared adversary with an asymmetric technological advantage is analogous. The previous analysis indicates that nearly all of the

modern precepts of forcible entry enumerated in the JOAC are historically durable. However, for the modern military planner facing a well-prepared peer adversary, some of those percepts merit special consideration.

Frontal assault is no longer an option, as recognized by Commandant Berger in the CPG. Messaging, often overlooked in the past, was, and is, extremely important and could have potentially avoided the war between Rome and Syracuse altogether. Although the end result of the campaign was the same, valuable time and resources were wasted in the effort that could have been used elsewhere.[cc] Incorporate stealth and deception where possible. Like the Romans before them, the Marine Corps is not usually associated with these qualities. But, as demonstrated by the campaign of Syracuse, these avenues can sometimes provide significant results where conventional military options cannot. Intelligence was a critical factor in breaking the stalemate at Syracuse. Not only did it turn the tide for the beleaguered Romans, but it could have prevented the mass casualties they suffered in the initial assault. In the past, one of the Romans' crucial advantages lie not only in their dogged persistence but also with their willingness to accept stunning casualties.[dd] This is unlikely to be the case except in the most extreme or existential circumstances. The importance of allies cannot be overstated. Cultivating allies, or even agents like Moericus, can provide unexpected and critical advantages at key points.

[cc] The Roman conquest of Syracuse, and the follow-on operations securing the remainder of Sicily, represented the first major victory for Rome in the Second Punic War. Goldsworthy, *The Punic Wars*, 267. This was a badly needed morale booster for the fledgling empire at a time when Hannibal, representing a genuine existential threat to Rome, was still campaigning freely on the Italian peninsula.

[dd] An examination of the history of Roman warfare to this point presents the modern reader with a picture of a determined force possessing only a rudimentary understanding of the advantages of the modern concept of maneuver warfare. "But perhaps the most important factor of all was the Republics sheer bloody-mindedness. After his brilliant sequence of victories, Hannibal (like Pyrrhus before him) expected the Romans to do the sensible thing and negotiate a peace. He did not understand that they were at their most obstinate in defeat. When knocked down, they would not lie down." Anthony Everitt, *The rise of Rome : the making of the world's greatest empire*, 1st ed. (New York: Random House, 2012), 261.

In addition to the precepts examined here, another potential lesson can be drawn from Archimedes' own actions. He was famous for his dis-interest in the worldly applications of his theories. He conceded to engineer the defense of his own city only at the behest of his kinsman, the King of Syracuse. After the Romans penetrated the walls and captured the upper city, he no longer played any role in the defense of Syracuse. Would the outcome have been any different if he had again put his mind to the defense of his city?

Presently, there is much discussion and justifiable concern over the asymmetry being generated by the increasing A2/AD capabilities of potential U.S. adversaries. As the previous analysis indicates, this situation is not historically unprecedented. One potential approach to overcoming the challenges posed by A2/AD asymmetries is to examine the principles set forth in the JOAC in the light of historical examples, both modern and ancient. As it plans for future amphibious operations on contested islands, the Marine Corps would be wise to absorb the lessons of the campaign of Syracuse. Future planners should concentrate on those precepts of operational access that will manifest themselves in ways other than frontal assault. Courses of action bolstered by timely, relevant intelligence, that incorporate stealth, deception, and aggressive information operations will pay higher dividends with fewer losses. This approach, in conjunction with other elements of U.S. national power, present a viable and sustainable model for future operations.

The durability of the precepts of JFEO reflect the fact that constance in war outweighs the effect of changing technology. Or, stated another way, the character of war is constantly changing, but the nature of war remains constant. The ultimate lesson of the campaign of Syracuse is that war is an intellectual endeavor: then, now, and always.

Conclusion

The juxtaposition of two very different approaches to warfare is starkly illustrated in the initial assault on Syracuse. The raw military brawn of the Roman forces, led by an arguably impulsive commander, is set against the calm, intellectual surety of Archimedes' mathematically driven defenses. Just as the Romans before them, the modern Marine Corps cannot expect through military might alone to successfully conduct amphibious JFEO against a well-prepared peer adversary. At first glance, few modern planners would consider campaigns against ancient Syracuse and the modern littorals of modern-day Southeast Asia comparable enough to draw lessons from with any degree of confidence. However, the applicability of the modern articulation of the precepts of JFEO to the success of both situations, lends credence to their durability. This applicability inspires confidence that regardless of the technologies, methods, domains, or weapons in play, there are durable precepts associated with forcible entry that exist independent of time or place. These precepts, when properly applied, can assure a decided advantage, if not outright success.

Archimedes' near single-handed, stunning, and total defeat of the Romans' frontal assault lends credence, once more, to the theory that warfare is primarily an intellectual endeavor. As the prime mover in the defense of Syracuse, Archimedes won the battle through intellect and lost the war through indifference. The Romans lost the battle by looking backward and won the war by innovating. The success of the ancient Romans, or any modern or future force, flows from its ability to recognize and evolve with changes on the battlefield. Adaptability is, and will continue to be, the deciding factor in warfare.

APPENDIX A: The Geography of Syracuse

Situated just off the Italian peninsula, the island of Sicily occupied the strategic position between Rome and Carthage and is described by the classicist Anthony Everitt as, "the flashpoint between the two halves of the Mediterranean world."[53] Syracuse, whose geography and prominence thrust it between Rome and Carthage at a critical juncture in history, is located on the extreme southeastern coast of the island of Sicily. , the ancient city-state of Syracuse originated from the Greek colonial movement known as *Magna Graecia*. In the 8th century BCE, Corinthian Greek settlers established a colony on the small, easily defensible island of Ortygia that lay just off the coast at the northern edge of a large natural harbor. An important consideration, and consequence, of the selection of the island by the Greek colonists, both initially and during the conflicts of the subsequent centuries, was that it contained its own source of fresh water.[54] As the settlement grew it moved inland to the higher, drier, and more easily defensible ground of the nearby plateau overlooking the Ionian Sea. From this vantage point, it would prosper and grow into an affluent and multicultural metropolis. Syracuse's position and port made it a desirable and even necessary objective for those who would conquer all of Sicily. A careful reading of the ancient sources reveals that geography was at the center of Archimedes' plans. He recognized that the landscape would funnel the enemy toward certain sections of the city's walls and devised a unique defense of both sophisticated artillery and wall fortifications.

Excluding evolving defensive infrastructure, to include joining Ortygia to the mainland and construction of the walls of Dionysius I, the basic dimensions of the city changed little in the centuries preceding the Roman assault of 212. At the time of the Roman invasion, the city's outline formed an irregular, slightly elongated triangle with a general east-west orientation. This same outline of the ancient city is easily distinguishable in 17th and 18th Century maps of

Syracuse by Philip Cluverius (1619) and Pieter van der Aa (1725). The base of the triangle hugged the shoreline to the east. The city narrowed as it extended westward and ended with the ancient Euralyos fort at its apex.[55] At the southern end of the triangle's base lay the peninsula of Ortygia which formed the northern rim of the Great Harbor and separated it from the sea.[ee] To the south of the city two small rivers, the Anapos and the Cyane, flowed from west to east, joining approximately a thousand meters from the shores of the Great Harbor. The western half of the triangle consisted of the Epipolae plain, an elevated plateau that provided its occupants, or conquerors, with a commanding view not only of the surrounding countryside, but also of the remainder of the city. The eastern half encompassed the lower and older Achradina and the Tyche quarters. These were separated from Epipolae by inner defensive walls. The southern walls of the city, west of Ortygia and the shores of the Great Harbor were describes by ancient sources as swampy, low-lying areas prone to flooding. It is speculation but it makes sense that if much of the walls of Syracuse in ancient times were built on steep cliffs or overhanging crags, that the swampy areas may have extended close to the city thereby creating, if not an impenetrable natural barrier, then at least an impediment to attack from the south. How far this physical barrier extended along the southern perimeter of the city is not known but it may have made the lower sections of the northern walls a more appealing target. This may have contributed to Marcellus' decision to conduct what was arguably a riskier amphibious assault on the walls of Achradina instead of a two-pronged land attack.

[ee] When the first Greek settlers arrived at Syracuse in the eighth century BCE, Ortygia was, in fact, an island. It was the site of the original Greek settlement and of the original temples of Athena and Apollo. By the time the Romans arrived six centuries later, the island was separated from the Achradina quarter by defensive fortifications.

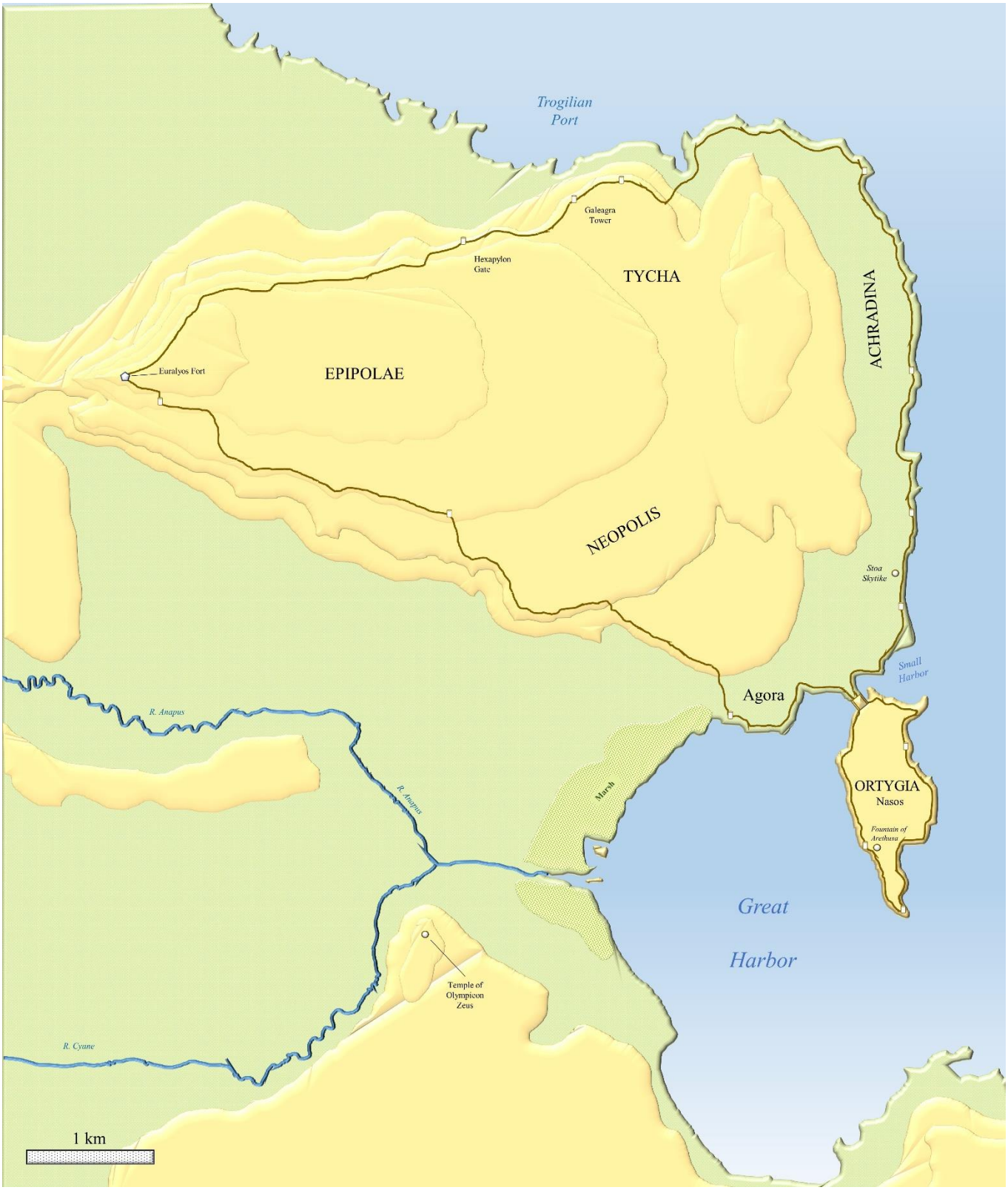

Figure 1. Map of ancient Syracuse by Kelly Reaves (2020).

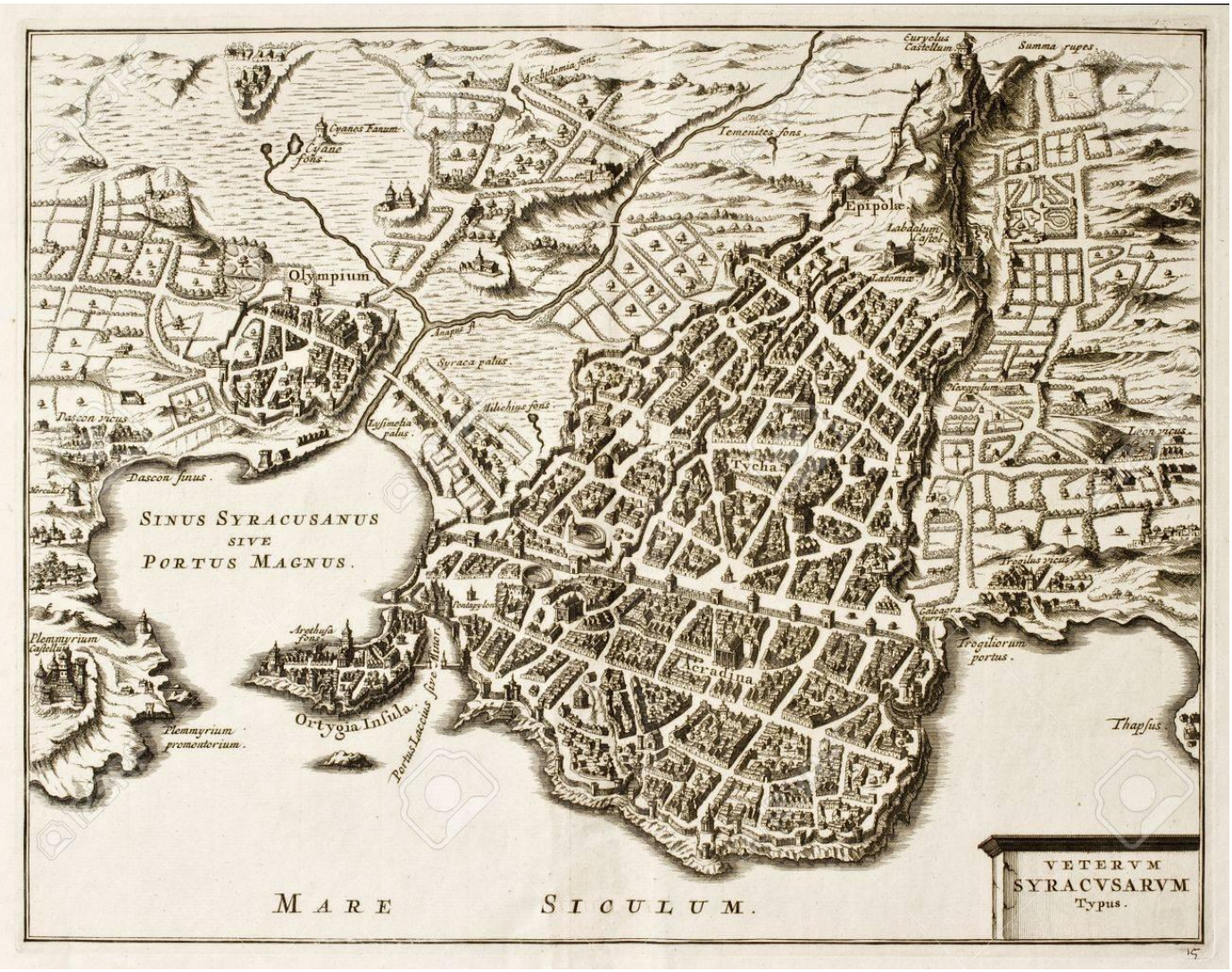

Figure 2. Map of Syracuse by Polish geographer Philip Cluverius (1619).

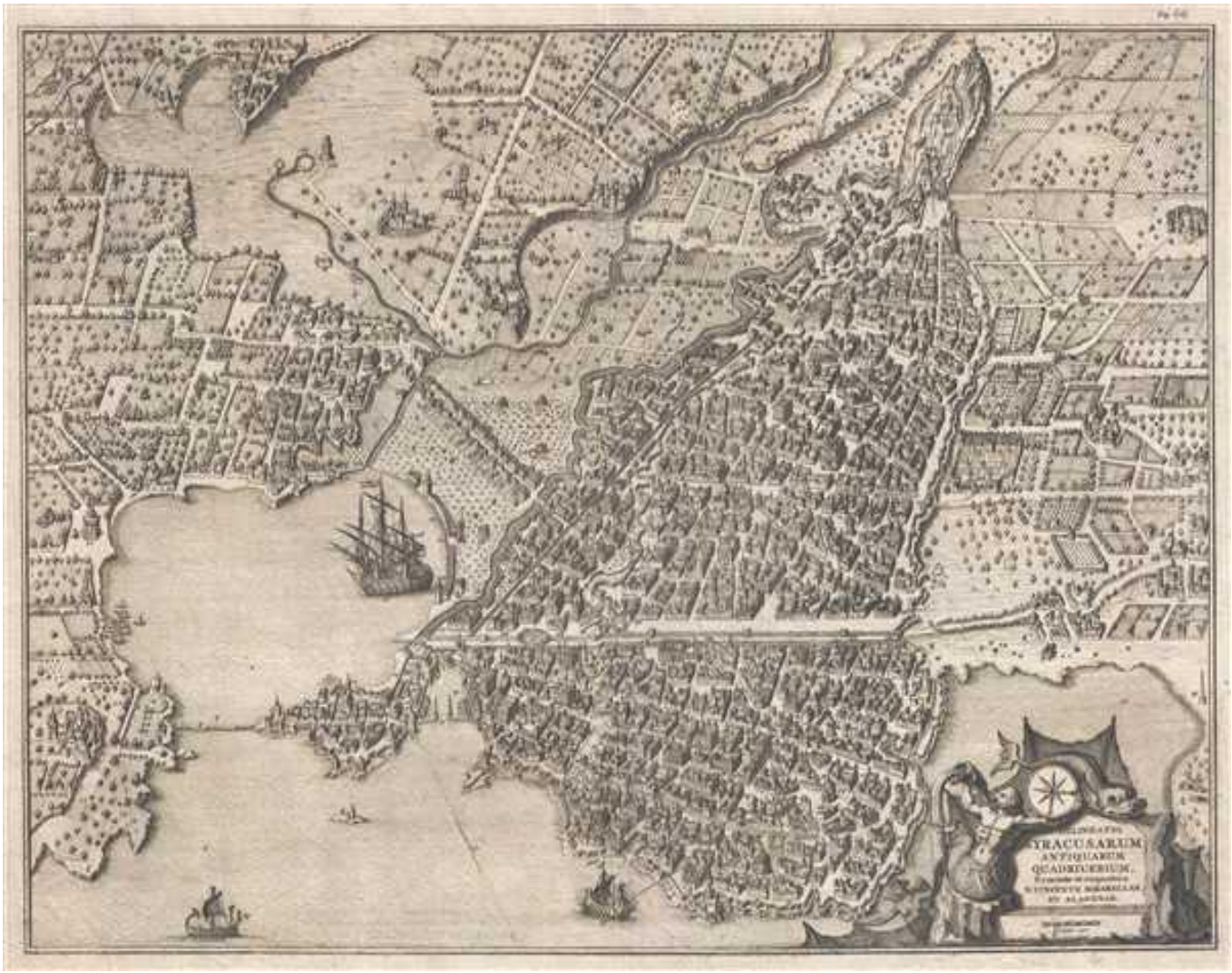

Figure 3. Map of Syracuse by Pieter van der Aa (1725).

Notes

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[9] Staff, Short Joint Operational Access Concept (JOAC), 13.
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[17] Adrian Keith Goldsworthy, *The Punic Wars* (London: Cassell, 2000), 12.
[18] J. F. Lazenby, *Hannibal's war : a military history of the Second Punic War*, Oklahoma paperbacks ed. (Norman: University of Oklahoma Press, 1998), 6.
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[25] Polybius, "The Histories," 8.8.
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[28] Polybius, "The Histories," 8.5.
[29] Polybius, "The Histories," 8.9.
[30] Livius, "Ab Urbe Condita Libri," 25.22.
[31] Livius, "Ab Urbe Condita Libri," 25.23.
[32] Livius, "Ab Urbe Condita Libri," 25.23.; Polybius, "The Histories," 37.1.
[33] Livius, "Ab Urbe Condita Libri," 25.23.
[34] Livius, "Ab Urbe Condita Libri," 25.23.; Polybius, "The Histories," 37.2.
[35] Livius, "Ab Urbe Condita Libri," 25.23.
[36] Livius, "Ab Urbe Condita Libri," 25.23.
[37] Livius, "Ab Urbe Condita Libri," 25.24.
[38] Livius, "Ab Urbe Condita Libri," 25.24.
[39] Livius, "Ab Urbe Condita Libri," 25.25.
[40] Livius, "Ab Urbe Condita Libri," 25.26.
[41] Livius, "Ab Urbe Condita Libri," 25.27.
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[48] Staff, Short Joint Operational Access Concept (JOAC), 18.
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