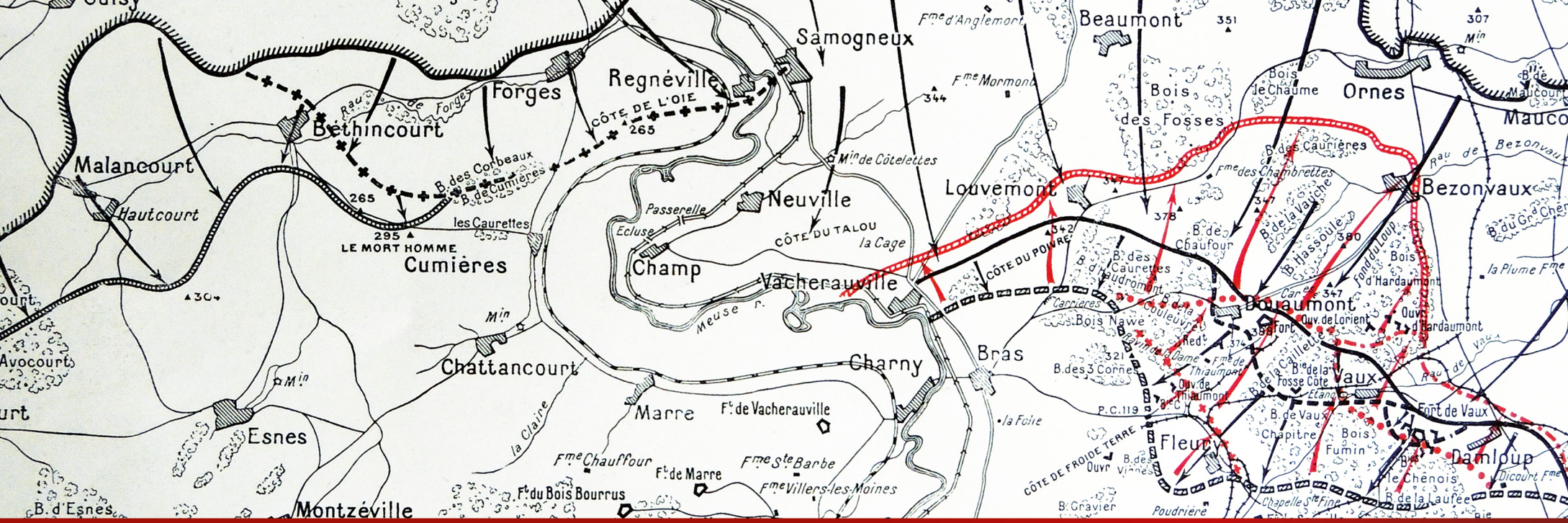
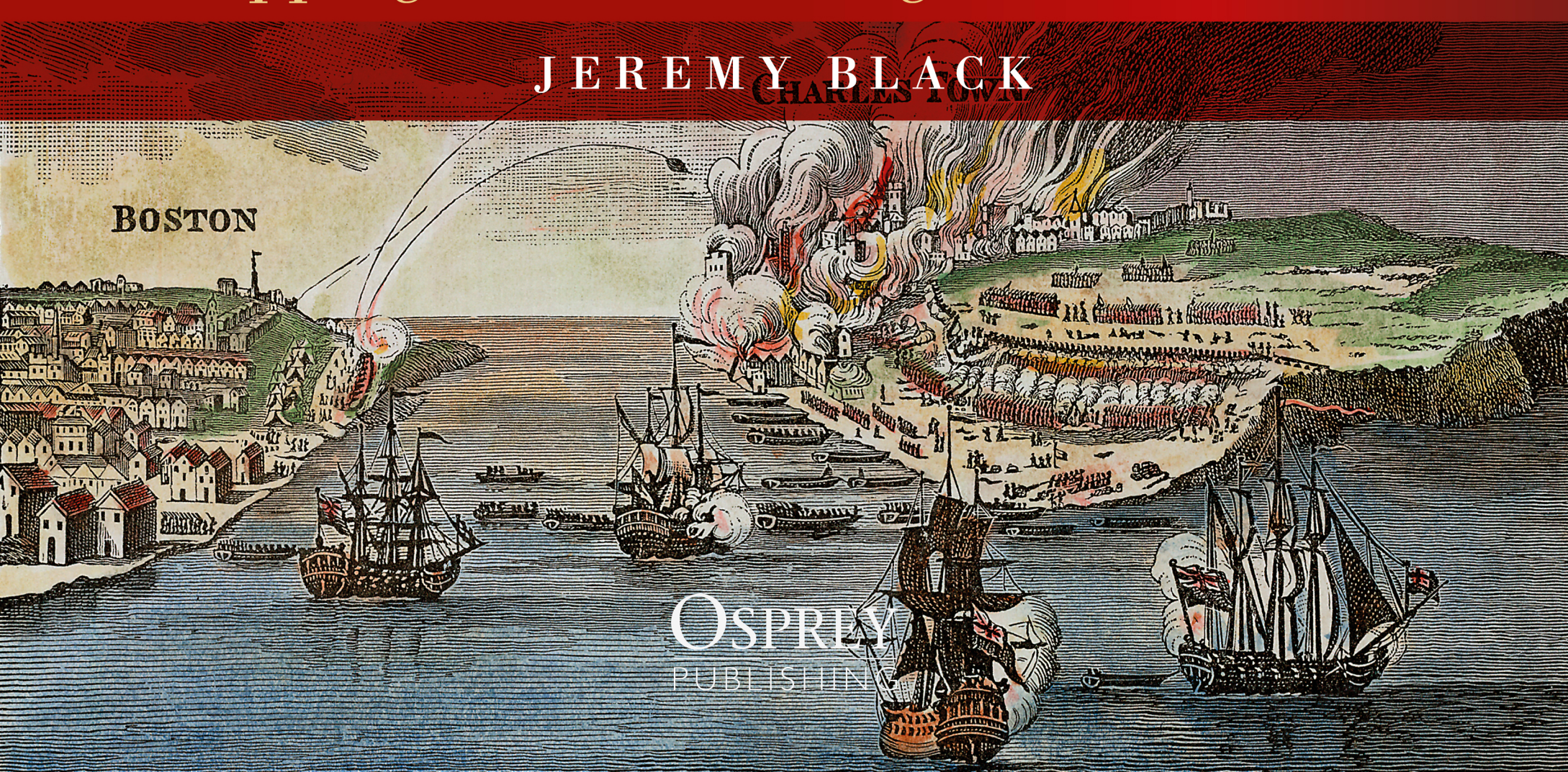


MAPS OF WAR

Mapping Conflict through the Centuries

JEREMY BLACK



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OSPREY PUBLISHING
Bloomsbury Publishing Plc

PO Box 883
Oxford
OX1 9PL
UK

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NY 10018
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For Michael Joy

First among neighbours

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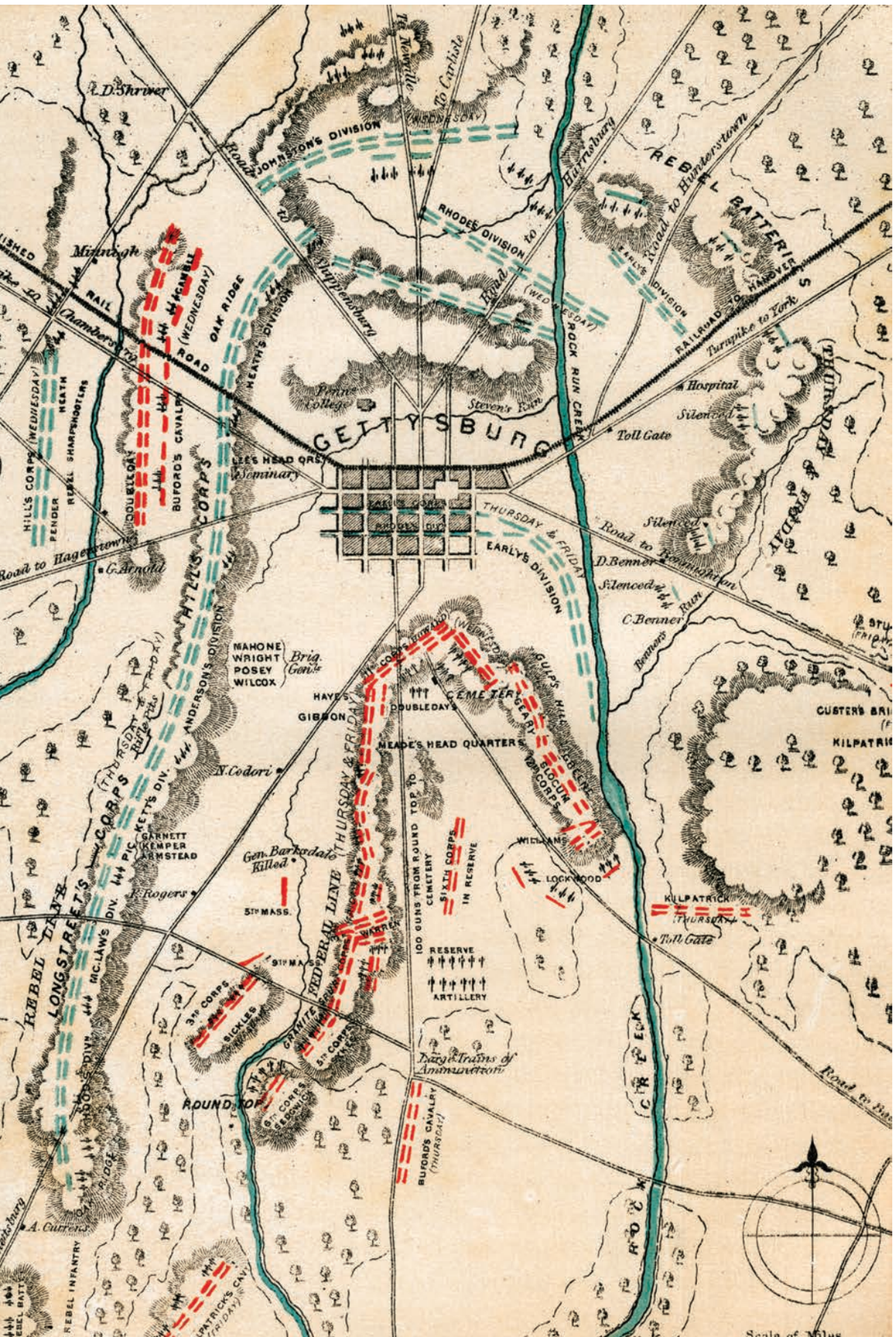


MAP OF THE BATTLE OF GETTYSBURG, 1–3 JULY 1863 An engraving from volume III of *The War with the South: a History of the Late Rebellion*, by Robert Tomes, Benjamin G. Smith, New York, Virtue & Yorston, three volumes, 1862–1867. LEFT

ORDNANCE SURVEY MAP OF UTAH BEACH, JUNE 1944
The map was annotated by US General Raymond Barton, commander of the 4th Infantry Division, during the D-Day invasion of Normandy. TITLE PAGE

FIRST NOTIONS *of* MILITARY MAPPING

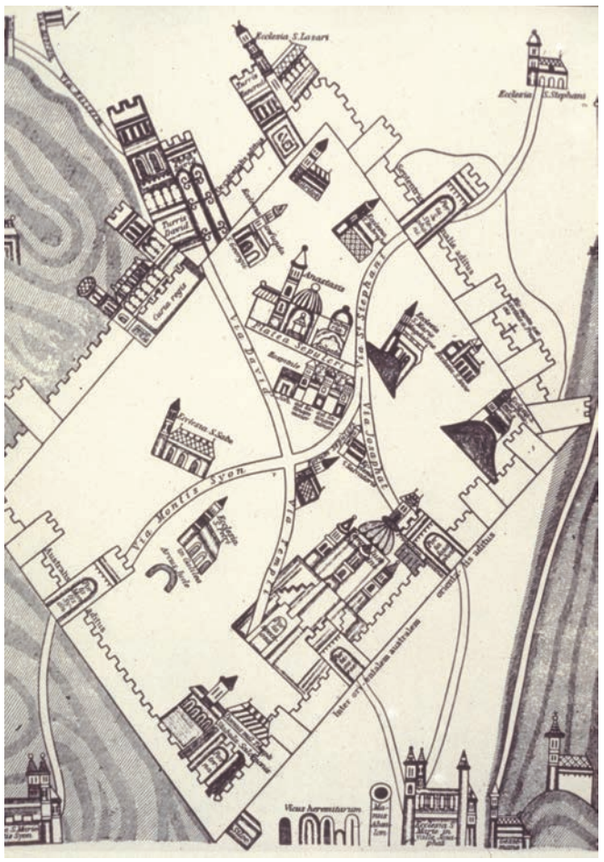
FLEMISH MAP OF CRUSADER JERUSALEM, BEFORE 1167 A Flemish map of a city that was a defensive stronghold as well as a religious and governmental centre. Jerusalem had been stormed in the First Crusade in July 1099, with heavy casualties for the defenders and the civilian population. However, the defeat of the army of the Kingdom of Jerusalem at Hattin in 1187 was followed by the loss of both Jerusalem and Acre. The destruction of the field army left the fortress garrisons in a weak state. Jerusalem itself surrendered after its walls were undermined and breached. Its fate indicated that the weaknesses of fortified positions included their vulnerability when denuded of troops in order to create a field army, as well as the psychological effects of the defeat of such an army. These were the key elements, not the fact that Jerusalem had not benefited from the development of the concentric plan for fortifications, a plan that owed much to better Muslim siege techniques. RIGHT

DETAIL OF THE SIEGE OF MALTA IN 1565. BY MATTEO PEREZ D'ALECCIO (1547–1616) One of a series of thirteen frescoes that decorates the Throne Room of the Grandmaster's Palace in Valletta. The position of the Ottoman armies on the island is shown in great detail. PREVIOUS PAGES

War requires a spatial as well as temporal sense and awareness. At the tactical level, that of battles, it requires the detailed understanding of the relationships between place and terrain, notably height, slopes and water features such as rivers and marshy ground. Each of these was, and is, significant for the tasks set for military units and for their relative effectiveness in discharging them. At the operational level, that of campaigns, the conduct of war requires an understanding of routes and of the relationships between place and terrain over the area of campaign. These are necessary for effective planning both about advances and concerning supplies. At the strategic level, there are requirements for geopolitical information so that challenges and opportunities can be grasped and priorities determined.

All of these levels involve the equations of force and space, and each requires maps: maps to present, maps to understand, and maps to convince. This book covers the variety of different ways in which maps have accompanied war, notably for geopolitical consideration, strategic planning, operational purposes, tactical grasp, news reporting and propaganda. In doing so, it considers the different stages of conflict – preparation, planning, initiation, waging, outcome and retrospect – and assesses the manner in which maps framed a particular perception of war at various scales and to very different audiences, from strategists to tacticians, from the military to the public, from those who were present to those who were distant. The application of mapping technologies developed in peacetime is assessed, as is their use in wartime. The entire situation in recent centuries is one of dynamism, as opportunities are grasped, tested and used.

For most of history, and still to this day, the relevant maps have overwhelmingly been mental maps, the understanding of place in the mind's eye. These were ready means to help consideration and exposition. For example, the plan of an ambush or a fort might be drawn with a stick, a finger in the dirt or in powdered sand, sketched in the air or described with words. These methods did not leave records, written or otherwise, that survive, and that is a crucial point when looking at the mapping of war. It is a partic ularly significant point for pre-modern warfare. Nevertheless, pre-modern armed forces carried out complex operations that would have required a foreknowledge of terrain. How that knowledge was conveyed is less clear, but oral report was the key



DRAWING OF IMOLA. BY LEONARDO DA VINCI, 1502 The strength of fortifications had become a more prominent issue once the Italian Wars broke out in 1494, with cannon playing a role in the successful French invasion of Naples that year. This began a period of conflict in which Pope Alexander VI, eager to expand the Papal States, instructed his second son, Cesare Borgia, to subjugate the region of the Romagna in eastern Italy. Cesare Borgia started by capturing the town of Imola in 1499 and continued to make conquests until 1503, when the death of his father was followed by his arrest under the orders of the new Pope, Julius II. Da Vinci was employed to survey Imola and to suggest how best to improve its defences. In Da Vinci's aerial view, the city emerged clearly as a defensive system. The significance of the moat was readily apparent. This approach was much more effective than that of adopting an oblique perspective and displaying buildings in elevation. LEFT

THE OTTOMANS VERSUS CHARLES V, 1535. ENGRAVING BY FRANZ HOGENBERG In 1534, Tunis was captured from Mulay Hasan, its pro-Spanish ruler, by Hayreddin 'Barbarossa', the Ottoman Grand Admiral and the key figure in Algiers. This was part of the Ottoman attempt to consolidate their power in North Africa after their conquest of Egypt in 1517. The Emperor Charles V, who also ruled nearby Sicily as well as Spain, responded in 1535 with a major expedition that included 82 war galleys and more than 30,000 troops. The expedition, which reflected Spanish capability for force projection, was in large part paid for with Inca gold from South America which repaid loans from Genoese bankers. Mounted in ferociously hot conditions, this expedition displayed amphibious capability and success in fighting on land. The fortress of La Goletta at the entrance to the Bay of Tunis, although defended by a large Ottoman garrison, was successfully besieged, falling on 14 July. A week later, Tunis was captured and sacked. Thousands of Christians were released from slavery, while thousands of the local population were slaughtered and large numbers sold as slaves. Charles installed a pro-Spanish Muslim ruler. This was a high-water mark for Spanish attempts to bridge the western Mediterranean, which did not appear to contemporaries as a border. RIGHT

means. In the Roman sources, there are not references to the use of maps on campaign, but there are many references to scouts being sent out to learn about the locality. This suggests that an aural and visual approach to 'mapping' was used, rather than a written system.

Oral report went on being significant, but sometimes with disastrous effect, as during the Crimean War when, as a result of misunderstanding orders, the British Light Brigade cavalry charged directly into Russian artillery at Balaclava in 1854. This was a classic instance of poor 'situational awareness' and was not redeemed by the bravery displayed.

MAPS IN THE CLASSICAL WORLD

The degree of spatial depiction at the strategic level is far from clear. References to maps that were not for specific military purposes, notably maps of the known world, do survive from early civilisations and, in part, they reflect the results of wars. In particular, the spread of territorial control through conquest, a process that was the major cause and consequence of war, ensured that far more geographical material became available. The major extensions of the world readily known to Classical commentators (thanks to the conquests of Alexander the Great and, later, the Romans) provided

SIEGE OF MALTA, 1565. ITALIAN SCHOOL, ENGRAVING
An epic much depicted in Christian Europe, this campaign was difficult to reproduce in one image as it lasted for many years. Süleyman the Magnificent sent a powerful expedition of 140 galleys and about 30,000 troops to capture Malta, the principal Christian privateering base in the Mediterranean and a threat to Ottoman trade. The defenders, under Jean de la Valette, the Grand Master of the Order of St John, had only 2,500 trained soldiers, but also local levies. Landing on 18 May, the Ottoman attack failed because of the courage and tenacity of the defenders and because of the failure of the Ottoman land and sea commanders to agree and implement a coordinated and effective command structure and plan. The summer heat was also a factor, as were logistical difficulties, including the supply of drinking water. Although the Ottomans captured their initial goal, St Elmo, one of the forts at Valletta, the garrison fought to the death but the others, Senglea and Birgu, held out. The heroism of the defenders of St Elmo, which delayed the Ottomans for two weeks, was crucial to the logistical problems the attackers encountered and gave the Spaniards more time to prepare relief attempts. A Spanish relief force, which landed on 7 September, tipped the scales after the Ottomans had failed to crush the defence. Unwilling to face the new foe, the Ottomans, having lost perhaps 24,000 men (against 5,000 defenders) retreated. They never again attacked Malta. LEFT

geographers such as Eratosthenes and Strabo with much fresh material and ideas, the two frequently being linked.

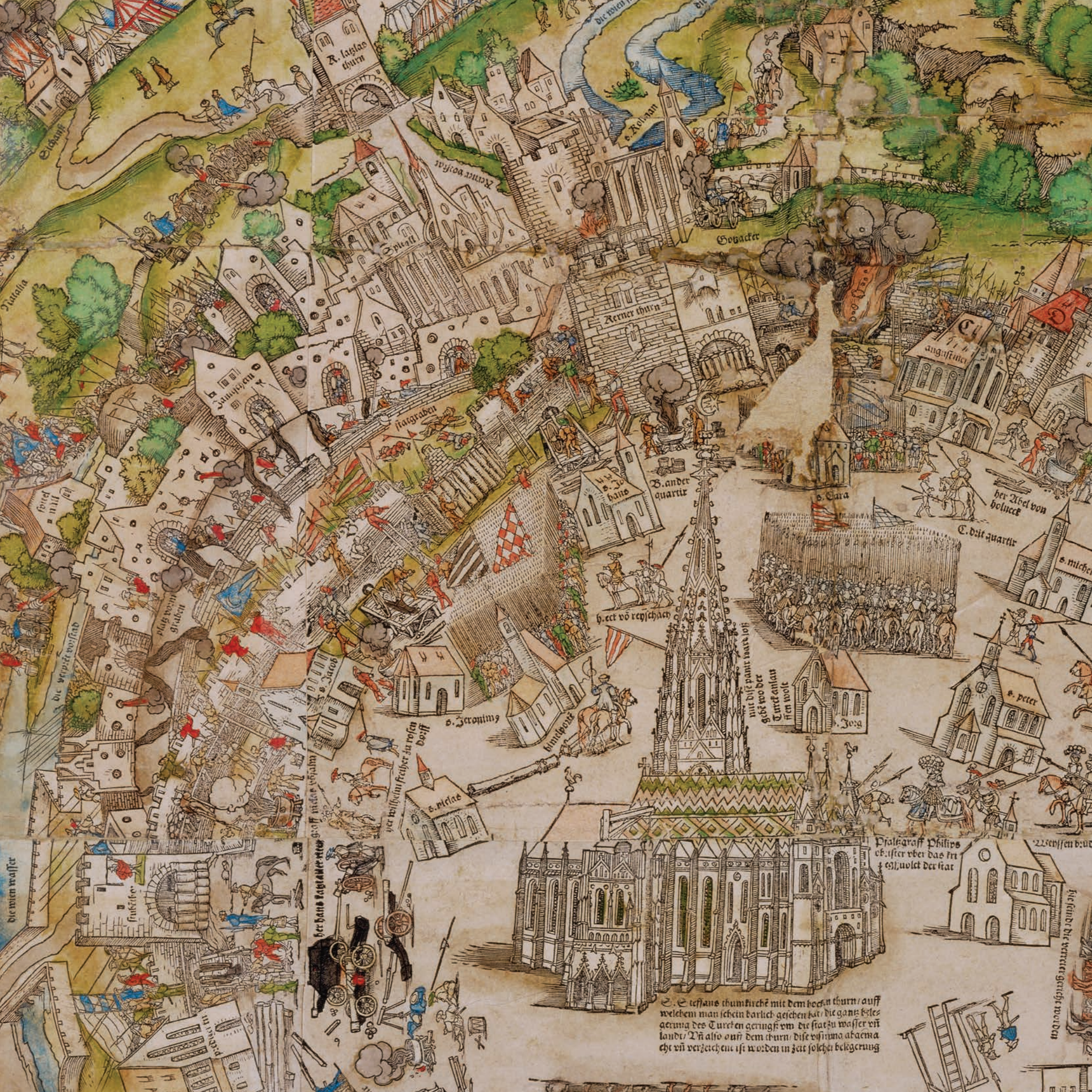
Roman territorial expansion, and the accompanying and subsequent need to protect the frontiers of Roman rule, helped lead to a major increase in geographical information for the Classical world as a whole, as well as to improvements in the accuracy of maps. Power was also served, as maps provided a way to display strength and purpose and to record success. Prestige was always a key element in mapping, as in war. This presumably was why Julius Caesar was (later) held to have ordered the surveying of the known world. Military maps were probably among the sources used by the important geographer Ptolemy (c. 90–c. 168 CE), but these maps have not survived.

Spatial information was probably produced in part in lists. Vegetius, the author of the fourth-century CE *Epitoma rei militaris* (a summary of the art of war that was also influential in the European Renaissance of the fifteenth century), stated that a general must have ‘tables drawn up exactly which show not only the distances in numbers of steps, but also the quality of the paths, shorter routes, what lodging is to be found


DESCRIPTIO EXPEDITIONIS TVRCICAE CONTRA CHRISTIANOS ANNO
Scotie.
Anglie.
Portugalie.
Polonie.
Dacie.
Francie.
Imp. Carol.
Vuest nord.
Nord SEPTEN
Secland.
Frisia.
Mechelburg
Pomerania.
Thorn.
Prussia.
ANGLIA.
Saxonia.
Brandeburg.
Marchia.
Lausnitz.
Schlesia.
BOhemia.
Hassia.
Franconia.
Picardia.
Nurmberg
Ingoldstad
VNGARIA.
FRANCIA.
Argentina.
Sueuia.
Baioria.
Austria.
Buyac.
VIENNA.
Bezec.
Zonda.
Presburg.
Best.
BVDA
Limosin.
Borbonia.
Heluetia.
Algauia
Gran.
Berry.
Wallis.
Querecino
Fontes Rheni.
Gothardi montes.
Etsch.
Quinqz Ecclesie
Steur.
Gascoinia
Delphinatus
Carnia.
Foru Iulij.
Croatia.
Croatia.
Gallia.
Tarraconensis
Vercella.
Mediolanu.
Lombardia.
Verona
VENETIE.
Nouigrad.
Narbonensis prouincia.
Liguria.
Italia.
Mantua
Ferraria.
Anconia.
Ragusa
Narbona.
Mompolir.
Minorica.
Roma.
Maiorica.
Perusini.
Vronia.
Aquila.
Sermoneta.
Caieta.
Fondi.
Neapolis regnum.
Barbaria.
Deserta Libie.
Aethiopia.
Regnu Mili
Fessa regnu.
West sud w.
Aethiopes Hesperij.
Rhinoceros.
Sud Vuest.
SICILIAE regnum.
Palermo
Sud
Inuictissime Caesaree Maiestati, omnibusq; Christiani orbis regibus, principibus ac statibus, quo facilius, diuina aspirante gratia, consilium de repellendo tã potente tamq; crudeli hoste iniri possit, haec descriptio Turcicae expeditionis dedicata est a Iohanne Haselbergio a Reichenau Constantiensi dioecesis. Excusa vero Nurmbergae per Christophorũ Zell. Anno salutis. M. D. XXX.

PICTORIAL MAP OF THE 1529 TURKISH CAMPAIGN. BY JOHANN HASELBERG AND CHRISTIAN ZELL, 1530

This map of the Ottoman advance into the Balkans captures a sense of menace. In 1529, the Sultan, Süleyman the Magnificent (r. 1520–66), who had crushed the Hungarian army at Mohács in 1526, advanced on Vienna, taking Buda en route. However, Vienna proved the limit of the Ottoman range. Süleyman did not reach the city until 27 September, and a determined defence was able to resist assaults until the Ottoman retreat began on 14 October. Campaigning at such a distance from their base caused major logistical problems, as troops and supplies had to move for months before they could reach the sphere of operations, and the onset of winter limited the campaigning season. During the campaign, Ottoman raiders reached as far as Regensburg (in modern Germany) and Brno (in Czech Republic). Vienna was not besieged again by the Ottomans until 1683, but, unlike then, Ottoman failure in 1529 was not due to defeat by a Christian relief force. In the bottom left, Emperor Charles V, Charles I of Spain, is the leader of much of Christendom. Published in 1530, the map was a call to action. It was accompanied by a booklet pressing for a crusade. LEFT


R. ladislaus thurn
s. Roman
Gotacker
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Jungfrawen
statgraben
B. ander quartir
s. Cara
her Abel von holneck
C. dritt quartir
s. michel
h. ect vō repschach
s. Jacob
s. Jeronimy
s. peter
s. Jorg
s. niclas
Pfaltzgraff Philips
s. Stephans thumkirchē mit dem hochen thurn / auff

there, and the mountains and rivers'. The most frequently reproduced of Roman maps, the *Tabula Peutingeriana*, a twelfth-century copy of a map made between 335 and 366 CE, showed relative locations rather than exact positions. It recorded main roads as well as other features, including mountains, rivers, forests and staging posts. Such maps would have been useful for planning the movement of troops, a classic instance of fit-for-purpose mapping. More generally, a high proportion of early maps was in the form of linear itineraries and, therefore, lacked the measured space and coordinate geometrics we now associate with mapping and maps.

EARLY ASIAN MAPPING

The situation was similar in China, where information obtained from Chinese overseas expeditions and from border wars fed into a long-established practice of assembling such material. This culture involved maps as well as lists. Under the Han Dynasty (206 BCE–220 CE), there was an official dedicated to surveying in preparation for war. Chinese colonisation of steppe lands to the north and north-west, a colonisation closely linked to defence and forward-defence against nomadic attacks, relied heavily on an understanding of topography and invasion routes. During the Sung period (960–1279 CE), the Northern Sung empire accumulated, mapped and stored geographical information on the empire.

From the late eleventh century, however, the relevant government apparatus declined and mapping was largely taken over by private scholars. Printed maps of the empire circulated in atlases in the twelfth and thirteenth centuries. These maps encouraged a sense of loss in the face of 'barbarian' advances, an image made use of by poets. It is unclear how far maps played a major or detailed role in Chinese military

BIRD'S-EYE VIEW OF VIENNA DURING THE OTTOMAN SIEGE OF 1529. BY HANS SEBALD BEHAM, 1538 This circular map by Hans Sebald Beham was published as a woodcut print by Niklas Meldemann in Nürnberg. The appearance of this map indicated the widespread interest in the siege. The map was sketched from the spire of St Stephan's cathedral, the circular design emanating from that central point. The city's 300-year-old walls are flattened out in the view so that the inner surfaces are visible, thus enabling defensive armaments to be depicted. Niklas von Salm, the defending commander, conducted a vigorous defence, which contrasted with the weak defence of Belgrade in 1521 by a small garrison that rapidly capitulated. Salm blocked the city's gates, reinforced the walls with earthern bastions and an inner rampart, and levelled any buildings where it was felt to be necessary for the strength of the defence. The 1529 campaign failed to intimidate the Habsburgs who, instead, advanced to besiege Ottoman-held Buda in 1530. LEFT

SIEGE OF PERPIGNAN 1542, FRENCH SCHOOL, SIXTEENTH CENTURY The region of Roussillon was a major source of tension in relations between the crowns of France and Spain. Under the latter, Roussillon was on the French side of the Pyrenees and lacked a clear frontier. Francis I of France (r. 1515–47) clashed frequently with the Emperor Charles V, who was Charles I of Spain. Encouraged by the failure of Charles's expedition against Algiers in late 1541, war resumed in 1542. France attacked, with the Dauphin Henry (later Henry II), invading Roussillon. However, the siege of Perpignan was unsuccessful and the French fell back. In addition, invasions of Artois and Luxembourg were not sustained. Perpignan was not captured by the French until 1642, Roussillon being ceded to France in 1659. RIGHT

planning, but it is likely that they did.

In Korea, map-making was not well developed, but there were maps as well as drawings of battles. A Japanese soldier who fought in Korea in the 1590s drew a battle plan for the siege of Namwon, which was taken by storm in 1597 after four days of siege. The drawing is schematic.

In Oriental cultures, maps formed an aspect of the understanding and use of space, both of which had a spiritual character in the shape of geomancy or *feng shui*. The specific positioning of fortifications, as with other buildings, was important to their effectiveness. For example, fortifications could take the place of missing hills to produce a geomantic pattern that was effective in defence. The enhancement of the environment for defence and to harm opponents was regarded as a key component of both feng shui and martial arts. Mountains and water were essential elements to ensure the proper martial positioning and circulation of energy to help achieve success. In Japan, for example, it was believed necessary to appreciate local geomantic configuration to achieve success. Linked to this, iconographic warfare was important in China, notably in the location of defensive walls (the extent to which this was also true for other societies has attracted insufficient attention). Maps from the Chinese Ming dynasty (1368–1644) often have distinctive markers and symbols that denote cultural affiliations and power relations, such as drawing huts for aboriginal peoples and putting walls around cities.

OTTOMAN EMPIRE

Mapping activity from a different governmental and cultural basis was seen in the Ottoman Empire (later Turkish Empire), which by 1534 ruled from its base at Constantinople a territory stretching from Iraq to Hungary and Algiers to Crimea and would control this area until at least the 1680s. Albeit without the institutional and other traditions of the Chinese, the Ottomans used frontier surveys to provide information on key areas in their porous frontiers. The first survey, of the province of Buda, was compiled in 1546 and reflected the military sensitivity of the Habsburg-Ottoman frontier in Hungary. Maps, including siege maps, also served the Ottomans as tools of military reconnaissance and intelligence.

FIFTEENTH-CENTURY DEVELOPMENTS

In Christian Europe, there were significant developments in mapping from the fifteenth century, notably the application of mathematical proportionality to the known world and the impact of printing. The linear perspective, which became important in Western painting from the fifteenth century, mirrored cartography in its attempt to stabilise perception and make it more realistic. In both paintings and maps, there was an emphasis on accurate eyewitness observation, and on observation that was faithfully reproduced. The use of mathematics to order spatial relationships provided a visual record of measured space. In place of idealised and formulaic representations came a desire for topographic specificity, in short an understanding and presentation of difference.

Western advances in trigonometry and, critically, in the dissemination of practice and perception across a broad range were intertwined with the ability to use maps and to understand spatial dimensions without necessarily seeing the physical object. More broadly, humans were stimulated to learn and visualise more, and a self-reinforcing link was established between these processes and book- and map-learning. This situation was linked to the application of knowledge as a process responsive to changing information. There


PONENTE
M O N T I P I R I N E I
ADDA F.
PERPIGNAN
Fuzeri
Guasconi
17
CARCASONA
3
PATANO
8
PASSO
20
PASSO
BERTVSO
10
Lanzi
10
Borgognoni
8
VILLA FALFA
NERBONA
Italiani
SALSES
4
Suizeri
COLIBRE
12
LOCATA
E V
1542
PALVDI
LEVANTE

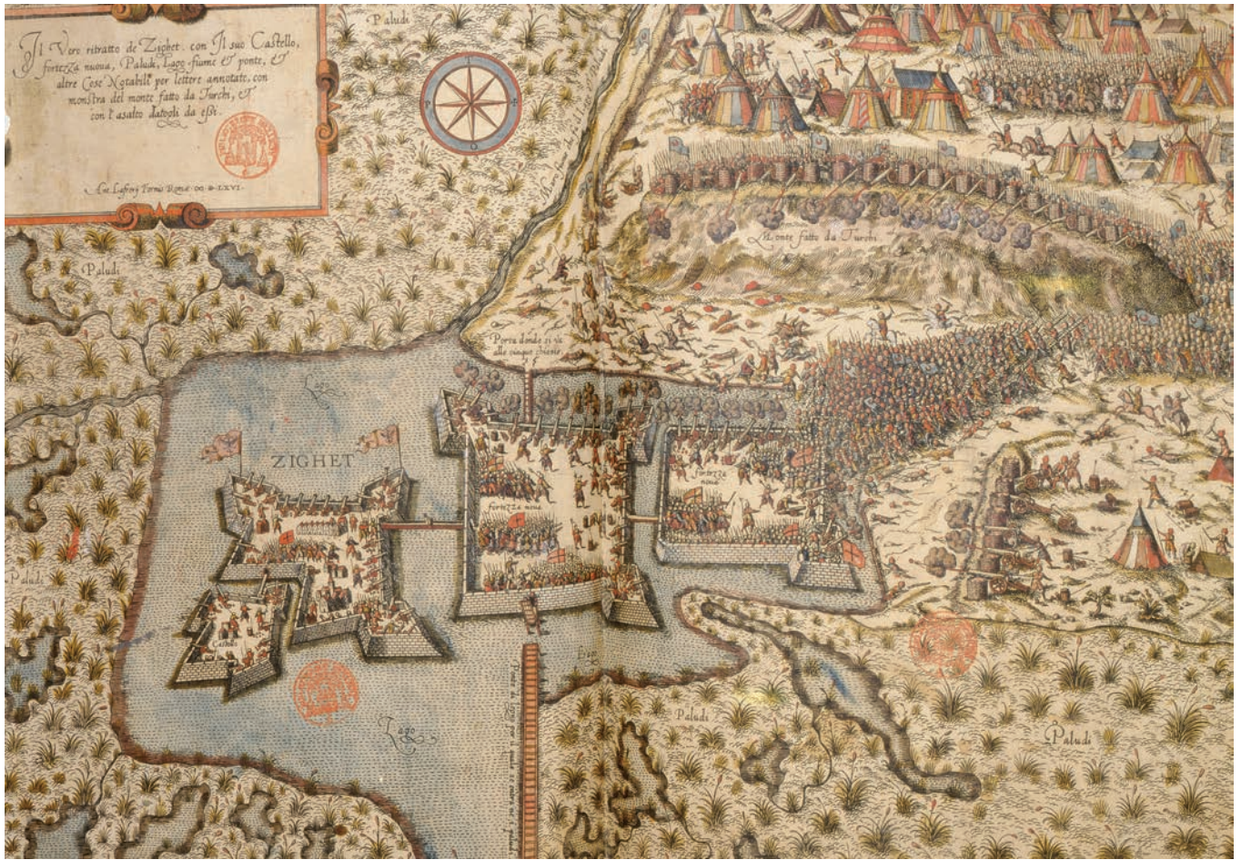
SIEGE OF CALAIS, 1558. FRENCH SCHOOL, SIXTEENTH CENTURY Captured after a long siege in 1347, Calais was England's last position on the French mainland. England went to war with France because of the conflict between the latter and Mary Tudor's husband, Philip II of Spain. In January 1558, French forces bombarded Calais into surrender in a winter campaign characterised by bold French generalship and an unexpected attack. François, 2nd Duke of Guise (1519–63), an experienced commander, gave the French a badly-needed victory at a time of great pressure from Spanish forces. RIGHT

was a willingness to use new knowledge to challenge inherited frameworks, not least the strong prestige of the Classical tradition. Moreover, a map presented knowledge at a distance, and did so in a fixed form and one that was readily understood by more than one observer and over a period of time.

Voyages of exploration became important for Christian Europe from the fifteenth century, starting with the Portuguese venturing down the west coast of Africa, and created suggestions of vast wealth and great power through journeying forth. This process encouraged the official accumulation of cartographic information, notably by the Portuguese at Lisbon, as well, crucially, as attempts to keep it secret. It was illegal to possess charts and globes that had not been approved.

SIXTEENTH-CENTURY EXPANSION

This was mapping for the wars of expansion that took the power of Europe to territories Europeans had never heard of hitherto. Indeed, European maritime hegemony from the sixteenth century rested in part on cartographic developments in Europe that permitted the depiction of the world's surface on a flat base in a



SIEGE OF SZIGETVÁR, 1566. ITALIAN SCHOOL, SIXTEENTH CENTURY In 1566, Süleyman the Magnificent, on his last campaign, besieged the fortress of Szigetvár in southern Transdanubia (western Hungary), which had been unsuccessfully besieged a decade earlier. This was a relatively minor position, certainly compared with Vienna, which was the original target. Angered by Count Miklós Zrinyi's attack on his flank, Süleyman decided to attack his fortress of Szigetvár. However, he was held up by the strong resistance under Zrinyi (1508–56) who, although heavily outnumbered, held out from 5 August to 8 September. Running out of food and ammunition, Zrinyi led a final sortie on 8 September, dying at the head of his troops. Süleyman (1494–1566) had died in his camp two days earlier. That this campaign did not lead to major gains reflected the Habsburgs' ability to strengthen their frontier. On the other hand, the vitality of the Ottoman system at the close of Süleyman's life contrasts with the difficulties faced by Philip II of Spain in the Low Countries in 1566 as the Dutch Revolt began. LEFT

manner that encouraged the planned deployment and movement of forces. Thus, cartography was a crucial aspect of the ability to synthesise, disseminate, use and reproduce information that was important to European hegemony. The movement of ships could be planned and predicted, facilitating not only trade, but also amphibious operations, for example the Spanish relief of Malta from Ottoman attack in 1565. Maps served to record and replicate information about areas in which Europeans had an interest, and to organise, indeed centre, this world on themes of European concern and power.

Maps were particularly important for the employment of artillery. This was not so much at the tactical level, because of the problems of recording and mapping height and, in the beginning, of a limited range for cannon. Moreover, line-of-sight fire was coordinated by eye. Instead, maps were important at the operational level, because they provided indications of where artillery could be transported. Maps could be inadequate in their depiction of roads, but there was an awareness of the need for information to aid troop transport by the 1530s, and it was increasingly catered for. In England, Thomas Elyot