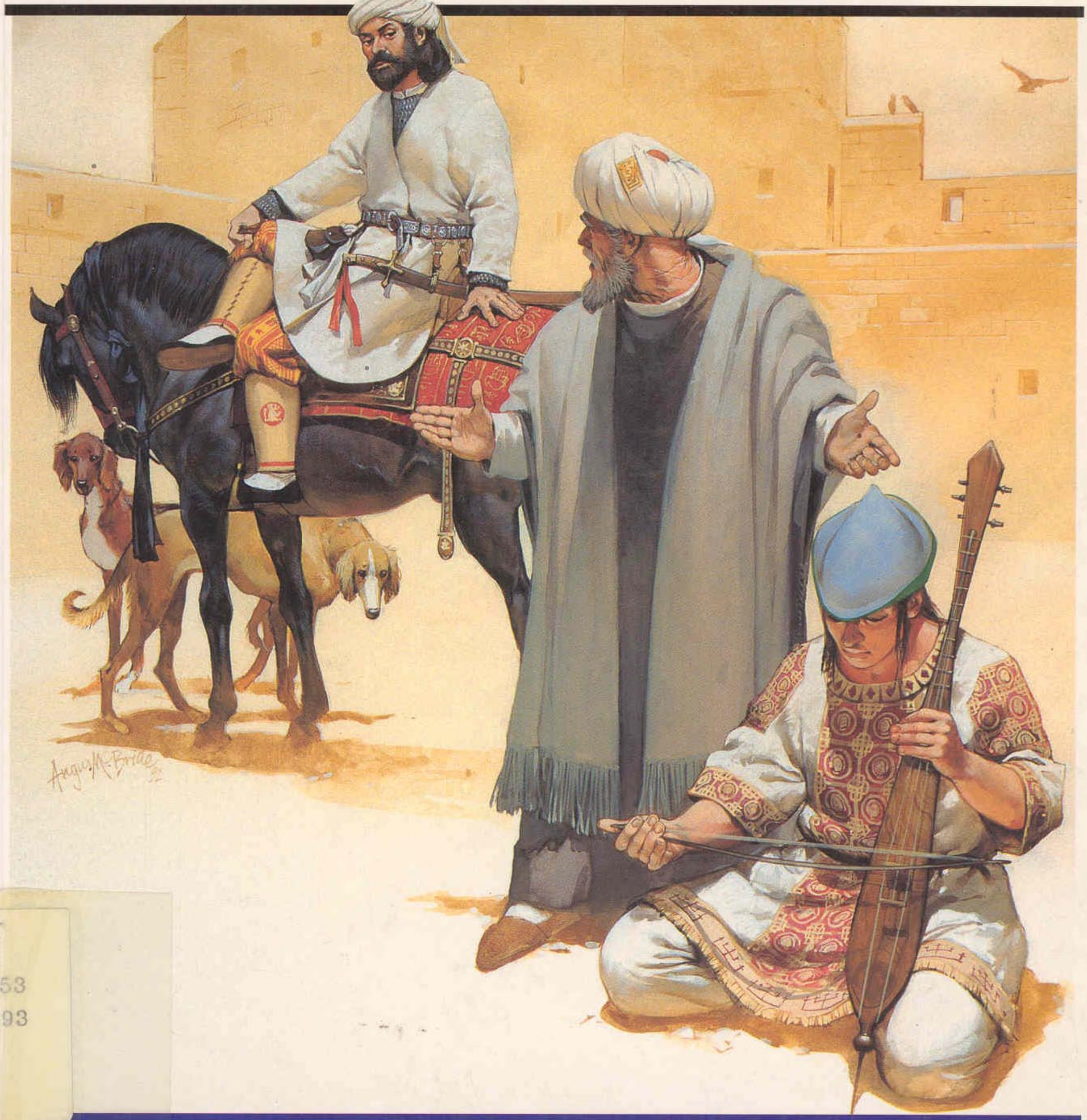
OSPREY MILITARY

MEN-AT-ARMS SERIES 259

THE MAMLUKS 1250-1517



DAVID NICOLLE PHD ANGUS McBRIDE

EDITOR: MARTIN WINDROW

OSPREY MILITARY

MEN-AT-ARMS SERIES 259

THE MAMLUKS 1250–1517

Text by
DAVID NICOLLE PHD
Colour plates by
ANGUS MCBRIDE

Published in 1993 by
Osprey Publishing Ltd
Michelin House, 81 Fulham Rd,
London SW3 6RB

ISBN 1 85532 314 1

Printed through Bookbuilders Ltd, Hong Kong

Dedication

For Alan Palmer, a first-rate teacher of history.

Artist's Note

Readers may care to note that the original paintings from which the colour plates in this book were prepared are available for private sale. All reproduction copyright whatsoever is retained by the publisher. All enquiries should be addressed to:

Scorpio
PO Box 475,
Hailsham,
E. Sussex BN27 2SL

The publishers regret that they can enter into no correspondence upon this matter.

Publisher's Note

Readers may wish to read this book in conjunction with the following titles:

MAA 255 *Armies of the Muslim Conquest*
MAA 171 *Saladin and the Saracens*
MAA 140 *The Ottoman Turks*
MAA 222 *The Age of Tamerlane*

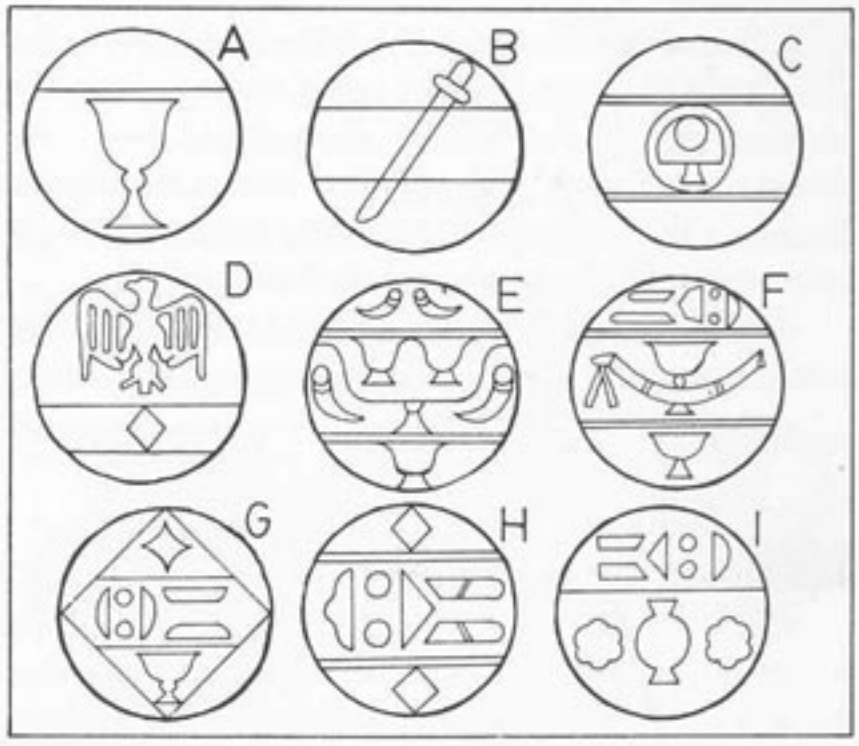
THE MAMLUKS

INTRODUCTION

In Europe the Mamluks of Egypt are remembered as so-called 'Slave Kings' who drove the Crusaders from the Holy Land; but they were far more than that. Though its frontiers barely changed, the Mamluk Sultanate remained a 'great power' for two and a half centuries. Its armies were the culmination of a military tradition stretching back to the 8th century, and provided a model for the early Ottoman Empire, whose own armies reached the gates of Vienna only twelve years after the Mamluks were overthrown.

The Arabic word *mamluk* meant a soldier recruited as a young slave, then trained, educated and released as a full-time professional. In earlier centuries *mamluks*, or *ghulams* as they were then known, formed the core of most Muslim armies (see e.g. MAA 125: *The Armies of Islam 7th–11th Centuries*; MAA 171: *Saladin and the Saracens*; and MAA 255: *Armies of the Muslim Conquest*). Most were of Turkish origin, recruited from the pagan peoples of Central Asia; and by the 12th century most Muslim armies seem to have been largely Turkish, whether *mamluks* or free-born Turcoman nomad warriors – even that of the great Saladin, founder of the Ayyubid dynasty, who was himself a Kurd.

The last effective Ayyubid ruler, al Salih, tried to reunify the fragmenting Ayyubid state and its armies by buying greater numbers of Turkish *mamluks* for his own forces based in Egypt. These became al Salih's famous *Bahriyah* regiment and his smaller *Jamdariyah* guard. Mongol invasions across southern Russia and the Ukraine had meanwhile uprooted the Kipchak Turks of these lands, resulting in far greater numbers of slaves becoming available (see Elite 30: *Attila and the Nomad Hordes*). Although al Salih's élite *Bahriyah* and *Jamdariyah* only numbered around one thousand men, they were taught to take pride in their *mamluk* background and it was they who led the revolution which overthrew al Salih's son, paving the way for a Mamluk state. (Throughout this book the term will be printed *mamluk* in reference to a soldier of slave origin, and Mamluk in reference to the state set up by these troops in 1250.)



*Examples of Mamluk heraldry (after Meinecke): (A) late 13th cent.; (B) early 14th cent.; (C) mid-14th cent.; (D) early 14th cent.; (E) late 14th cent.; (F) mid-15th cent.; (G) early-mid-15th cent.; (H-I) late 15th cent, non-*mamluk *military class.*

* * *

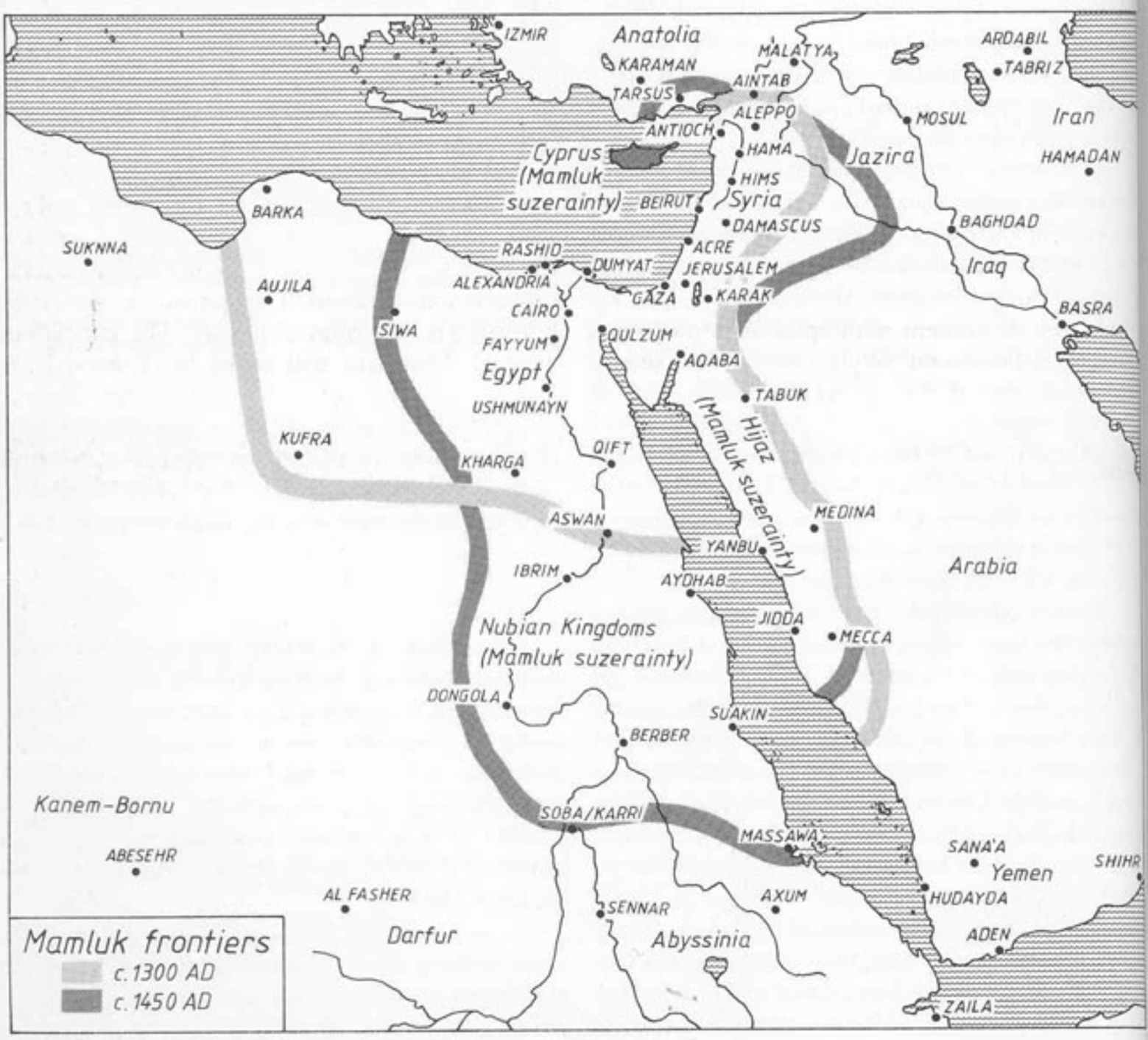
The Mamluk Sultanate was a military state, *mamluks* providing the foundation of both army and government; there was also a greater concentration of power in Cairo than under the previous Ayyubid Sultanate. Nor did *mamluk* 'men of the sword' feel any inferiority in relation to those born free, though civilian 'men of the pen' continued to play a vital administrative role, particularly in the *Diwan al Jaysh* or Army Ministry.

Another feature which set *mamluks* apart from most military élites of medieval Europe was their dedication to city life – not just any city, but Cairo, where they clung to their barracks even during the

severest plagues. Today the old quarters of that city are still dominated by elaborate domes and minarets dating from the Mamluk Sultanate, as these soldiers were also pious Muslims endowing dozens of religious buildings. Yet the *mamluks* were often a paradox, horrifying more conventional Muslims with their elaborate displays, extravagant costume, and love of both public and private entertainment – the latter said to leave little to the imagination. (The *Arabian Nights Tales*, after all, reached their final form in Mamluk Cairo.) Few *mamluks* learned Arabic, and they normally married girls of Turkish slave origin or the daughters of other *mamluks*.

During the late 13th century the *mamluks* viewed many aspects of Mongol military organization, tactics and weaponry as an ideal, believing that there wa almost nothing for them to learn from Europe Compared with 13th-century Crusader armies, Muslims had shown superior discipline, particularly i unit cohesion and an ability to rally after defeat. Lik the Ayyubid armies before them, Mamluk armie basically relied on a combination of traditiona Islamic and newer Turkish Central Asian styles o warfare. In other respects, however, Mamluk military administration was more highly structured, an although the armies were still divided into distinc sections these no longer had equal status. Instead there were clear differences between *mamluk* an freeborn troops.

It would also be wrong to think that *mamlu*



armies remained the same throughout Mamluk history. Following the overthrow of the last Ayyubid Sultan in Egypt in 1250, freeborn Kurdish troops tended to migrate to Syria, where minor Ayyubid princes still reigned. Within only a few years the Mamluk Sultanate faced a devastating Mongol invasion which was halted at the decisive battle of 'Ayn Jalut in 1260. For the next few years Mamluk armies were a hotchpotch of *mamluks*, Ayyubid survivors and dissident Mongal refugees known as *Wafidiyah*. A new army was then developed, and the great Sultan Baybars was largely responsible for its more formal, coherent military institutions. The *Wafidiyah* were now the main source of freeborn troops, some 3,000 of them arriving in Syria as fully trained adult warriors. But welcome as they were, these *Wafidiyah* were not allowed to remain a separate military unit, instead being dispersed amongst the *mamluk* regiments of the Sultan and his *amirs*.

Not surprisingly, military science was taken seriously in this militarized state. For centuries the Arabs and Persians had written books on military theory, but under the Mamluk Sultans practical treatises written for study by junior officers started to appear. Another characteristic of Mamluk government was its concern with spies and intelligence sources, political and military stratagems, secrecy and elaborate ruses. The Sultan used similar methods to monitor the loyalty as well as the competence of his senior *amirs* or officers; and the fact that the Sultan's own *mamluks* were mostly stationed in Cairo's huge Citadel, while most of the senior *amirs* and their troops also lived in Cairo city, made it easier for the ruler to keep an eye on everyone. Civil wars amongst the *mamluk* élite were common, but the ordinary people rarely suffered: such conflicts were short, normally involving only the *mamluks* themselves, and often ended with a 'peace feast' between the contending parties. By the 15th century, however, it seemed that the *mamluks* did little real fighting, despite the faction-ridden state of the Sultanate. Those who survived the many plagues mostly died in their sixties, seventies or even eighties of heart attacks, hernias or gout.

Even in the early 14th century, however, the Mamluk state showed the first signs of decay. Pride in traditions turned into an unwillingness to adopt new techniques, particularly firearms. A series of plagues cut deep into *mamluk* manpower, both in Egypt and in the recruiting grounds of southern Russia and the Ukraine. By the late 14th century rivalry between *mamluks* of Turkish and Circassian origin (recruited from the Caucasus and other parts of south-eastern Europe) led to various civil wars. The last serious external threat was that posed by Timur-i Lenk (Tamerlane) in 1394–1401, after which internal

Mamluk Sultans

(*Bahri* Mamluks: 1250–1390)	
Aybak	1250–1257
'Ali Ibn Aybak	1257–1259
Al Muzaffar Qutuz	1259–1260
Baybars Bundukdari	1260–1277
Al Sa'id Baraka	1277–1279
Al 'Adil Salamish	1279
Al Mansur Qalaun	1279–1290
Al Ashraf Khalil	1290–1293
Al Nasir Muhammad (1st reign)	1293–1294
Al 'Adil Kitbugha	1294–1296
Al Mansur Lajin	1296–1298
Al Nasir Muhammad (2nd reign)	1298–1308
Baybays Jashankir	1308–1309
Al Nasir Muhammad (3rd reign)	1309–1340
Al Mansur Abu Bakr	1340–1341
Al Ashraf Qujuq	1341–1342
Al Nasir Ahmad	1342
Al Salih Isma'il	1342–1345
Al Kamil Sha'ban	1345–1346
Al Muzaffar Hajji	1346–1347
Al Nasir Hasan (1st reign)	1347–1351
Al Salih Salih	1351–1354
Al Nasir Hasan (2nd reign)	1354–1361
Al Mansur Muhammad	1361–1363
Al Ashraf Sha'ban	1363–1376
Al Mansur 'Ali	1376–1381
Al Salih Hajji (1st reign)	1381–1382
Al Zahir Barquq (1st reign; see *Burji* Mamluks below)	1382–1389
Al Salih Hajji (2nd reign)	1389–1390
(*Burji* Mamluks: 1390–1517)	
Al Zahir Barquq (2nd reign)	1390–1398
Al Nasir Faraj (1st reign)	1398–1405
Al Mansur Abd al 'Aziz	1405–1406
Al Nasir Faraj (2nd reign)	1406–1412
Caliph Musta'in (not *mamluk*)	1412
Al Mus'ayyad Shaykh	1412–1421
Al Muzaffar Ahmad	1421
Al Zahir Tatar	1421
Al Salih Muhammad	1421–1422
Al Ashraf Bars-bay	1422–1438
Al 'Aziz Yusuf	1438
Al Zahir Jaqmaq	1438–1453
Al Mansur 'Uthman	1453
Al Ashraf Inal	1453–1460
Al Mu'ayyad Ahmad	1460–1461
Al Zahir Khushqadam	1461–1467
Al Zahir Yal-bay	1467–1468
Al Zahir Timurbugha	1468
Al Ashraf Qait-bay	1468–1495
Al Nasir Muhammad	1495–1498
Al Zahir Qansuh	1498–1500
Al Ashraf Janbalat	1500–1501
Al 'Adil Tuman-bay	1501
Al Ashraf Qansur al Ghuri	1501–1516
Al Ashraf Tuman-bay	1516–1517

rivalries gradually undermined the Sultanate. Other symptoms had already appeared, such as shorter military training, disobedience and weakened loyalty. Promotion was often no longer by merit, and there was declining respect for experienced *mamluks*. Nevertheless, the Mamluk army which faced the invading Ottoman Turks at Raydaniyah outside Cairo in 1517 was still a powerful one, and it was perhaps, only the *mamluks'* lack of firearms that gave victory to the Turks.

A little known inlaid bronze candlestick-holder shows late Ayyubid or early Mamluk cavalrymen fighting with various weapons. Some ride elaborately caparisoned horses which also have chamfrons to protect their heads. Here a horse-archer carries no other weapon and has no visible armour, whereas the trooper with a long lance also has a sword and a lamellar jawshan *cuirass. (Private coll., Rome, author's photo)*

THE MAMLUK ARMY

Islamic civilization had a different attitude towards slavery than that seen in western Europe: not only were slaves far better treated, but their status was quite honourable. Even the use of the word *abd* or 'slave' differed, Muslim men often including various ways of saying 'Slave of God' in their names, such as Abdullah, Abd al Aziz, Abd al Hamid, etc. The career opportunities open to a skilful *mamluk*, and the far higher standards of living in the Middle East, meant that there was often little resistance to being taken as a *mamluk* among the Turks of Central Asia. The *khawajah* or slave merchant was their first master, assessing their potential and bringing them to a *tabaqah* or military slave market such as that in Cairo's great Citadel. The price of individuals varied considerably, but by the 15th century it was normally around 50 to 70 *dinars* (by comparison a good war-horse cost 15 to 17 *dinars*).

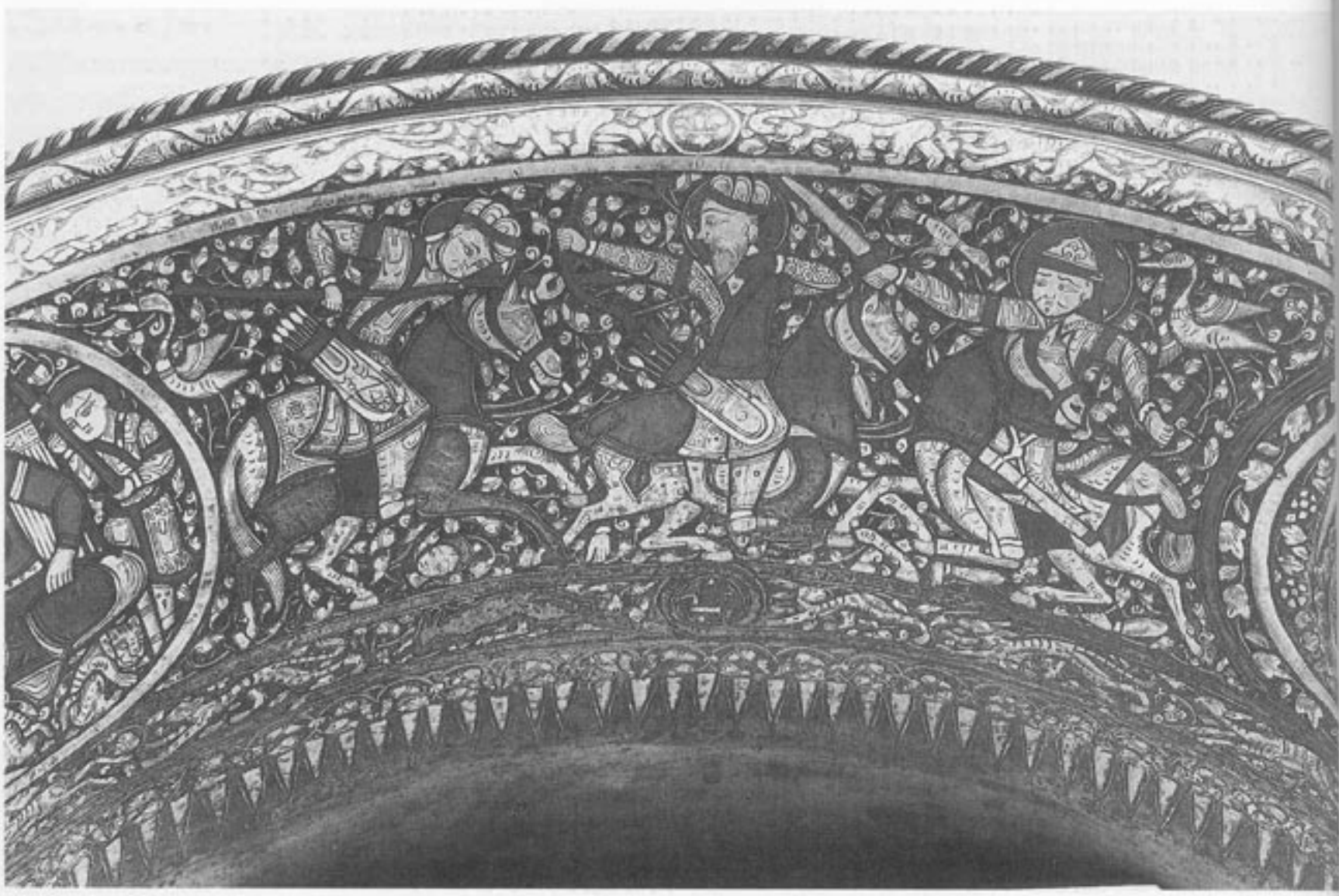
Training was hard and warfare dangerous, but perhaps the greatest hazard was plague, the *mamluk* army always being hard hit by epidemic pestilence. Foreigners suffered worst: during the plague of 1459/60 one-third of all *mamluks* died, the proportion being even higher amongst the Sultan's new recruits. The older a *mamluk* grew the better were his chances of survival, for he developed the local immunities that protected native Egyptians. Many young Kipchak Turkish women, slaves and free, also arrived in the wake of *mamluk* recruits, bringing with them some of Central Asia's traditions of sexual equality. At least one Mamluk Sultan's wife gave advice not only on politics – which Muslim women had done since the time of the Prophet Muhammad – but even on details of military recruitment.

In 1382 the rule of the largely Turkish *Bahri* (River) Mamluk Sultans was replaced by that of the basically Circassian *Burji* (Tower) Mamluk Sultans. The latter were essentially Europeans, mostly from the Christian regions of the Caucasus and Russia. Never particularly renowned for their military skills, they had for long been regarded as a second-best source of manpower. Nevertheless these Circassians gradually increased in numbers, often causing trouble for the dominant Turks, until they finally took over. Thereafter successful Circassian *mamluks* often summoned their entire families to share their good fortune. This led to an influx of adult foreigners who, on the basis of family connections alone, were sometimes given senior rank despite their lack of military training.

Africa had long been another source of slaves, but these had only occasionally played an important military role. Now, however, African eunuchs became prominent in the *mamluk* training system. As a separate corps within the 'Men of the Sword' they moved between the Sultan's military schools and the Sultan's *harim*, both of which were in the Cairo Citadel. In the former they taught young *mamluks*, while in the latter they taught the Sultan's many children.

The best career opportunities were open to those young slaves bought by the ruler himself. These *kuttub* students were sent to *tabaqah* schools for religious, literary and military education until they were adults, when they were freed as the Sultan's own *mamluks*. Discipline in the *tabaqahs* was strict, but at the end of his training each *kuttub* received his '*itaqah* certificate, a uniform, horse, bows, arrows, quivers, armour and some swords. Available evidence suggests that, at least during the late 13th century, this training system led to attitudes of leadership and loyalty similar to those expected of a modern Sandhurst or West Point graduate officer. For example, the losses suffered by professional Muslim troops during the siege of Acre in 1291 reveal a proportion of 13 officers killed for 83 men (1:6.4) – much higher than the actual ratio of officers to men. Even during the decline of the 15th century most *mamluks* still went through such military schools, though their training was now perfunctory.

The survival of so many *furusiyah* training manuals means that more is known about the training of Mamluk forces than any other medieval army. It was based on a number of *maydan* training grounds, their number and state of repair reflecting the country's military readiness. During the *Bahri* or early Mamluk period there were several of these in Cairo alone, the Maydan al Salihi having been built during the reign the Ayyubid Sultan al Salih, founder of the *Bahri* regiment. It stood on the banks of the Nile and was mainly used for polo. The Maydan al



The most famous illustration of mamluk *warriors is on the silver-inlaid bronze* Baptistère de St. Louis *made around AD 1300. In one combat scene a bearded horse-archer is attacked by younger men with spear and sword. The only visible armour is a broad-brimmed helmet (or hat), possibly with a pendant aventail, of a man who also has a short staff in his left hand. A second scene shows the same weapons being used while two figures also wear armour. Both again have broad-brimmed helmets with possible aventails. That on the left includes something over the shoulders like a European coif, while the horseman in the centre has mail protecting most of his face. In addition he wears the large lamellar* jawshan *normally associated with the Mongols. (Louvre Mus., inv. LP 16, Paris)*

Salihi was abandoned during the reign of Sultan Baybars, who replaced it with his own Maydan al Zahiri, which had *manazir* or terraces for spectators. The Maydan al Qabaq was also built for Baybars, nearer the Citadel, and was the army's main cavalry training ground; it had *sibaq* marble columns which did not, as once thought, mark out a horse-racing circuit but were distance markers for long-range archery contests. The biggest *maydans* were surrounded by stone walls and contained wells, water wheels, drinking fountains, palms and other trees, 'palaces' for the ruler and his *amirs*, as well as stables for horse breeding. Smaller *maydans* were built by senior *amirs*, but Sultan al Nasir had these closed down in 1333.

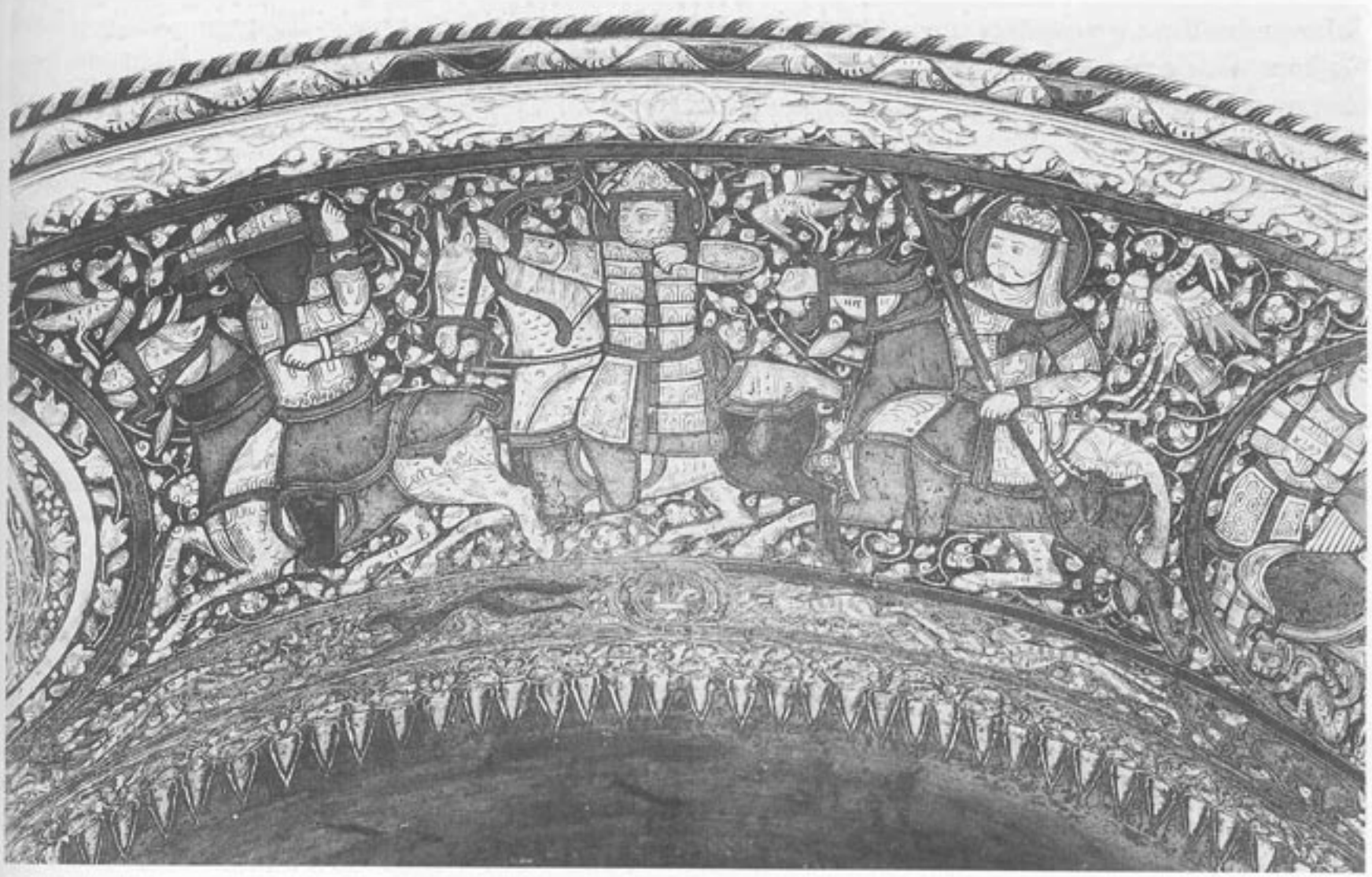
Baybars himself trained in a *maydan* daily from noon until the evening prayer, accompanied by two from every ten *amirs* to avoid overcrowding. In fact, *furusiyah* exercises were almost a spectator sport in the big cities. *Furusiyah* itself was not a code of military conduct and loyalty, such as the ideal of chivalry admired by the knightly class of medieval Europe, nor was it an ideal of courage. Rather, *furusiyah* was a system of physical fitness and specific military skills. These were basically as follows: *la'b al rumh* or lance play; *la'b al kura* or polo; *qabaq* or archery at a high target; *qighaj* or archery at a ground target; *sawq al birjas*, another form of archery and possibly use of the javelin; *ramy bi'l bunduq*, shooting with a pellet bow; *ramy al nushshab*, archery in general; *darb bi'l sayf*, sword fencing; *fann al dabbus*, use of a mace; *sira'* wrestling; *sawq al mahmil*, displays associated with the return of Muslim pilgrims from Mecca; *says*, hunting; and *sibaq al khayl*, horse racing.

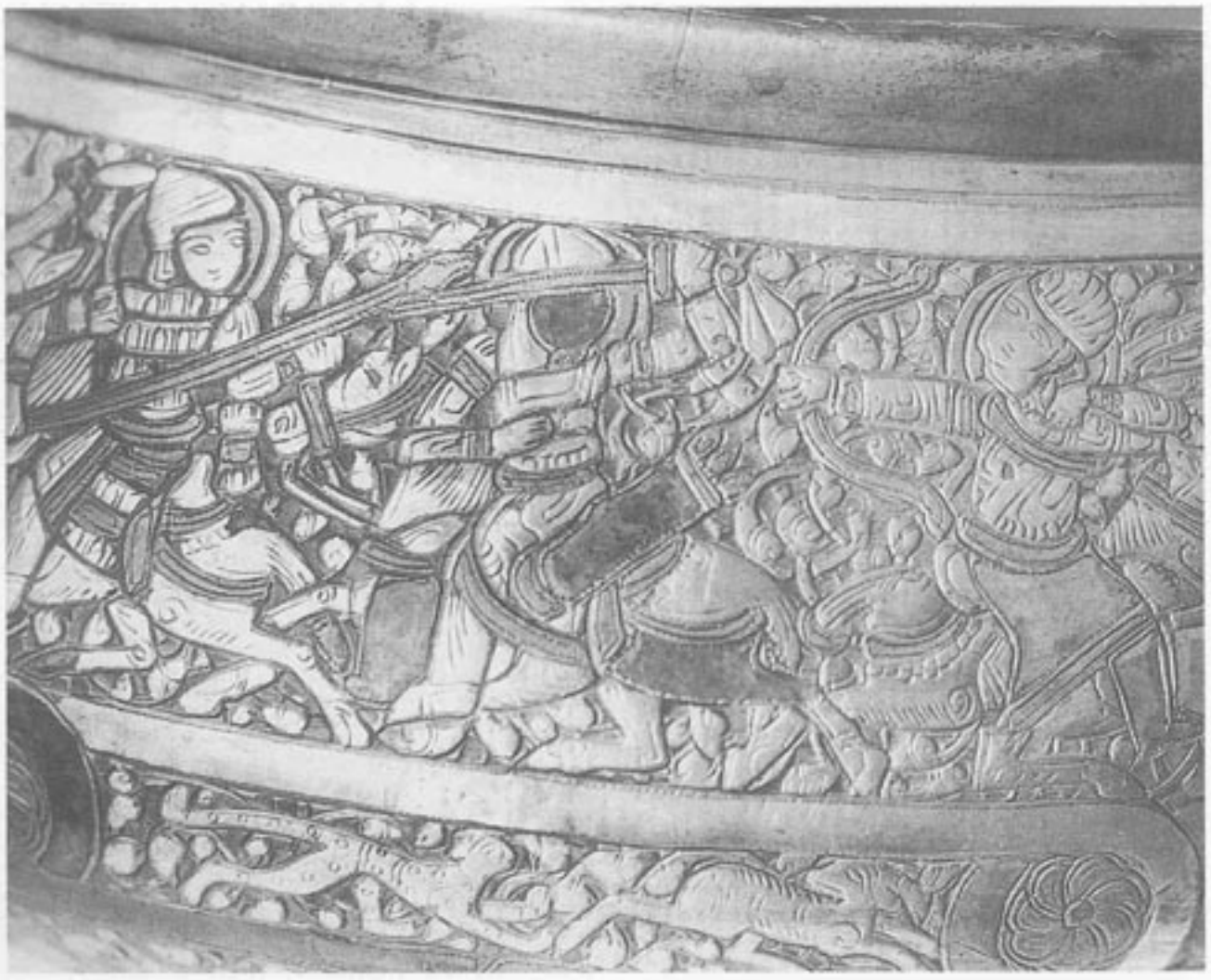
Archery is generally regarded as the *mamluks'* most important military skill; and to conserve their horses, particularly when fighting Mongols with far larger reserves of mounts, the *mamluks* practised shooting 'at rest' with a very high rate of release. To counter the greater mobility of his Mongol foe the *mamluk* was also expected to hit a 95cm target at a range of 75 metres, and to loose three arrows in one and a half seconds (a much faster rate than attributed to the vaunted English archers at Agincourt). Later Mamluk *furusiyah* manuscripts include exercises using crossbows both on horseback and on foot, this weapon being regarded as suitable for small or inexperienced cavalrymen. The sword, perhaps surprisingly, seems to have been a secondary weapon for horsemen, who relied more on bows and spears.

Hunting served as a military exercise in all medieval countries; and in the 13th century the *mamluks* used the same highly organized large-scale hunting techniques as the Mongols, with a huge circle of horsemen surrounding a tract of countryside before gradually closing in to slaughter the trapped animals. Unlike the European knight, the fully qualified *mamluk* was trained not only to put on and take off his own armour but to do so whilst on a moving horse – as well as to look after his own arms, armour and horse.

After being issued with his first set of kit, the *mamluk* had to equip himself or get replacements from his officer. The most complete armour was generally reserved for the Sultan's élite troops, but richer auxiliary units could also be well equipped: in 1280, for example, 4,000 Arab warriors of the Banu Murra tribe entered Mamluk service, each wearing a mail-lined *kazaghand* covered in red satin. Most arms, armour and harness was made in the big cities. Various chronicles describe how busy, crowded and noisy such arms bazaars could be when a major military expedition was being prepared. Arms were also imported, even from Italy, despite repeated Papal bans on such a trade, while captured enemy weaponry was reused or passed on to allies as gifts. Captured Mongol armours were, for example, sent far south to the Yemen in the late 13th century.

Furusiyah manuals list much of the kit that a properly equipped *mamluk* should carry, but little is known of the cost of armour. In 1299, during the emergency of a Mongol invasion, the price of the





Mamluk *armour and helmets, plus the spear, sword and bow, are shown on this early 14th-century inlaid bronze bowl. The rider on the left has a full lamellar* jawshan *cuirass and a pointed helmet with a pendant neck-guard. The swordsman in the centre has a similar helmet of segmented construction, while the horse-archer is more lightly equipped. (Inv. I.3597, Mus. für Islam. Kunst, Staat. Museen Berlin)*

chest-piece of a lamellar *jawshan* jumped from ten *dirhams* (the cost of two sheep in autumn) to 100 *dirhams*. In the 14th century such *jawshans* were regarded as additional protection to be worn over a mail *dir'* hauberk. A padded *qarqal* could also be worn beneath the *jawshan* and over the *dir'*. Later *qarqals* may have incorporated iron lamellae or scales, and they replaced the *kazaghand*, which was a padded, cloth-covered and often highly decorated mail garment. True mail-and-plate armour probably did not reach the Mamluk area until the 15th century, where it may have been known as *libas al hadid al munaddad*, 'a garment of layed iron.' Turbans had long been used as a form of head protection, but the more heavily armoured *mamluks* wore iron helmets with mail aventails. The sliding nasal bar, so characteristic of later Muslim helmets, now appeared, and was used by horse archers; when raised such nasals were less likely to snag the archer's bowstring.

By the late Middle Ages the composite bow had evolved into an astonishingly effective weapon; being more reliable, with greater range and penetration than all but the most powerful crossbows, it gave the *mamluks* greater 'firepower' than their Crusader foes. But the *mamluks* also used crossbows, not only for hunting but also in siege and naval warfare. These were sophisticated weapons, the *jarkh* being spanned by a wheel or windlass at an early date, while around 1368 the *furusiyah* writer Taybugha claimed to have invented a clip to hold the crossbow nut in place – a feature not seen in Europe until the 16th century. The late 13th-century *zabtanah* blow-pipe shot pellets, but was only used for hunting; later, however, the originally Persian term *zabtanah* came to mean an early form of hand-held gun, and it entered medieval Italian as the *cerbottano* blowpipe and *schiopetto* hand-gun.

Horses were raised in Syria and to a lesser extent Egypt, yet the *mamluks* still had to import large numbers of remounts from Arabia and North Africa, with the finest of all coming from India for the Sultan's own *khassakiyah* troops. *Mamluk* horses were larger and better fed than the Mongols' ponies, but the lack of pasture meant that the Sultan had to rely on relatively small forces of highly trained, well-equipped troops to face the Mongols with their vast horse herds. Outside the élite units most *mamluks* had only one war-horse, although on campaign men would have one or two baggage camels.

CLOTHING AND INSIGNIA

There were no real uniforms in the Mamluk army, the *mamluks* differing from the rest of the population in their Turkish rather than Arab styles of dress, particularly by the fluffy red *zamt* hats adopted in the late 14th century. Officers were distinguished by belts decorated with silver, gold or gems, those worn by *amirs* ranging from 150 to 300 *dinars* in value. Yellow and red cloth was favoured by the *mamluks*, yellow having been the dynastic colour of the previous Ayyubid rulers. Most of the banners described in written sources also seem to have been yellow, the *band* now clearly being a military flag while the *'alam* was a religious banner. The crescent, which had originally been a pagan symbol, had, by the 13th century, been adopted by Islam and soon appeared in Mamluk heraldry. In addition to flags the Sultan's royal insignia included drums, trumpets, a palanquin covered in yellow satin, and camels with highly decorated coverings. *Amirs* of 100 (see below for ranking structure) had the right to have drums played outside their Cairo houses at sunset, and by 1418 even senior civilian bureaucrats were allowed the same privilege.

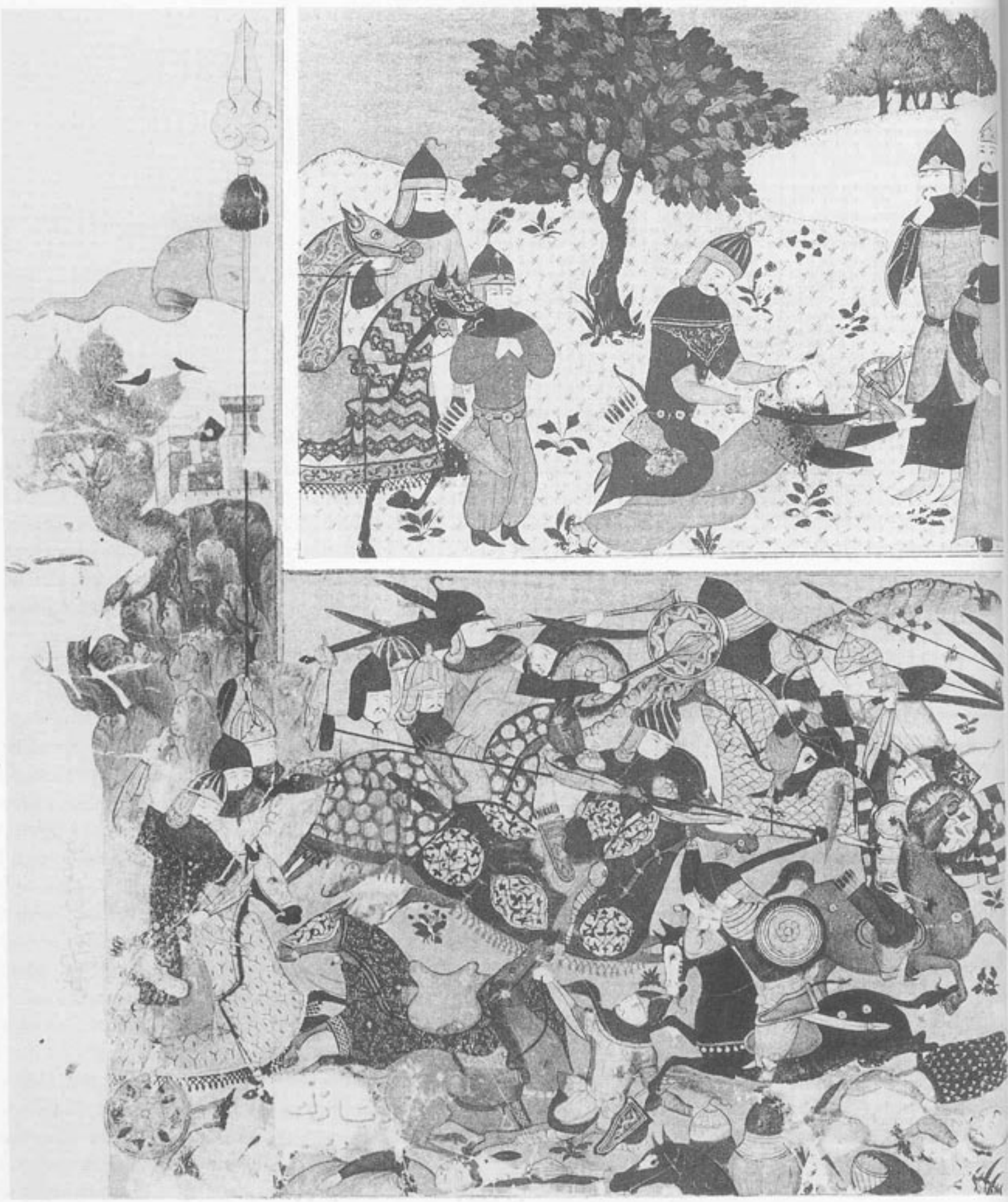
The Mamluk Sultanate was the only Muslim country where a complete system of heraldry developed, but *mamluk* 'coats of arms' did not appear on shields or banners, and only to a minor extent on clothing, weaponry and animal harness. Instead they were used as marks of ownership on houses, warehouses, factories and ships. Some *amirs* incorporated elements from the ruling Sultan's arms into their own as a mark of loyalty, as was seen in medieval Italy. The sheer variety and relative lack of government control in Mamluk heraldry also mirrored the situation in Italy, with *amirs* choosing their own colours, while many of their devices reflected an individual's early career as a *mamluk*. The most common charges were the cup of the *saqi* or Sultan's cupbearer; the diamond-shaped napkin of the *jamdar* master of robes; the sword of the *silahdar* armour bearer; the polo sticks of the *jukandar* polo master; the bow of the *bunduqdar* keeper of the Sultan's bows; the penbox of the *dawadar* chief secretary; and the three-field ground associated with the *barid* courier service. The napkin, sword, cup and penbox are also believed to have been the original playing card motifs, such cards first being known in the Mamluk Sultanate.

TACTICS

Military reviews played an important part in Mamluk ceremonial and also enabled the ruler to check his soldiers' readiness. Baybars once reviewed all his troops in a single day so that no man could borrow equipment from another. Each *amir* rode past at the head of his men, all fully armoured (and thus suffering greatly from heat and dust); they then took part in *furusiyah* exercises, again fully armoured.

In such a professional army the basic skills expected of each soldier were clearly laid down. Cavalry were required not only to fight and ride but to manoeuvre, evade, make feigned retreats and return to battle. Infantry had to be able to endure long marches, be aware of a threatened attack and take cover from it, fight other infantry, and check, scatter or chase cavalry. Elite *mamluks* also knew how to fight on foot and to erect their own fortifications. Contrary to the popular image of Muslim cavalry being unable to withstand a European cavalry charge, the *mamluks* would – if their commander thought it worthwhile – stand for such a charge. Nevertheless, such static tactics were mostly recorded during wars against Mongols rather than Crusaders. Another effective tactic in the *mamluks*' wars against Mongol summer raids was to burn the dried grasslands south of the Euphrates, the great herds of Mongol ponies relying on what food they could find (unlike the stall-fed *mamluk* horses). The stony terrain of Syria was also a problem for Mongol ponies, which, unlike *mamluk* warhorses, were not shoed. The *mamluks* also did plenty of raiding on their own account, particularly at night; this was a favourite tactic against the remaining Crusader territories, where it forced the European princelings to pay tribute or agree to truces whenever the *mamluks* felt threatened by the Mongols. The destination of raids was kept secret in sealed orders which a commanding officer might open in stages along the march, and this meant that even the best informed enemy had to disperse his defences.

A little-known copy of the Persian Shahnamah *epic poem was made for the Mamluk Sultan al Ghuri around 1510. The artist came from Turkish Anatolia rather than Persia, and the soldiers could reflect Mamluk and Ottoman Turkish types. The top miniature illustrating 'The death of Minichihr' shows helmets with neck and cheek defences, mail over the shoulders, a rigid lower arm defence and full horse armour. The miniature (below) illustrates 'A battle between Turks and*

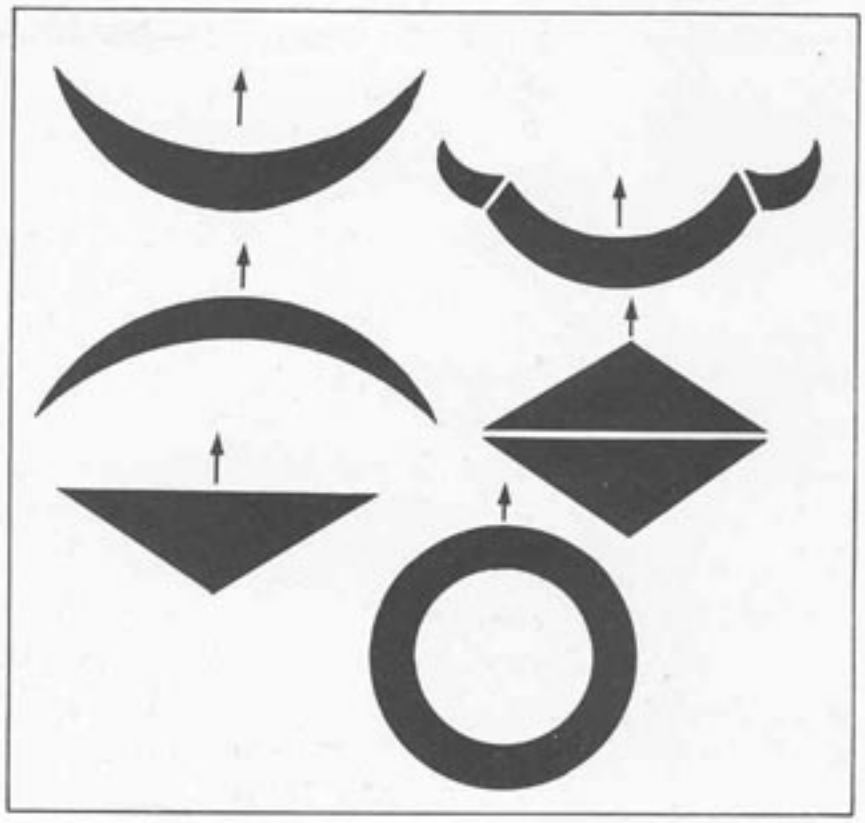


Persians'; a castle in the top left corner shows the European influence typical of Turkish art. A lancer in the centre wears full mail-and-plate armour while just above him a man with a mace carries the typically Mamluk silk-fringed shield. The miniature (right) illustrates 'Rustem grieving after slaying Suhrab'. It again shows a helmet with mail aventail and pendent cheek pieces, leg armour of mail-plate-and-laminated construction, and a khanjar *dagger out of its sheath. (Ms. Haz. 1519, ff. 82b, 160a & 301a, Topkapi Lib., Istanbul)*

Warfare itself ranged from the chivalric to the barbaric. Duels of champions between the ranks of opposing armies were recorded during the Mamluk siege of Crusader-held Acre in 1291; but after defeating a Crusader sortie the *mamluks* hung the severed heads of their enemies from the saddles of captured horses. A large Mamluk army on the march must have been an awe-inspiring sight, but camps along the way were no longer as elaborate as they had been in earlier centuries. If a set-piece battle was ventured commanders were advised to keep the sun and wind behind them, a stiff following breeze also helping one's own cavalry charge. If severe wind and dust were in the army's face its cavalry were advised to dismount and fight on foot. The best position for a battle was with hills behind to guard against surprise attack, or if that was not possible defensive ambushes could be set up to the rear. The centre should be on raised ground so that the commander could see above the dust of battle; if that was impossible he should have a hill on his right, or at least on his left. The basic battle formation was traditional, having a centre and two wings. If the enemy were inferior in numbers they could be surrounded, but if the Mamluk army was itself seriously outnumbered its commander was not to use the normal widely dispersed formation with extended flanks.

As had long been the case, an army which included infantry forces tended to place these on the defensive left flank, with the best offensive cavalry on the right. After the Mamluk victory at 'Ayn Jalut in 1260 such infantry pursued the broken Mongol cavalry into the hills and there destroyed them. This success of *mamluk* tactics may have been noted in nearby Crusader Acre and passed on to southern Italy, where the same plan was used by Charles of Anjou at the battle of Tagliacozzo only eight years

Schematic Mamluk battle-layouts from the late 13th or early 14th cent. Nihayat al Su'l *book of tactics and military training (after Lutful Huq).*



One of the finest Mamluk furusiyah *manuscripts is a copy of the* Nihayat al Su'l *made in 1371. Among the many exercises is this showing a* muqalladin *'fully equipped' horseman shooting with an arrow-guide, with a* daraqa saghira *small leather shield on his shoulder and a* sayf *sword resting on his elbow. (Brit. Lib., Ms. Add. 18866, f.129v, London)*

later. Other *mamluk* battlefield tactics included the arrow-shower, which had already stopped a Crusader charge at Gaza in 1244, subsequently being recorded at 'Ayn Jalut (1260), Homs (1281) and Shaqhab (1303). When *mamluk* units themselves charged against Mongols they sought close combat so that they could bring their heavier spears, swords and maces to bear. If they did reach the enemy lines, selected archers shot down the foe's standard bearers and drummers to deprive him of battlefield communication.

A claim by the author of a later *furusiyah* manual that *naft* – Greek fire – defeated the Mongols at 'Ayn Jalut is false, and the Malmuk Sultanate rarely used such weapons in open battle. The only large-scale effort was against a Mongol force in 1299, the *mamluk* attack being led by 500 *naft* throwers; but the Mongols simply refused to come into range, and the *naft* burned out. During the 14th century gunpowder artillery appeared, though the *mamluks* made little use of it until learning its full potential from the Ottoman Turks at the disastrous battle of Marj Dabiq in 1516. The Mamluk Sultan then gathered his own artillery from various fortifications, and assembled the few hand-gunners who had not already been sent against the Portuguese in the Indian Ocean. In the last battle of Raydaniyah outside Cairo in 1517, the *mamluks* tried to turn the struggle into siege warfare by taking up a strong defensive position with artillery in stone emplacements behind a ditch and wood palisade. They also had about 30 ox-drawn waggons mounting light guns, as well as camel-riding handgunners. A gunnery duel ensued, which the heavier Ottoman artillery won. The *mamluks'* static position was then outflanked, and next day the Ottoman Sultan Selim the Grim entered the Egyptian capital. *Mamluk* resistance continued for eight weeks; but for the next four centuries Egypt and Syria formed part of the vast Ottoman Empire.

ARMY ORGANISATION

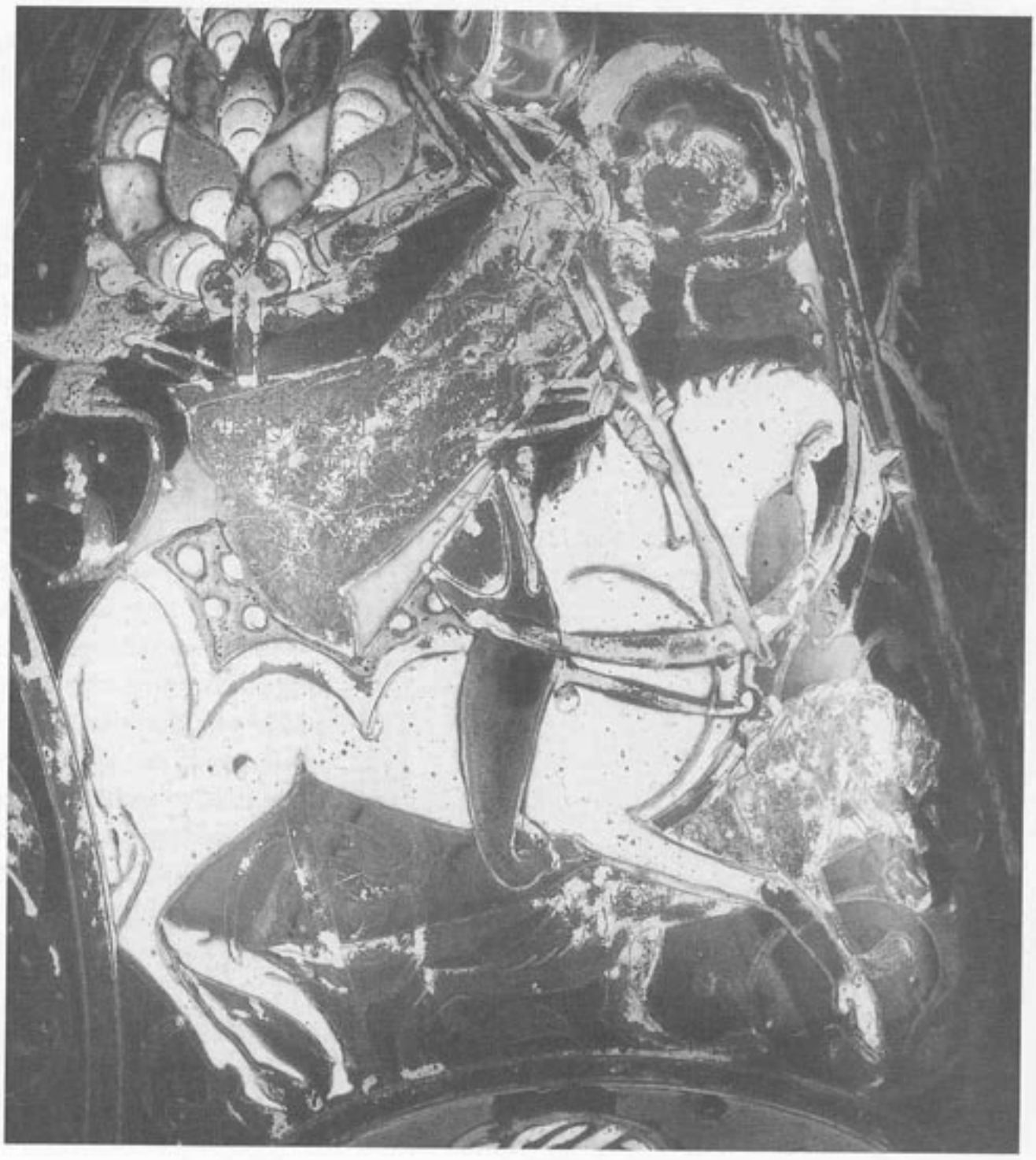
The armies of the Mamluk Sultanate consisted of three distinct sections, excluding auxiliaries and untrained volunteers. These three professional groups were the Sultan's own *mamluks*, the *mamluks* of the *amirs*, and the freeborn *halqa* troops. The *amirs' mamluks* were of inferior status to the Sultan's and did not go through the best military schools, though some *amirs* did run their own establishments. On the death of an *amir* his *mamluks* were distributed among other *amirs* or were incorporated into the *halqa*. Under the Circassian Sultans the numbers of such troops declined markedly.

The senior military command structure was similarly carefully controlled. All officers were given *iqta* land or other revenue-producing grants by the Sultan, though these were not private property and could be taken back at any time. From such revenues the holder, or *muqta*, had to maintain a specified number of properly equipped troops, but was generally exempted from any other taxation. Most *iqtas* were agricultural, but some given to senior men could include entire towns. Now and then a Sultan would order a *rawk* or detailed survey of all *iqta* land, such information being used to reduce the power of certain military groups such as the *halqa*, and to remove old or disabled *iqta* holders, who were given state pensions instead.

Most of the *mamluks'* battles were fought in Syria rather than Egypt, and here the military structure was slightly different. Sieges were common, as was mountain warfare, and infantry consequently played

a more prominent role. Syria was also divided into several small *mamlaka* provinces, each governed as a miniature replica of the Sultan's direct administration in Egypt. Each *nayib* Governor had his own military forces and headed his own 'men of the sword', 'men of the pen' and religious officials, the most important *mamluk* officials being those who supervised the army, tax collection and the *barid* postal service. The *nayibs* of Syria were also responsible for waging war and maintaining the safety of frontier fortifications and, where appropriate, the fleet. The great Citadels of Damascus and Aleppo had their own special *nayibs*, independent of the governors of the city and surrounding territory. The presence in Syria of large numbers of freeborn but highly effective soldiers meant that such troops were more important than in Egypt. According to some chroniclers the armies stationed in Syria included *mamluks* of various ethnic backgrounds, local Arab-speaking soldiers, Turcomans, Kurds, men from Anatolia of possible Greek origin, and even Russians. Nevertheless the *mamluks* remained the dominant élite, and when a large Crusader castle or town fell it was a *mamluk* garrison which took over, also being given the best local *iqtas*.

The Mamluk army was large, though not so large as its enemies often thought. During the second half of the 13th century it was greatly enlarged by Sultan Baybars, perhaps totalling 40,000 men, 4,000 of whom were *mamluks*. Twenty years later Sultan Qala'un had up to 6,000 or 7,000 *mamluks*; while the force that his son Sultan Khalil threw against Acre may have reached 70,000 professional cavalry and 150,000 ill-trained infantry volunteers. Twenty-two



The mamluks used crossbows from horseback both for hunting and in warfare. This remarkable illustration is on an enamelled glass flask made in Syria around 1250–60. (Brit. Mus., no. 69.1–20.3, London)

amirs of 100 took part in the campaign of 1313, virtually the entire army. According to a *rawk* survey and review of two years later there were 24,000 *mamluk* cavalry in Egypt itself, 12,400 of whom were *amirs' mamluks*, while in the provinces there were a further 13,000 *mamluk* troops plus 9,000 *halqa*. The total of auxiliaries is not known but must have been high, as these were drawn not only from Arab bedouin and Turcoman tribes but also from the *'ashir* semi-nomadic Arabs, Kurds and settled villagers – two horsemen being expected from each of 33,000 registered villages. Later there was a severe reduction in the size of Mamluk forces; nevertheless, the army which fought the last great battle at Raydaniyah in 1517 is said to have totalled 20,000 men under 30 banners, one unit known as the 5th Regiment consisting of 450 horsemen.

The Sultan's own *mamluks* remained the military élite throughout Mamluk history, those recruited by the current ruler being known as *mushtarawat* or *julban*, the latter term simply referring to their youth. The less prestigious *mustakhdamun* included the *qaranis* or *mamluks* of former rulers, and the *sayfiyah* who, though recruited by the present Sultan, were from regiments disbanded for one reason or another. The Sultan's *mamluks* also provided the main force for all major expeditions, at least during the 13th century. They received the best *iqtas*, and the great majority of senior *amirs* were drawn from their ranks. Purchased, trained and freed by the Sultan himself, they offered him great loyalty and displayed impressive *esprit de corps*. Nevertheless, they were invariably 'purged' (in reality, demoted to the status of *qaranis*) by the next Sultan; thus new rulers always started out with a smaller force than that left by the previous Sultan. A new officer class had to be created by each new Sultan, and this could lead to inexperience in the upper ranks. Consequently changes normally started from the bottom upwards. The *khassakiyah* formed an élite within the Sultan's own *mamluks*, serving as his ceremonial bodyguard as junior secretaries and being selected for political duties. Only they were permitted to carry swords at all times and to wear dedicatory *tiraz* bands on their sleeves.

Within the demoted *mustakhdamun* there was considerable rivalry, as *qaranis* units normally retained the name of the ruler who had recruited them. Under the later Circassian Sultans it was the *qaranis*, rather than the new ruler's *mamluks*, who were sent on arduous campaigns while at the same time getting lower pay. The *sayfiyah*, meanwhile, formed a pool of experienced officers who, despite their low prestige and pay, tended to be loyal because their unit cohesion had been broken. Beneath them in status came the *umara'* or *amirs' mamluks*.

Mamluk officer ranks were straightforward, though it is not clear how far the terminology reflected the real numbers under each man's command. An *amir* of 100 supposedly led 1,000 troops while maintaining his own retinue of 100. An *amir* of 40 maintained 40 but led 100, as did an *amir tablkhanah* (*amir* of drums), while an *amir* of 10 simply led ten men. The title of *tablkhanah* was less of a rank than a mark of entry into the ruling establishment, sometimes being given to bedouin leaders; while the title of *amir isfaghsalar* indicated the same

Armoured figures are rarely shown from the rear, but here, on an inlaid bronze pen-case made in 1304 in Syria by Ahmad al Dhaki, the way in which a lamellar* jawshan *cuirass opened down the back is clearly portrayed. (Louvre Mus., inv. 3621, Paris)

level as *amir tablkhanah*, and could be given to leaders of the Haj Pilgrim caravans or to men in charge of the construction of large siege engines.

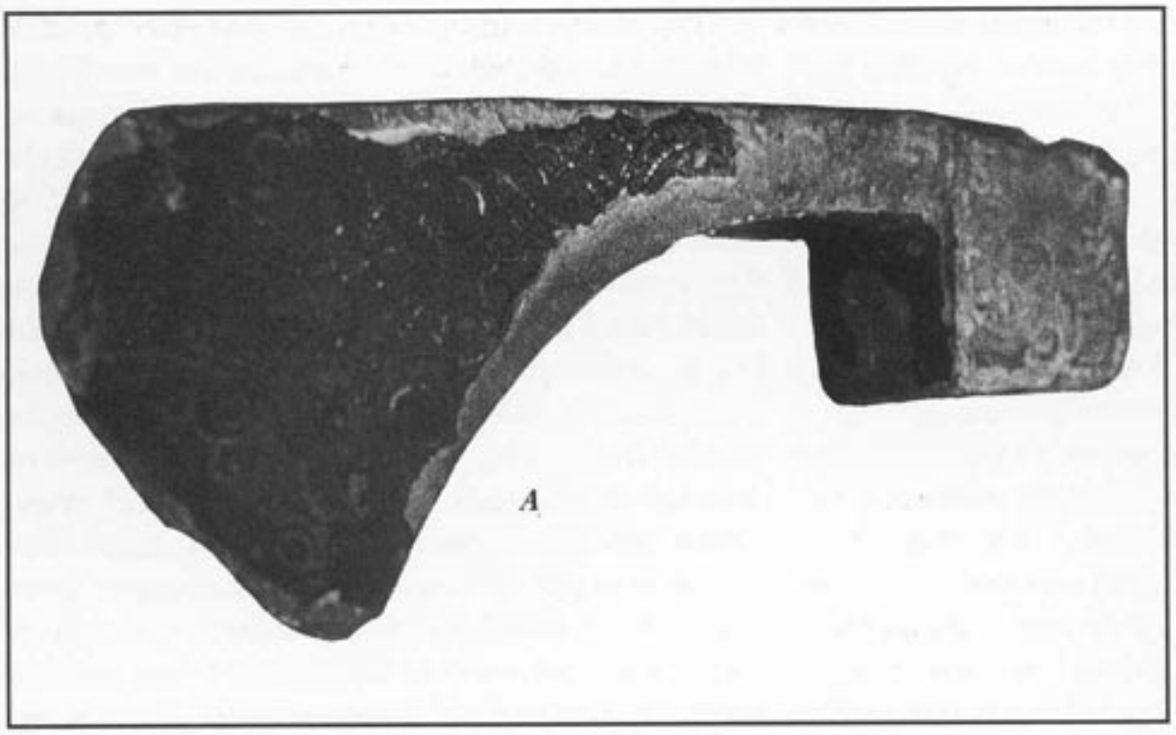
Baybars, among his many other reforms, increased *mamluk* pay, and the Sultanate now gave its soldiers much more than previous dynasties had done. In addition to revenues from his *iqta*, an officer got a *nafaqa* or bounty at the start of a campaign or on the accession of a new ruler. The troops received their monthly *jamakiyah* salary, a *kiswa* annual or half-yearly grant to cover the cost of clothing, a *lahm* daily meat ration, plus a twice-weekly *'aliq* allowance for their horses' fodder. The monthly *jamakiyah* of a Sultan's *mamluk* was considerably more than that of a freeborn *halqa* trooper, and by the early 15th century it ranged from three *dinars* for a junior soldier to seven for an officer – plus the value of his *iqta*, which could vary from ten *dinars* a month to a staggering 570 *dinars* monthly for a senior officer. Sophisticated as the system was it could still break down, as when, during an early 16th-century famine, *mamluk* garrisons in Syria had to sell their equipment to buy food.

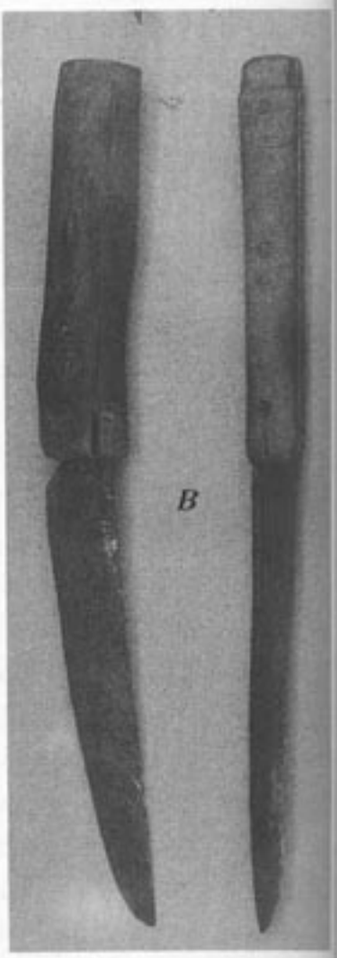
As they grew old *mamluks* could request a discharge on the grounds of age or infirmity, but such was the turbulence of Mamluk politics that few men got through their careers without at least once being banished or otherwise punished. Men so retired or banished had their own titles of *tarkhan* and *battal*, which sometimes overlapped. In general a *tarkhan* was a *mamluk* who had been honourably pensioned off and might even retain the rank of *amir*. A *battal*, of whom there were far more, could have been banished or have simply retired, and was in any case junior to a *tarkhan*. Despite often having been disgraced, these *battals* could still be called to the colours during a crisis or major campaign. At other times they are recorded serving as auxiliaries in Cairo, garrisoning coastal ports or being sent on expeditions to Arabia – which meant harsh terrain with very little booty.

The bonds of loyalty that kept the *mamluk* military class together were based on the *khushdash*, the group of men who had been recruited, trained, released and subsequently served together. But the bonds of a *khushdash*, though strong, were not like those of, e.g., the fanatical Japanese samurai; rather they were a matter of self-interest based on agreements sealed with money. If the master or leader of a *khushdash* died or was disgraced the members simply looked for a new leader. Meanwhile ambitious *mamluk amirs* had to keep in mind the aspirations of their followers if they wanted to retain their loyalty. There was also little evidence of the blood-feud among *mamluks*. It has, in fact, been suggested that 15th-century *mamluk* society had more in common with that of 20th-century businessmen than with the fealty relationships of contemporary England or France.

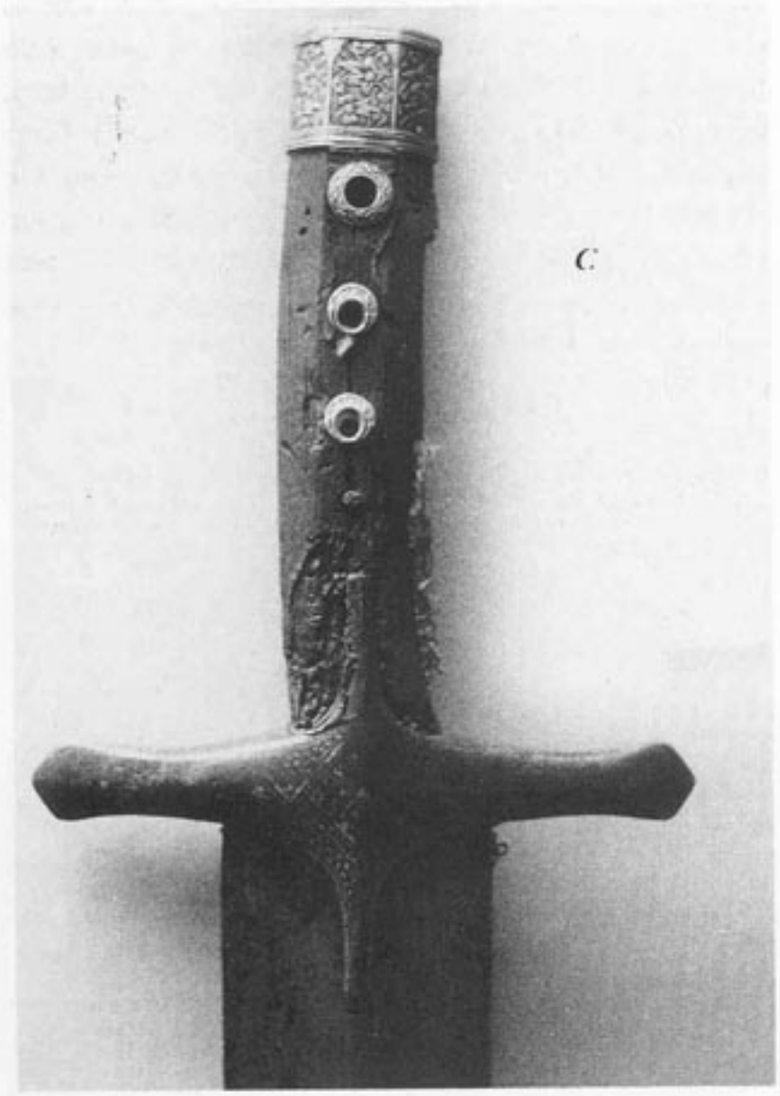
The third part of the Mamluk Sultanate's army was the freeborn *halqa*, which included a prestigious unit known as the *awlad al nas*, 'sons of the people,' recruited from those few sons of Sultans, *amirs* and ordinary *mamluks* who chose a military career. *Halqa* officers could not normally rise above the ranks of *amir* of 10 or 40, although there were a few more senior in Syria. Under the Ayyubids the *halqa* had been an élite, and even under the early Mamluk Sultans it retained some prestige; but from the late 13th century onwards the *halqa's* status slumped, as did the value of *halqa iqtas*. By the 14th century even ordinary civilians could buy their way into the *halqa*, and by the end of that century it was no longer a proper military force. By the mid-15th century the 5,000-strong *halqa* only included 1,000 infantry fit for

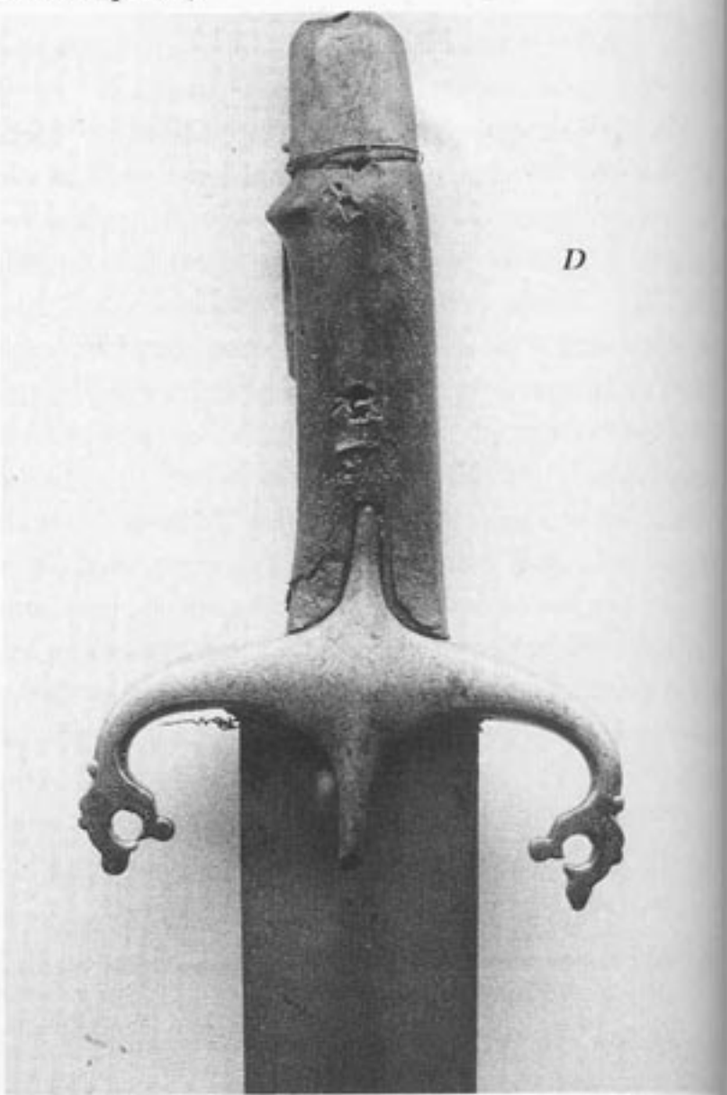
This Arabic treatise on astrology by Abu Ma'shar al Balkhi may have been made in mid-14th-century Iraq or in the Mamluk Sultanate. The equipment illustrated is likely to have been common to both sides. Here 'Mars' slays 'Scorpio' with a large sabre. He has the usual pointed helmet with ear or cheek pieces and a mail aventail over his shoulders. His lamellar jawshan, *however, includes sleeves, and appears to open down the side. (Bib. Nat., Ms. Ar. 2583, f.24v, Paris)*





(A) Silver inlaid axe, Syria 13th cent (V & A Mus., inv. M.145–1919, London, author's photo); (B) iron knives with wooden grips from Qasr Ibrim, Nubia 12th–14th cents (Brit. Mus., inv. EA 71825, London, author's photo); (C) so-called Sword of Khalif Mustasim Billah, *mid-13th cent with 16th cent pommel (Topkapi Mus. Armoury, Istanbul, author's photo); (D) sword of unnamed Abbasid Khalif, 13th cent (Topkapi Mus. Armoury, Istanbul, author's photo)*





service and even they were described as lacking both control and discipline.

Another once élite unit survived within the *halqa* – the originally all-*mamluk* Bahriyah regiment. The last of al Salih's original Bahriyah *mamluks* died in 1307/8, yet the regiment continued to be mentioned in the Cairo Citadel as well as various Syrian fortresses, though it now played only a humble garrison role. Under Barquq, soldiers of the Bahriyah guarded the Haj pilgrim caravan to Mecca; and the regiment was again mentioned in the last years of Mamluk rule. Another *halqa* force was the *ajnad al mi'atayn*, 200 or so units of 30 men each, defending Alexandria following a Crusader attack in 1365. The *mamluks* loathed being stationed on the vulnerable Egyptian coast, which was, therefore, defended by *halqa* supported by poorly equipped local bedouin. Egypt's Arab bedouin had been something of a military élite back in the 10th–12th centuries, and they still formed a state-within-a-state until the Mamluk Sultans enforced their authority with a series of savage massacres. During the 14th century the Egyption bedouin were steadily forced into the surrounding desert, where they became the *mamluks'* implacable foes.

In Syria the situation was very different. Here *halqa* troops formed a standing army which had not degenerated into a local militia. Even their *iqtas* remained quite large, although most were well away from the main fortified strongholds. Long established military families also existed in Syria, providing the *halqa's* lower officer ranks. Tribal auxiliaries were the front line of defence in Mamluk Syria, found along the coastal as well as the land frontiers. The numbers of Turcomans in Syria were probably exaggerated, though they were viewed as the most turbulent element of the population. Unlike the Arab bedouin auxiliaries these Turcomans could not be sent off into the semi-desert until needed. For their part bedouin chiefs led very large auxiliary forces but were not allowed to command *mamluks*. In return for inferior *iqtas* their followers guarded roads, transported provisions and supplied horses for the *barid* communications service, but on campaign they received a mere one and a half *dinars* per month.

Infantry archers were recruited from the cities, villages and semi-nomadic peoples of Syria. They also had some military influence and were properly, if ungenerously, paid. On one occasion each street in Damascus provided one foot soldier at 50 *dirhams* a month for an expedition against rebels in Lebanon. Other important sources of infantry archers were the Nablus area of Palestine, the *jabaliyun* hill folk of Lebanon, and the Druze of the Beqa'a valley. Right at the end of the Mamluk period a different group of professional infantry soldiers was enlisted: these were hand-gunners recruited to defend Suez and the new Red Sea fleet from Portuguese attack. Some came from North Africa, .where refugees from Muslim Granada already served as highly regarded crossbowmen and gunners. Others seem to have come from black Africa, African marines having been reported on Indian Ocean warships since at least the 14th century.

The *wafidiyah* Mongol refugees who fled to Mamluk territory in the late 13th century have already been mentioned, but they were not the only such refugees to be drawn into the *mamluk* army. There were also Kurds, Khwarazmians and Turcomans fleeing Mongol and Il Khanid rule in Persia, Iraq and Anatolia. Many seem to have been sent to defend the coast of Syria and Palestine, but were rapidly assimilated by the local Arab population. Here there were even cases (like that of a son of John III of Arsuf) when Crusader knights entered *mamluk* service in return for *iqtas*. Some Europeans may have remained as vassals of the Mamluk Sultan until 1302, but subsequently they disappear – again, probably assimilated into the Muslim population.

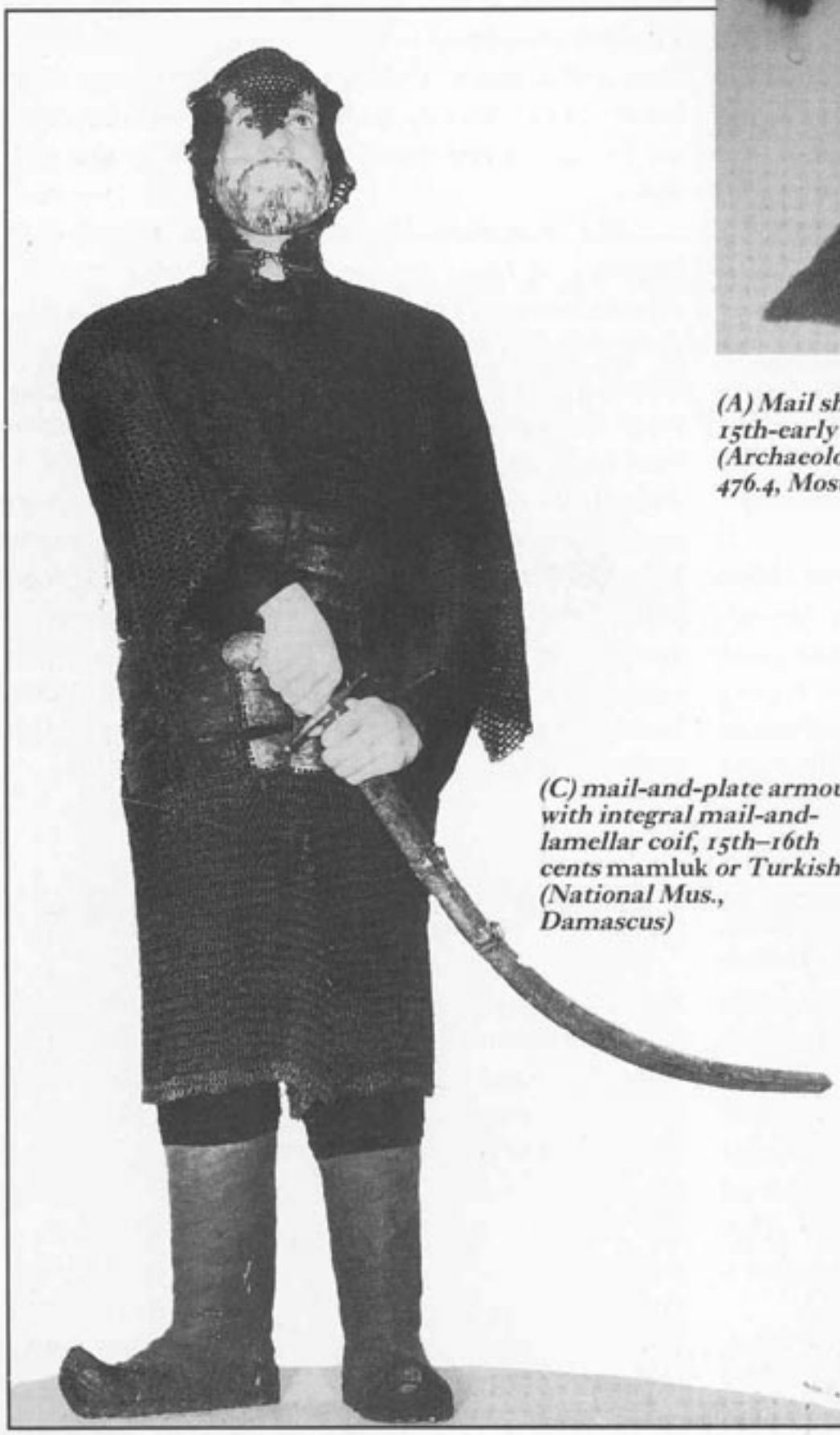
SIEGE WARFARE

In the 12th and 13th centuries Islam was under attack from European Crusaders and, more importantly, from the pagan Mongols. Consequently there were greater developments in siege techniques and fortification in Muslim lands from the 12th to 15th centuries than had been seen earlier. This was certainly true of the Mamluk Sultanate. Baybars himself took a personal interest in the siege train, while specialist craftsmen were formed into a true engineering corps. Muslim siege artillerymen were soon highly regarded far beyond the frontiers of Islam, being recorded in Mongol China and in Vietnam by 1282. Offensive

siege warfare was particularly important against the remaining Crusader States (and here even the *mamluks'* preoccupation with hygiene could give an unexpected advantage – for example, during the final siege of Acre in 1291 a Crusader knight fell into one of the *amirs'* latrines and was killed there . . .). Later, defensive siege warfare was vital during Timur's invasion at the end of the 14th century.

The *mamluks* brought staggering numbers of stone-throwing mangonels against Crusader fortifica-

(A) Mail shirt from Aleppo, 15th-early 16th cent (Archaeological Mus., inv. 476.4, Mosul, author's photo); (B) mamluk *mail-and-plate cuirass, late 15th cent (Tower Armouries, London, author's photo);*

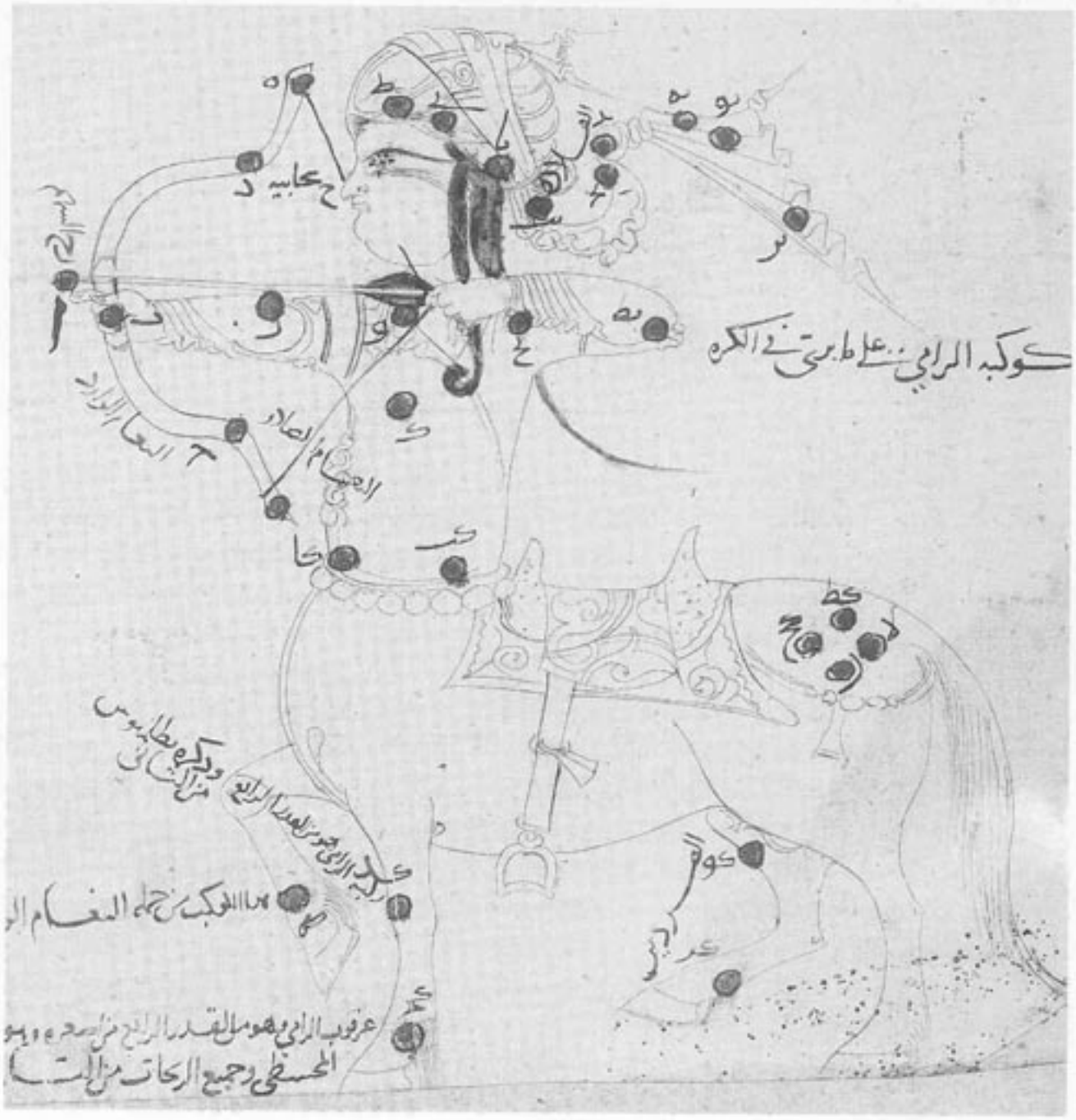


(C) mail-and-plate armour with integral mail-and-lamellar coif, 15th–16th cents mamluk *or Turkish (National Mus., Damascus)*

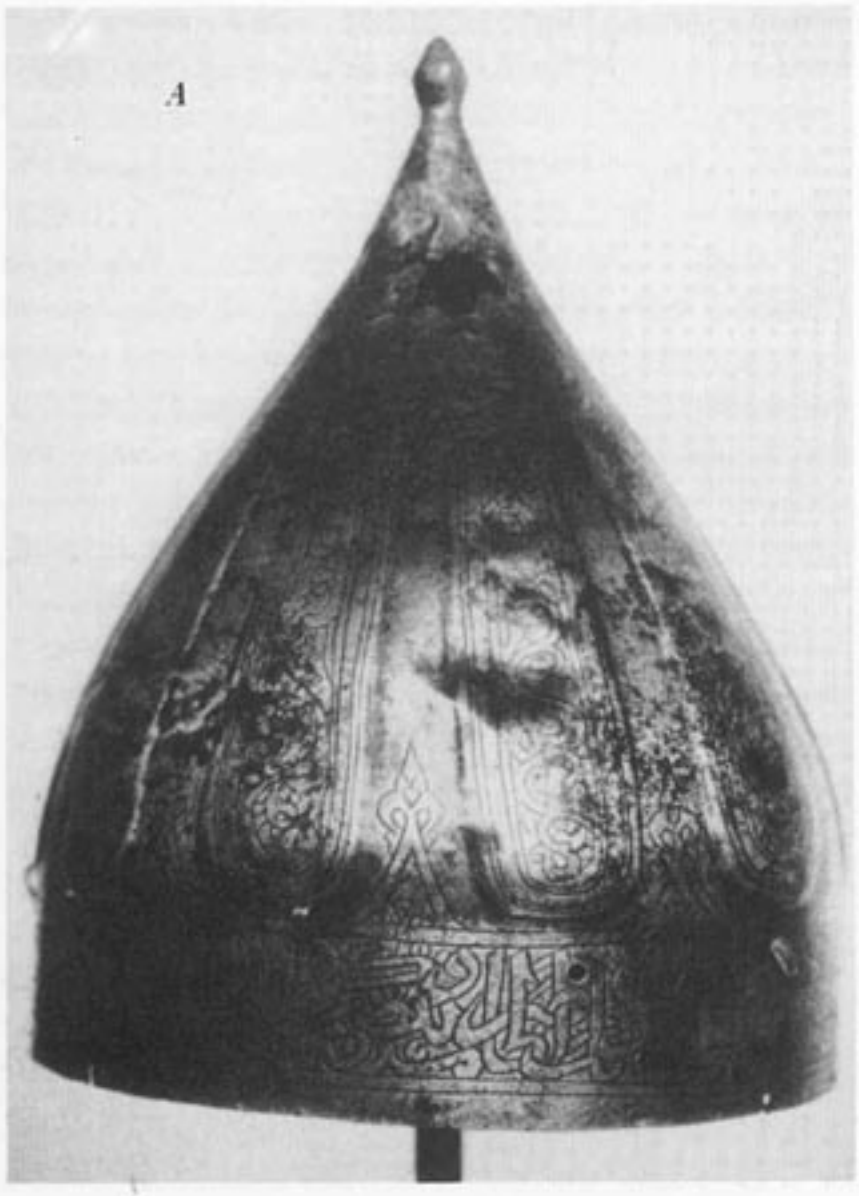
tions, and these were their most important siege weapons. From 72 to 90 were ranged against Acre in 1291, and their moral effect on the defenders was devastating. During preparations for this siege the *mamluks* found that the best wood for mangonels came from what is now southern Lebanon, where trees grew to 21 cubits (11 metres) high. Snow made transportation difficult, but the timber was eventually brought to Damascus, where huge weapons were constructed before being taken out of the city to the accompaniment of fanfares and celebrations. Elsewhere the governors of Syrian and Palestinian castles were ordered to bring their own mangonels as well as other siege equipment, engineers and armour for the great struggle. One of the biggest mangonels came from Hisn al Akrad, the one-time Crusader castle of Crac des Chevaliers, whence it was transported by 100 ox-drawn waggons.

By the late 13th century *mamluk* mangonels had evolved into four versions, which could hurl boulders, *naft* (Greek fire) or large arrows. These were the 'North African' *maghrabiyah*, which was a simple counterweight type earlier known as the Persian or Turkish mangonel; the 'black bull-like' *qara bughawiyah*, which was modified to shoot large arrows; the 'European' *franjiyah*, which was a lighter counterweight version; and the 'devilish' *shaytaniyah*, which though even lighter was a very rapidly erected machine operated by the traction power of men pulling on ropes. Some of these machines had a range of 300 yards and could throw a 50, 100 or 225kg missile with remarkable accuracy. To protect such mangonels from counterbombardment the *mamluks* used them at extreme range, scattered widely and, where possible, hidden behind natural obstacles. Elsewhere mangonels defended Alexandria harbour against Christian pirate ships.

Mining was another favourite siege technique,



This Kitab al Sufar *book on astronomy was made between 1300 and 1350, probably in Egypt. Here 'Sagittarius' has both a recurved composite bow and a saddle with prominent pommel and cantle. There also appears to be a knot to adjust the length of the stirrup leathers. (Ms. Ar. 5323, f.53r, London)*



(A) Mamluk *helmet, late 13th-early 14th cents (Mus. de la Porte de Hal, Brussels); (B) so-called* Helnet of Bars-bay, *early-mid-15th cent (Louvre Mus., Paris); (C)* mamluk, *late 15th-early 16th cents (Hermitage Mus., inv. 1220, St. Petersburg)*

though it declined after the expulsion of the Crusaders. In the *mamluks'* highly organised siege train were *naqqabun* sappers, *hajjarun* masons, *najjarun* carpenters, and men skilled in the art of *'allaqa* or the burning of tunnel props. Other siege devices seem to have declined in importance, including the *dabbaba* movable wooden shed and the *burj* movable wooden tower, both being vulnerable to Greek fire.

More significant were the *mamluks'* crossbows, large and small. These were sometimes used in open battle but were much more important in siege warfare, at sea and in defence of coastal positions. They ranged from the light hand-held infantry type to the large frame-mounted *qaws ziyar*, which could hurl containers of *naft*. This *qaws ziyar*, spanned by a powerful rack-and-pinion windlass, may originally have come from China, but had been known in the Muslim Middle East since the 12th-century. It does not appear in surviving Islamic pictorial sources, but is shown, mounted on both carts and the backs of elephants, in 12th–13th-century carvings from Indochina.

Another interesting device was a screen to obscure the movements of troops. One was used with notable success during the final assault on Acre in 1291, where a heavy cloth was raised with pulleys during the night near a damaged Crusader tower. Even the defenders' mangonels could not bring it down; meanwhile it hid the Muslims from crossbow arrows as they filled the defensive ditch, making a path for a successful assault party.

It is widely believed that the *mamluks* had little interest in re-using Crusader castles, but while this was true along the coast it was not so inland.

Throughout the interior of Syria and Palestine fortifications were repaired and strengthened. Here Mamluk fortifications faced the real danger of Mongol invasion as well as the ever present threat of further Crusader attacks. The final years of the Mamluk Sultanate saw new threats suddenly loom up from the Ottoman Turks on land and the Portuguese in the Indian Ocean. In Syria the coast was defended at a distance by castles in the mountains, while further inland the great Citadels of Aleppo and Damascus had their own arsenals, water cisterns, storerooms, barracks, gardens, offices, mosques and *hammam* bath houses. Jerusalem, though of great religious significance, had no military importance after the Crusaders had been driven out, and gaps remained in its city walls until the Ottoman period. Its relatively small citadel was, however, repaired in 1310, and was said by Felix Fabri (a European visitor of around 1480) to look like a German castle with high walls, battlements, many loopholes to shoot through, and iron-bound gates.

Saladin started the process of demolishing coastal fortifications retaken from the Crusaders, and his policy was continued by the Mamluk Sultans, who replaced large coastal castles with small *burj* towers serving as observation posts. The Palestine coast between Sidon and Al Arish was virtually desolated so that there would be no ready-made fortified bases along its low-lying and vulnerable beaches. The rockier Lebanese coast revived under Mamluk rule but was still only allowed weak defences. At Tripoli a new town grew up beneath the walls of the old Crusader castle at some distance from the shore, while the old Crusader town merely served as a port. It was protected by four small towers about 300 metres apart – a gap which could be covered by 14th-century mangonels. Two additional towers were built in the mid-15th century further up the coast, these being 1,000 to 1,200 metres apart – gaps covered by the new gunpowder cannon.

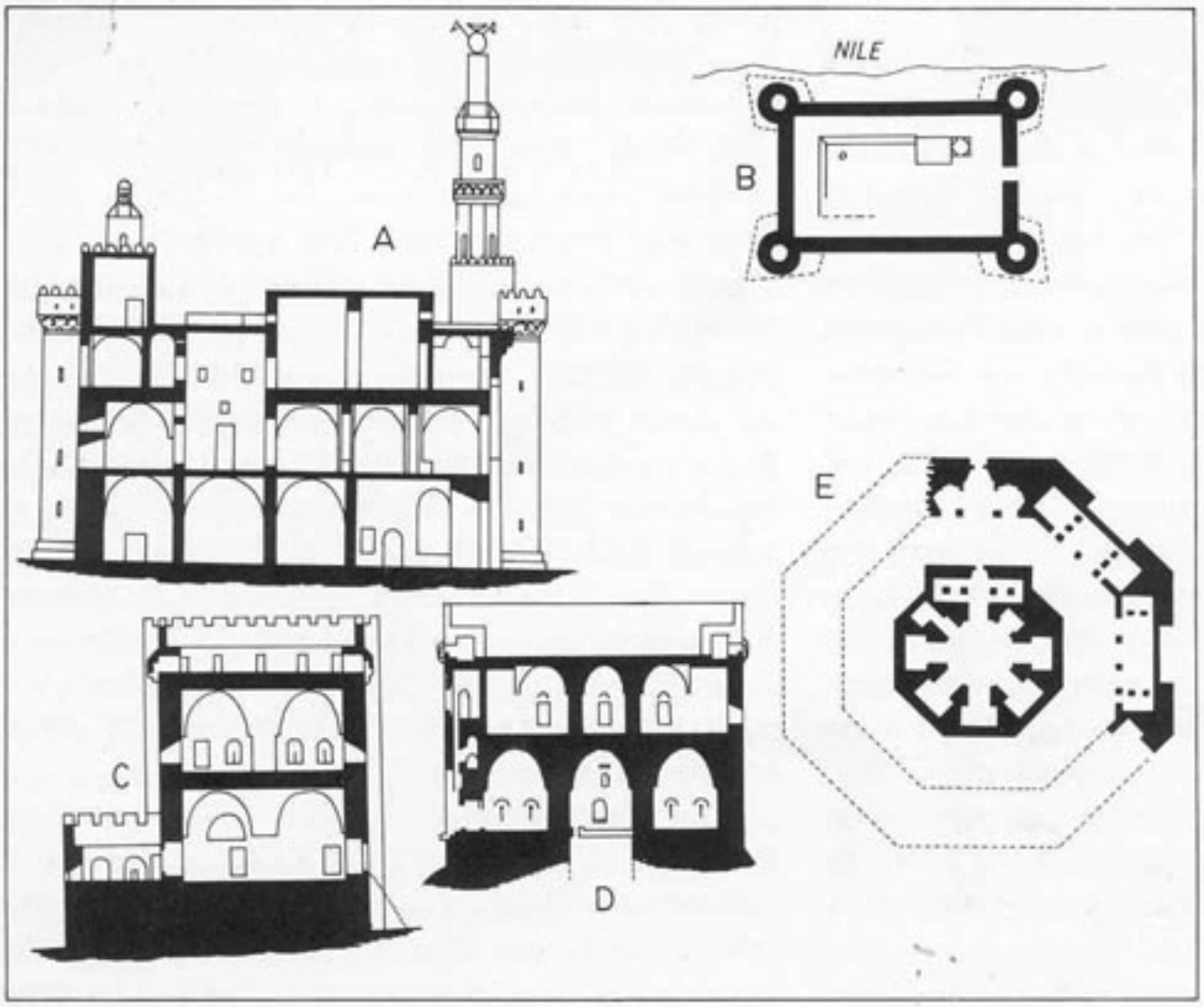
Egypt's Mediterranean coast was easier to defend and so its fortifications were not demolished. The walls of Alexandria were restored in the late 13th century with a deeper ditch, while the towers at Rashid and Dumyat were also repaired. A barrier of stones was, however, laid across the Nile at Dumyat to stop larger ships sailing up river. When Christian piracy grew more serious in the early 14th century these fortifications were again strengthened. Some, including Sultan Qait-bay's beautiful fortress overlooking Alexandria harbour, were eventually equipped with cannon now that European pirate ships were similarly armed. Nor was the north Sinai coast forgotten, Here Bars-bay's early 15th-century fort at Burj al Tina was garrisoned by ten cavalrymen and 15 infantry supported by a unit of bedouin auxiliaries who lived in rough brick houses nearby. Burj al Tina was again rebuilt by Al Ghuri, the penultimate Mamluk Sultan, as part of his efforts to counter both Christian piracy and the Ottoman threat; this time, however, it was given an unusual double-octagon plan. Pirates and Ottomans now possessed plenty of cannon, while Burj al Tina's last *mamluk* garrison probably also had firearms mounted on both the inner and outer octagons.

The Mamluk Sultanate's attitude to gunpowder is a story in itself. *Siham khita'iyya* (Chinese arrows with *naft* cartridges attached) had been used since the 13th century, but by the mid-14th century the *mamluks* had a greater variety of fire weapons in their

arsenal, including the well-known *qawarir al naft* fire-pots and the newer *makahil al barud*, which were probably early cannon. True *naft* included distilled petroleum, the Middle Eastern peoples being far in advance of Europe in distillation techniques. The most sophisticated *naft* weapon was a bronze syphon with a piston pump and an ignition fuse on the nozzle which could produce a jet of fire 'as long as a lance'. More commonly, however, *naft* was put into small clay or glass grenades or in larger containers hurled by mangonels. Exactly when these came to include real gunpowder is unclear, and the use of similar terminology for both old *naft* and new gunpowder further clouds the issue. Many of the clay containers found by archaeologists come from the ruins of castles, and some pots have very thick walls which could have added to their explosive effect.

Gunpowder firecrackers had been known in China since the mid-11th century, and though these were not really weapons the Chinese may have developed explosive mines a century later. In Egypt fragments of *naft* grenades used to burn down Fustat in 1168 have been found to contain traces of saltpetre. This essential ingredient of gunpowder was widely known in the Muslim Middle East by 1230, by which time explosive iron grenades were being used in China. Bamboo rather than metal gun barrels were possibly being used to shoot bullets a few decades later, and at this time Muslim engineers seem to have been prominent in operating China's mangonels and cannon-like explosives. (See MAA 251: *Medieval Chinese Armies 1260–1520*.)

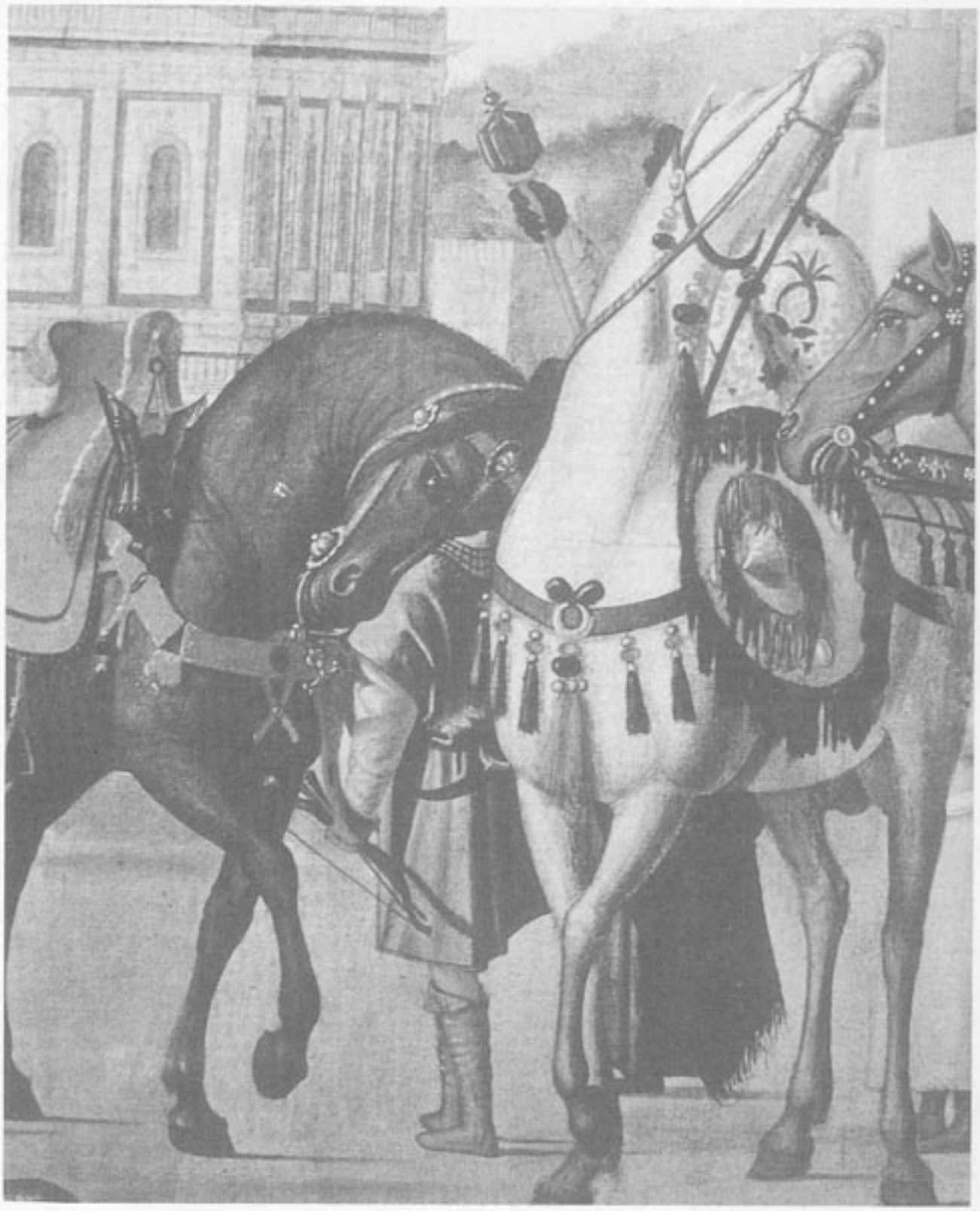
During the battle of Mansura against invading Crusaders in 1249 the largely *mamluk* army of the last Ayyubid Sultan shot *qidr 'iraqi* (Iraqi pots) from giant crossbows, these exploding on impact and possibly containing primitive gunpowder. True explosives were almost certainly used against Acre in 1291, while the late 13th-century *furusiyah* author Hasan al Ramah describes three types of such *qidr* pots: Iraqi, Magribi (North African) and Persian. The most significant section in Hasan al Ramah's book, however, provides recipes for fuses, while his own recipe for gunpowder, though difficult to interpret, gives a more effective explosive than that of the English chemist Roger Bacon writing in 1266–8. Hasan also mentions explosive *sawarikh* firecrackers carried by infantry and cavalry to frighten enemy horses, as well as rockets, arrow-grenades, rocket-propelled torpedoes which skimmed across the sur-



(A) Section through the central keep and mosque of Qayt-bay's fortress overlooking Alexandria harbour, 1479. (B) Plan of Qayt-bay's small fort overlooking the Nile north of Rashid, 1479 (after De Cosson). (C) Restored section through the 'Rivermouth Tower', Tripoli, Lebanon, c.1475, with additional bastion on left dating from the 17th–18th cents. (after Sauvaget). (D) Section through the 'Lions Tower', Tripoli, Lebanon, c.1475 (after Sauvaget). (E) Plan of the Qal'at al Tina, Sinai, probably built for Sultan al Ghuri in the early 16th cent. (after Tamari).

face of the sea, and kites to drop incendiaries on castles or ships.

A sudden increase in references to *naft* later in the 14th century now referred to gunpowder rather than the old petroleum-based weapons. The word *naft* was nevertheless soon superseded by the term *barud*. The earliest definite *mamluk* guns were called *mukhula al naft* and *midfa' al naft*, the *midfa* being a small hand-held mortar on the end of a long pole like the earliest handguns in Europe. Despite being among the first Muslims to use guns, the *mamluks* still relied on mangonels until the end of the 14th century and only after that were firearms used in any numbers. Early 15th-century Muslim India got cannon from the Middle East, while handguns as well as crossbows were carried by infantry during a Cairo procession of 1432. During the first decade of the 16th century – the last of the Mamluk Sultanate – the Sultans made great efforts to get more guns, but were never able to field as many as their Ottoman or European foes. Gunners were trained near the Qubbat al Hawa (Dome of the Winds) at Raydaniya, where, only a few years later, the *mamluks'* lack of guns would lead to their final defeat by the Ottoman Turks. A force of African, North African and Turcoman handgunners was also raised, but *mamluk* cavalrymen themselves never adopted firearms, regarding them as dirty and degrading.



From the late 15th century, Islamic figures start to appear with remarkable accuracy in Italian Renaissance art. Here a mace-armed African horseman, identified as a mamluk *by his fluffy red* zamt *hat, carries the fringed shield noted by European travellers and shown in* mamluk *art. The painter, Carpaccio, also made a clear distinction between the* mamluk's *light horse-harness and that of St. George's heavy horse on the left. (*Story of St. George *by Carpaccio, 1502–7,* in situ *San Giorgio, Venice, author's photo)*

Further Reading

Al Ansari (trans. G.T. Scanlon), *Tafrij al Kurub fi Tabdir al Hurub: A Muslim Manual of War* (Cairo 1961); late 14-cent. Mamluk military manual.

D. Ayalon, *Gunpowder and Firearms in the Mamluk Kingdon* (London 1956).

D. Ayalon, *Studies in the Mamluks of Egypt* (London 1977).

D. Ayalon, *The Mamluk Military Society* (London 1979).

Bulletin de la Société Royale d'Archéologie d'Alexandrie X/2 (1938–9), two articles by E. Combe & A. de Cosson on Qait-bay's fortifications near Alexandria.

P.W. Edbury (edit.), *Crusade and Settlement* (Cardiff 1985); conference papers including several dealing with the Mamluks.

N.A. Faris & R.P. Elmer (trans.), *Arab Archery* (Princeton 1945); late 15th-cent. Mamluk treatise on archery.

J. Glubb, *Soldiers of Fortune: The Story of the Mamluks* (Dorchester 1988).

R.S. Humphreys, 'The Emergence of the Mamluk Army,' *Studia Islamica XLV* (1977).

Ibn Iyas (trans. G. Wiet), *Journal d'un Bourgeois du Caire* (Paris 1955); diary of a civilian observer of the fall of the Mamluks.

R. Irwin, *The Middle East in the Middle Ages: The Early Mamluk Sultanate 1250–1382* (London 1986).

J.D. Lathan & W.F. Paterson, *Saracen Archery: An English Version and Exposition of a Mameluke Work on Archery (ca. A.D. 1368)* (London 1970).

D.P. Little, 'The Fall of 'Akka in 690/1291' (Muslim accounts including eye-witnesses and participants), in *Studies in Islamic History and Civilization in Honour of Professor David Ayalon*, edit. M. Sharon (Jerusalem & Leiden 1986).

L.A. Mayer, *Mamluk Costume* (Geneva 1956).

L.A. Mayer, *Saracenic Heraldry* (Oxford 1933).

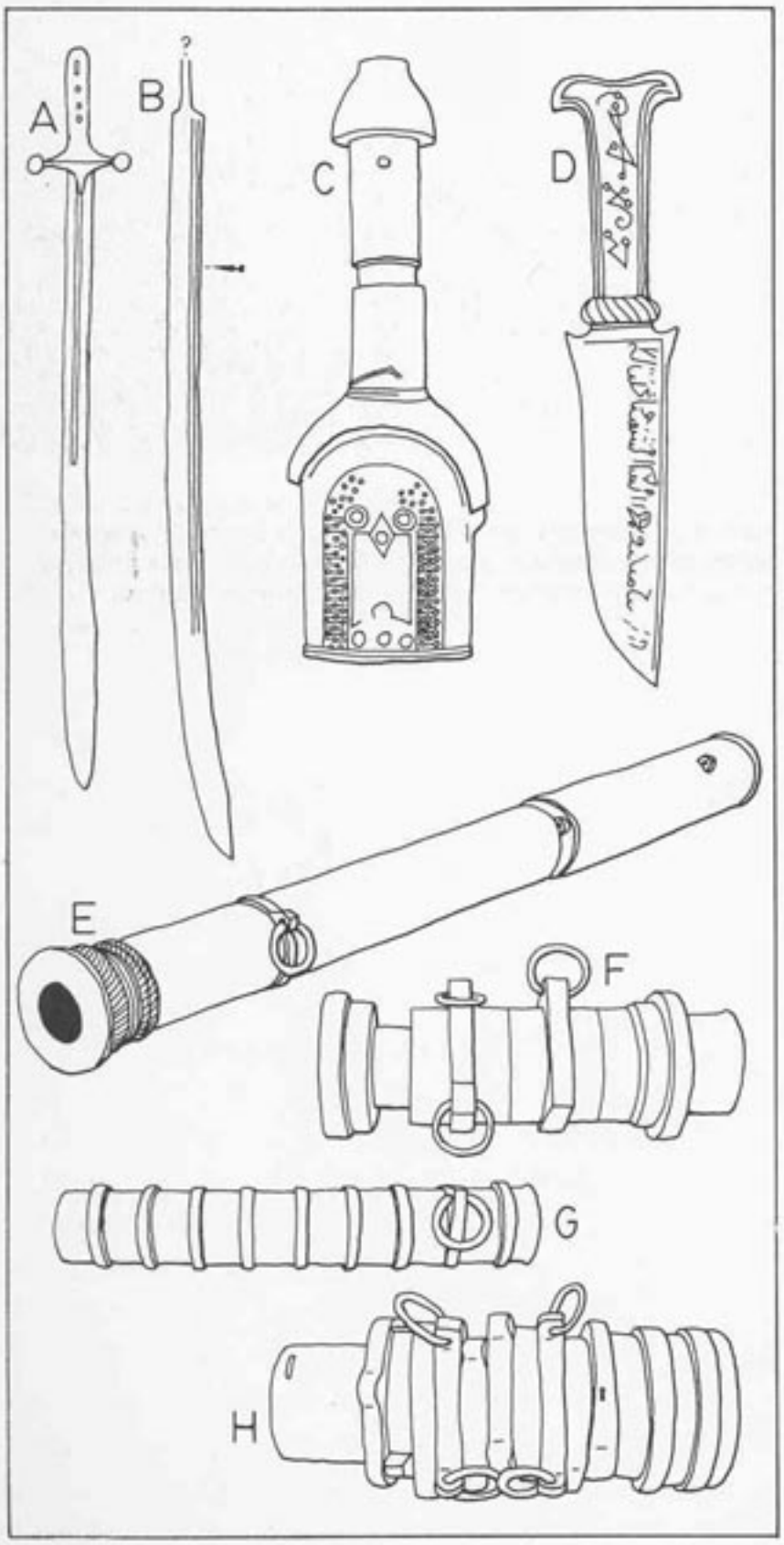
M. Meinecke, 'Zur mamlukischen Heraldik,' *Mitteilungen des Deutschen Archälogischen Instituts, Abteilung Kairo* XXVIII/2 (1973).

H. Rabie, 'The Training of the Mamluk Faris' (on cavalry training), in *War, Technology and Society in the Middle East*, edits. V.J. Parry & M.E. Yapp (London 1975).

S.F. Sadeque, *Baybars I of Egypt* (Oxford 1956).

J. Sauvaget, *La posta aux chevaux dans l'empire des Mamluks* (Paris 1941).

J. Sauvaget, 'Notes sur les défences de Marine de



(A) Late 13th cent. Mamluk sabre (Topkapi Mus., Istanbul). (B) The Blade Gajere, probably 14th cent. Mamluk Egypt or North Africa, later hilt removed (Regalia of the Katsina Emirate, Northern Region, Nigeria). (C) Mamluk or Byzantine cast-bronze sword hilt, 14th–15th cents. (Askeri Mus., no. 2382, Istanbul). (D) Symbolic or 'magical' bronze dagger, Mamluk Egypt 14th cent. (Mus. Nazionale di Capodimonte, Naples). (E) Bronze cannon from Egypt, early 16th-cent. Mamluk or Ottoman (Naval Mus., Istanbul). (F-H) Bronze cannons made for the army of the Mamluk Sultan Qayt-bay, mid-15th cent. (Army Mus., Istanbul).

Mamluk *military band seated beneath a heraldic motif, in a copy of Al Jazari's* Automata *made in AD 1315. Four figures wear the tall* sharbush *cap which came into use around this time. (Present whereabouts unknown)*

Tripoli,' *Bulletin de Musée de Beyrouth II* (1938).
J.M. Smith, 'Ayn Jalut: Mamluk Success or Mongol Failure?' *Harvard Journal of Asiatic Studies* XLIV/2 (1984).
M.M. Ziada, 'The Fall of the Mamlukes 1516–1517,' *Bulletin, Faculty of Arts, Foad University VI* (1941).
N.A. Ziadeh, *Urban Life in Syria under the Early Mamluks* (Westport 1953).

THE PLATES

Plate A: Mamluk recruitment, 1250–1300

A1: Mamluk Senior Amir, c.1270

Mamluk officers generally followed Middle Eastern custom and wore white in summer, like the woollen *qaba* coat worn over this man's mail hauberk. Over the long hair characteristic of Turks and Mongols even after they converted to Islam this man has an early style of woollen *kalawta* cap. Yellow trousers were typical of soldiers and reflected the Mamluks origins as the élite of the preceding Ayyubid army. A leather *saulaq* purse also hangs from a sword-belt whose decorations proclaim the officer's rank. (Main sources: *Baptistère de St. Louis* inlaid bronze basin,

Infantry are not often shown in Mamluk art. This figure on an inlaid bronze basin dating from the late 13th century still carries the long sabre of a cavalryman but, in addition to a small shield, has the leg bindings of a foot soldier rather than a dismounted horseman. (V & A Mus., inv. 740–1898, London, author's photo)

Egypt c.1300, Louvre, Paris; mid-13th-cent. inlaid bronze basin, private coll. Rome; enamelled glass flask, Syria AD 1250–60, Brit. Mus., no. 69.1–20.3, London; mid-late 13th-cent Mamluk military belt, Benaki Mus., no. 1900–44, Athens.)

A2: Khawaja slave merchant, c.1270

The role of the slave merchant, often known as a *khawaja*, was not seen as dishonourable in the Middle East. This man wears the typical costume of a prosperous 13th-century Persian or Arab merchant, including a large *imama* turban, a dark woollen *aba*, a long woollen shawl and stockings. Like almost all Muslim men of the period, with the exception of the *mamluks* themselves, he has shaved his head but wears a beard. (Main source: *Maqamat of al Hariri*, Syrian manuscript, AD 1275–1300, Brit. Lib., Ms. Or. 9718, London.)

Detailed representations of warships are extremely rare, but this 15th-century leather shadow puppet not only shows a vessel with a stern rudder, but three marines with bows and schematic kite-shaped shields at their feet. Note that the only crewman to wear a lamellar jawshan *cuirass holds the tiller. (Inv. I.1641, Mus. für Islam, Kunst, Staat. Museen, Berlin)*

A3: Turkish slave recruit, c.1250

Most of the slaves recruited for service in 13th-century Mamluk armies came from the Turkish steppe peoples of southern Russia and the Ukraine. Mostly enlisted as adolescents, they often kept in touch with their original families. Their cultural impact on the Muslim Middle East has generally been ignored, though the widespread popularity of, e.g., stringed musical instruments almost certainly reflected Chinese influence via the Turks. This young man wears the tall pointed *saruqi tatariya* hat associated with such nomads, and a tunic decorated with Byzantine embroidery. (Main sources: tunic and musical instrument from 13th-cent. Turkish graves at Kirovo & Cingul-Kurgan, Ukrainian Historical Mus. Kiev; *Ladislas Legend*, wall-painting c.AD 1300, *in situ* church, Velká Lomnica, Slovakia.)

Plate B: Cavalry, 1300–1350

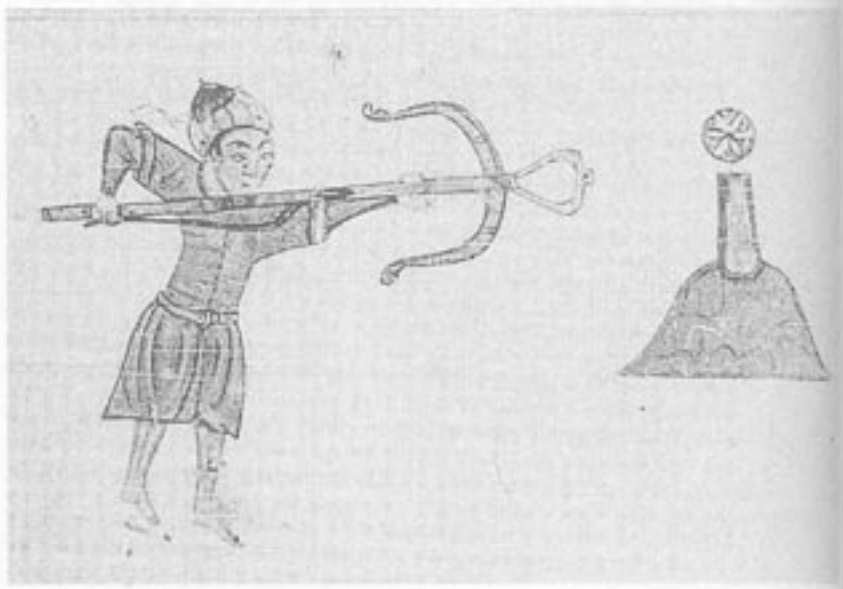
B1: Khassaki (ruler's mamluk), c.1300

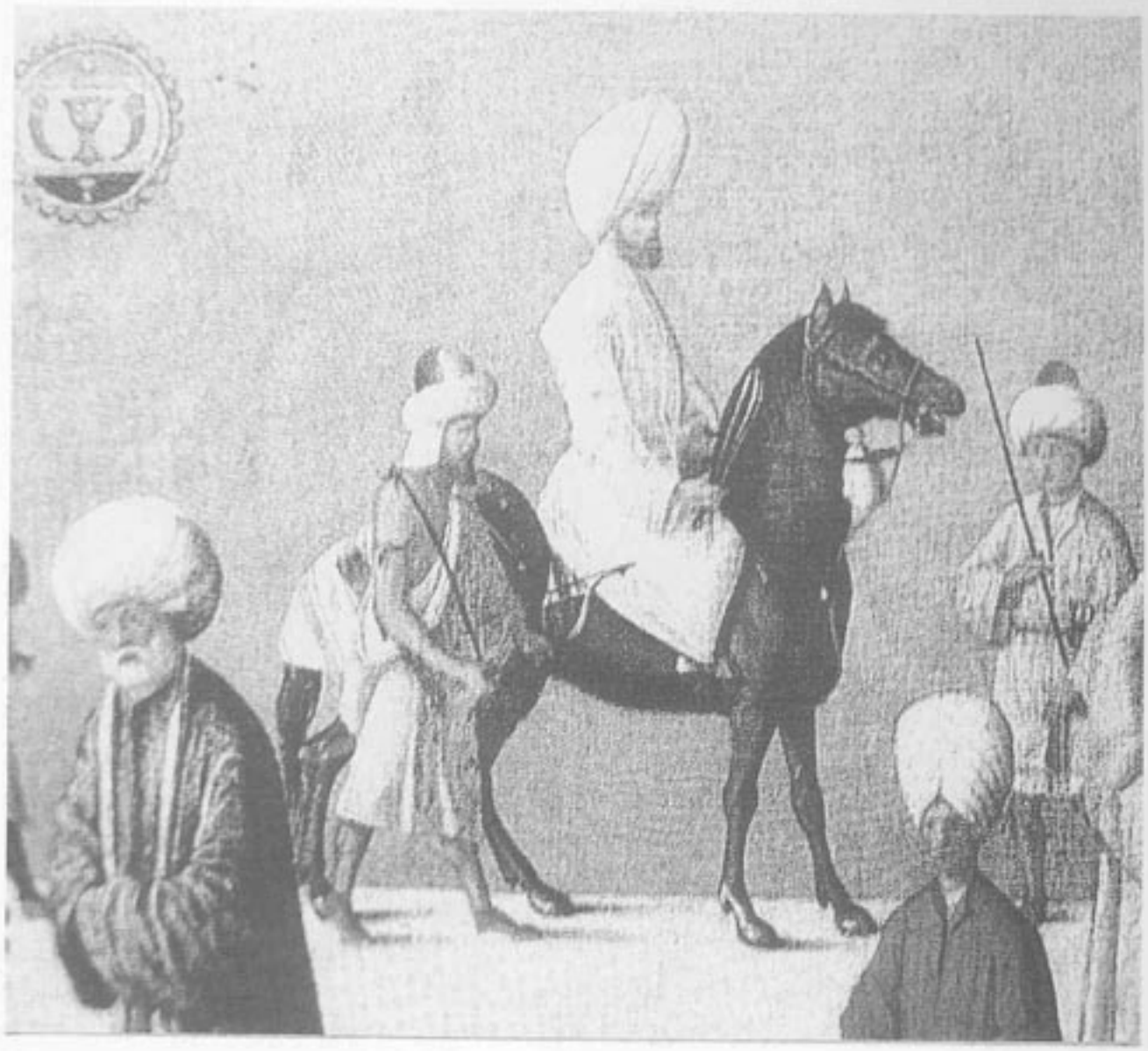
The *khassaki* were the Mamluk ruler's own *mamluks* and formed a cavalry élite which included heavily armoured troops. Such armour already betrayed Mongol influence, though complete iron lamellar cuirasses such as this had been seen in Muslim Iran and Turkestan for some time. The one-piece helmet worn by this man has a sliding nasal, which did not appear in Europe for several more centuries; it was originally designed for horse-archers. Horse-armour had been used by Muslim armies since the 7th century, but had previously been more characteristic of Iran than of Egypt or Syria. This example is probably of felt or buff leather covered in rich fabric. (Main sources: inlaid bronze basin dedicated to Baybars, late 13th-cent. Syria, Victoria & Albert Mus., no. 740–1898, London; helmet dedicated to Sultan al Nasir, early 14th cent. Porte de Hal Mus., Brussels; *Baptistère de St. Louis* inlaid bronze basin, Egypt c.1300, Louvre, Paris; mid-13th-cent. inlaid bronze basin, private coll. Rome; inlaid brass tray, late 13th-early 14th-cent. Egypt, Mus. of Islamic Art, Cairo.)

B2: Amir's mamluk, c.1315

Mamluks maintained by senior officers had less prestige than the *khassaki*, but their equipment seems to have been good. Several illustrations show fighting *mamluks* wearing broad-brimmed helmets or hats, while written sources refer to the use of imported or captured European helmets. This horseman has, therefore, been given a *chapel de fer* of typical Italian type, since the Genoese sold weaponry to the Muslims despite a Papal ban. From it hang layers of cloth-covered mail as shown in Mamluk art and again reflecting Italian fashion. His tunic is in Turkish or Mongol style and he is armed with spear, mace and *khanjar* dagger. Mamluks would rarely be seen without the latter weapon, which was also the

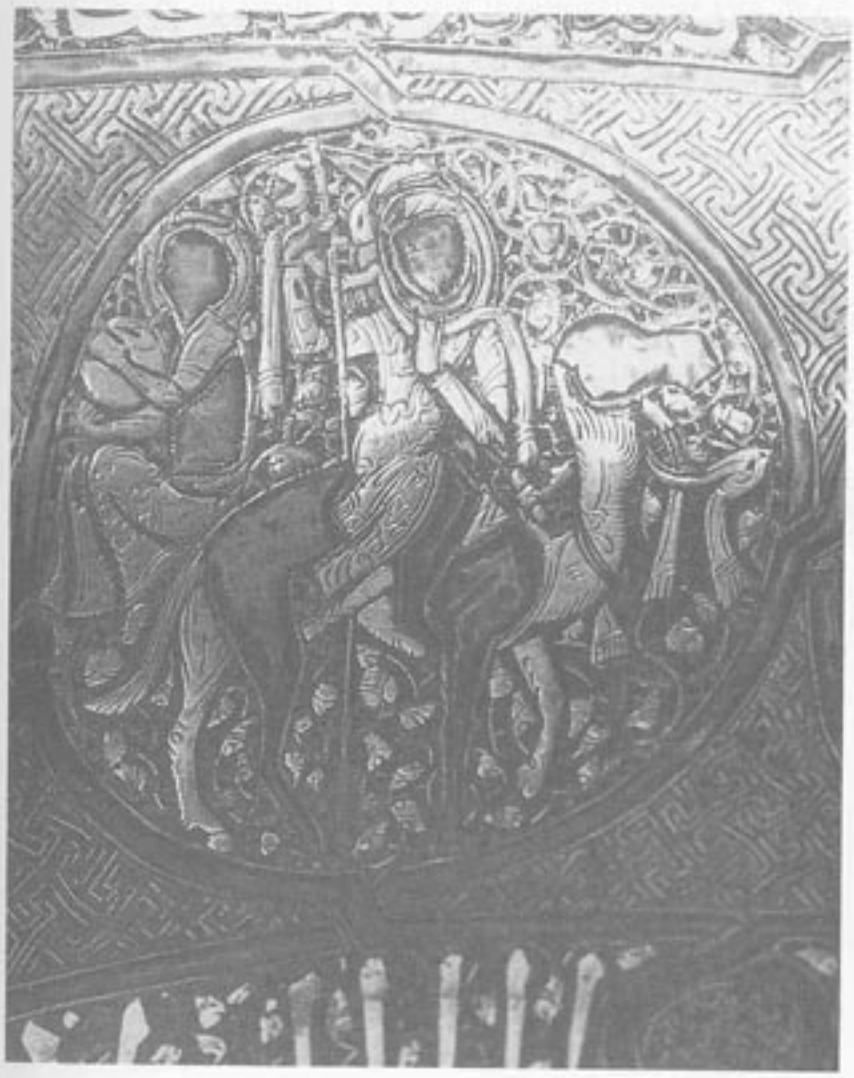
One of the most detailed late Mamluk furusiyah *training manuals is this one by Ibn Akhi Khazam made in 1470. Here a foot soldier uses a large crossbow against a circular target. (Bib. Nat., Ms. Ar. 2824, f.67r, Paris)*





This detail from a remarkably accurate painting of The Reception of Venetian Ambassadors in Mamluk Damascus *by an anonymous artist of the 'school of Bellini', 1488–96, shows a horseman wearing the tall turban of a senior* amir. *He is accompanied by an infantry archer, and rides past a building decorated with an example of Mamluk heraldry. (Louvre Mus., inv. 1157, Paris)*

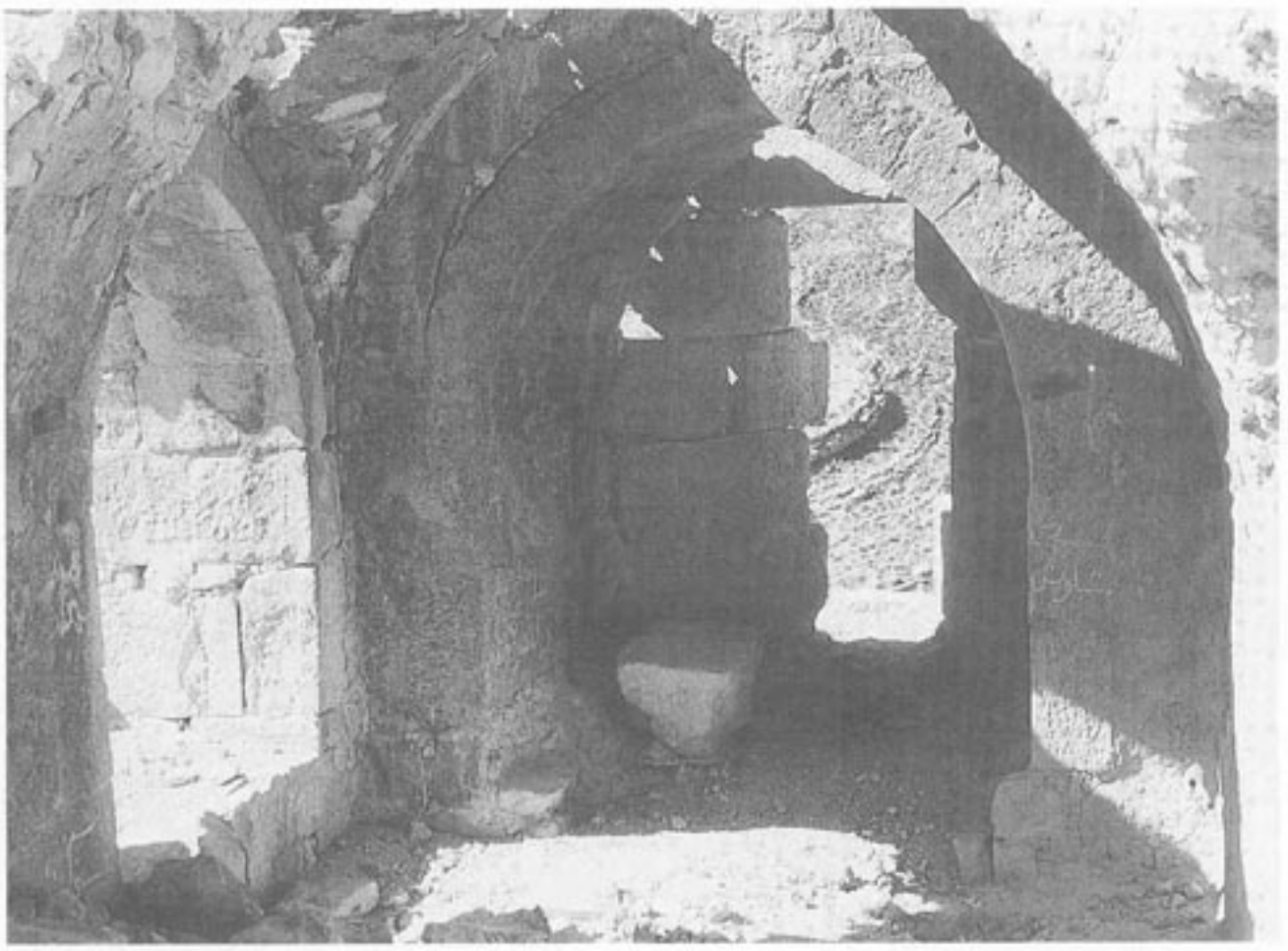
▼ *Another figure on the inlaid bronze basin in the Victoria & Albert Museum shows a bedouin Arab warrior, perhaps an auxiliary, with the Arab's typically long spear. To the left a lady plays a tambourine; bedouin women having encouraged their menfolk on the battlefield since pre-Islamic times. (V & A Mus., inv. 740–1898, London, author's photo)*



original behind the medieval English and European *hanger* short-sword. (Main sources: *Baptistère de St. Louis* inlaid bronze basin, Egypt c.1300, Louvre, Paris; Coptic *Gospels*, mid-13th cent., Inst. Catholique., Ms. Copte-Arabe 1, Paris; inlaid bronze ewer, Syria AD 1300–1350 after Schindler, now lost; *Maqamat of al Hariri,* Nat. Bib., Cod. AF9, Vienna.)

B3: Halqa trooper, c.1315

Of even lower status were the *halqa* free-born troops of varied origins, though in the early 14th century they were still fully trained cavalry. This trooper wears a late form of tall *kalawta* fur-lined cap with a raised and decorated peak. Beneath his Tatar-style coat he has a mail hauberk over which he has an iron lamellar cuirass. This particular cuirass has the upper edge of each row of lamellae covered with a leather strip to avoid snagging his bow. His axe is held in a ring from a belt beneath his sash, a system also used to carry maces. Note that whereas figure B2 has an example of Mamluk heraldry on the sides of his gaiters, this man has the motif of his patron or leader on the decorative enamelled medallions of his horse's



Shawbak in southern Jordan is often called a Crusader castle, but the existing structure was rebuilt and greatly enlarged by the Mamluks. This picture shows several firing or observation positions within its massive wall. (Author's photograph)

breeching straps. (Main sources: inlaid brass bowl, Syria, late 13th cent., Staatliche Museen, Berlin; inlaid bronze incense burner, Egypt, late 13th-early 14th cents., Mus. of Islamic Art, Cairo; *Kitab Manafi al Hayawan*, Egypt, early 14th cent., Bib. Ambros., Ms. AR. AFD. 140, Milan; *Maqamat of al Hariri*, Egypt, AD 1334, Nat. Bib., Cod. AF9, Vienna.)

Plate C: Infantry, 1300–1350

C1: Jandar infantryman, c.1300

The *jandar* included professional foot soldiers, some trained in the dangerous skills of handling *naft* or 'Greek fire'. Such *naffatin* protected themselves with clothes lined with fire-proof raw talc (mica or magnesium silicate); this man also wears a hood of the same construction over his quilted cap. His grenades are made of baked clay and he is armed with a simple form of straight-bladed Arab sword. (Main sources: inlaid bronze basin dedicated to Baybars, late 13th cent. Syria, Victoria & Albert Mus., no. 740–1898, London; bronze sword-hilt, Askeri Mus., no. 2382, Istanbul; *furusiyyah* training manuals, 15th-cent. copies of mid-14th-cent. originals, Asiatic Inst. Lib, St. Petersburg, & Keir Coll., London.)

C2: Harfush auxiliary infantry, c.1325

Most Mamluk armies included large numbers of ill-trained infantry auxiliaries known as *harfush* or 'rabble'. Though they were despised by the élite *mamluks* they played a vital role in siege and mountain warfare. This man is dressed as an ordinary 14th-century Middle Eastern Muslim peasant or labourer. (Main sources: inlaid bronze basin dedicated to Baybars, late 13th cent. Syria, Victoria & Albert Mus., no. 740–1898, London; matrix for making sword hilts, Iran, 12–14th cents., Rifaat Coll., Geneva.)

C3: Ashir Syrian auxiliary, c.1325

The best auxiliaries came from Syria, including those of Arab bedouin and city origins. Unlike the ill-equipped *harfush*, the *ashir* could include wealthy tribal warriors. This man wears a mail-lined *kazaghand* and carried his fine Persian sword over his shoulder in bedouin style. On his boots is a single-bar heraldic motif showing that he was employed by the Sultan's *barid* which carried government messages from all parts of Syria to the Mamluk capital in Cairo. (Main sources: *Kalila wa Dimna*, Egypt or Syria, 13th-cent. manuscript, Topkapi Lib., Ms. Haz. 363, Istanbul; *Maqamat of al Hariri* manuscripts, Syria late 13th cent., Brit. Lib., Ms. Or. 9718, Mosul mid-13th cent. Brit. Lib., Ms. Or. 1200, London, Mosul mid-13th cent, Oriental Inst. Lib., Ms. S.23, St.

Petersburg; *World History by Rashid al Din*, Tabriz manuscript AD 1306–14, Royal Asiatic Soc. Lib., London.)

Plate D: Mamluk training, 1350–1400

D1: Khassaki royal mamluk prepared for a fire display, c.1370

Several surviving manuscript illustrations and descriptions deal with the 'Fire Game', but none show how the *naft* fireworks were attached to a man and his horse. This figure has therefore been given a normal 14th-century helmet with a complete mail aventail, while the fireworks are attached to a talc-lined coat similar to that worn by the *jandar* infantryman (fig. C1), to a long pole, and to the horse's talc-lined caparison. (Main sources: *furusiyyah* training manuals, 15th-cent. copies of mid-14th-cent. originals, Asiatic Inst. Lib., St. Petersburg, & Keir Coll., London.)

D2: Kuttubi student mamluk, c.1380

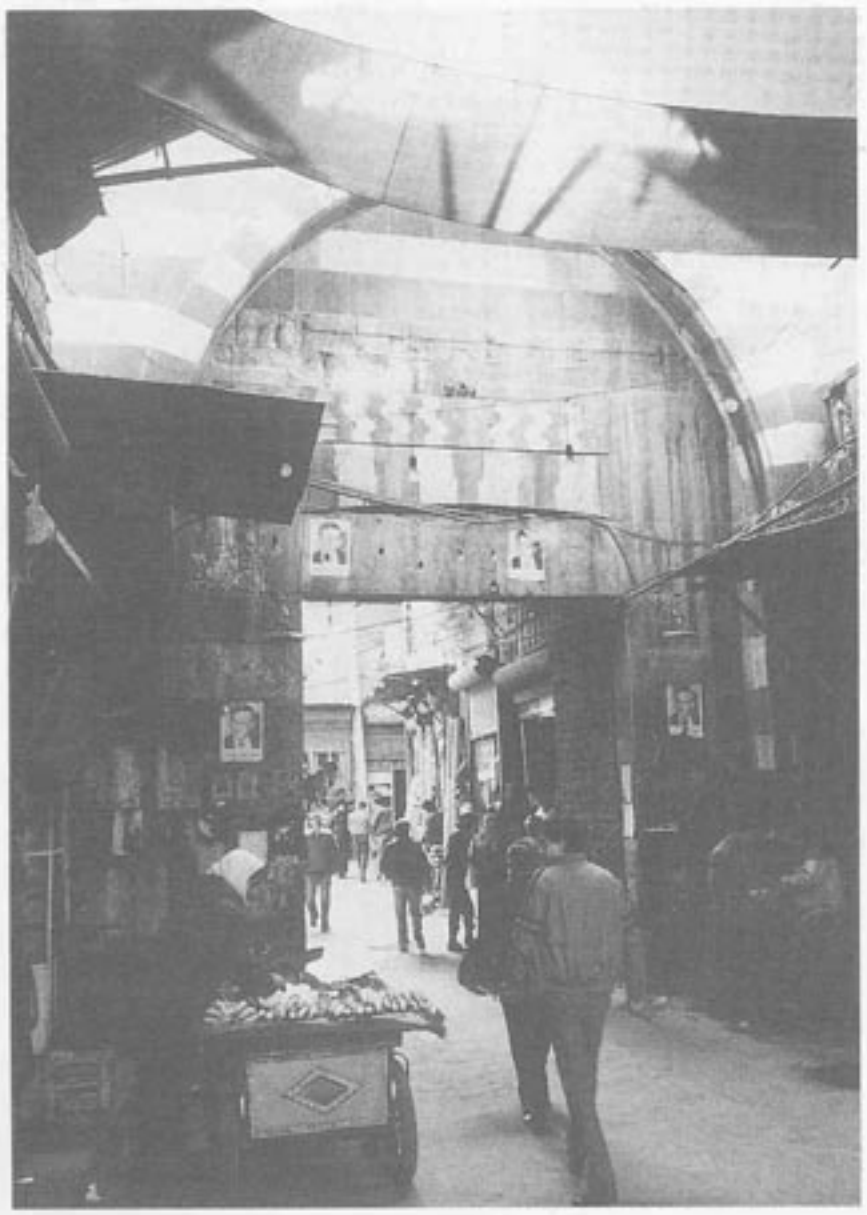
Before being freed as trained *mamluks* the young *kuttubi* students remained slaves and went through rigorous schooling. Apart from learning about Islam,

Mamluk troops, including several foot soldiers, are illustrated in this sketch by the Venetian artist Carpaccio, probably based on lost drawings by minor Italian artists who worked in the Middle East. Perhaps the most interesting feature is the long-hafted axes or halbards carried by several men; similar weapons of unknown date exist in some Turkish museums. (Louvre Mus., Paris)

and to read and write, the students gained military skills from riding and horse-care to the use of numerous weapons. Training was often done in armour, such as the iron vambraces on this young man's arms and the mail hauberk beneath his tunic. He wields his spear in the standard Middle Eastern two-handed manner and has a small leather shield strapped to his upper arm. His target is a hollow barrel-like object on a pole, which may have been designed to force a student to thrust and then rapidly withdraw his spear as he rode past. (Main sources: *furusiyyah* training manual, 15th-cent. copy of mid-14th-cent. original, Keir Coll., London; *Nihayat al Su'l* cavalry training manual, Mamluk AD 1371, Brit. Lib., Ms. Add. 18866, London; cavalry training manuals, Mamluk mid-late 15th cent., Bib. Nat., Ms. Ar. 2824, Paris & Topkapi Lib., Ms. Revan 1933.)

D3: Junior officer of the Sultan's bodyguard, c.1375

As professional soldiers, *mamluks* continued rigorous training throughout their careers. This man is strengthening his sword-arm by making vertical and horizontal cuts with swords of different weights against two wet clay targets. He sports a beard, indicating that he is no longer a *kuttubi*, and has now shaved his head like other Muslim men. He also wears the 14th-century equivalent of 'undress uniform' consisting of a small *takhfifah* turban and a lightweight woollen summer coat with heavily embroidered *tiraz* bands around the sleeves. A yellow sash may still have indicated a soldier. (Main sources: *Nihayat al Su'l* cavalry training manuals, Mamluk AD 1371, Brit. Lib., Ms. Add. 18866, London & Chester Beatty Lib., Dublin; fragments of decorated pilgrims' ceramic flasks, Syria, 14th cent., Nat. Mus., Damascus.)



Most of the wall, gates and Citadel of Damascus date from the Ayyubid and Mamluk periods. This is the Bab Faradis gate built in the late 13th–15th centuries using the decorative black basalt and white limestone typical of Syria. The wooden doors still have their iron covering.

Plate E: Cavalry hunting in the Nile Delta marshes, 1400–1450

E1: Tarkhan (retired mamluk), c.1425

This *tarkhan* has retired from military service although he might be called up in an emergency. The use of a crossbow from horseback appears in Mamluk art, and the spanning of this weapon comes from a detailed description in a 15th-century *mamluk* book on archery. His costume is that of the wealthy élite, and his magnificent belt indicates high military rank. The small drum attached to the saddle was as yet reserved for senior men. Much of the horse's harness comes from North Africa, perhaps one of those diplomatic gifts which passed between the Mamluks and the Marinid rulers of Morocco. (Main sources: *Kitab al 'aniq fi'l manjaniq*, Mamluk military manual, AD 1462, Topkapi Lib., Ms. Ahmet III 3469, Istanbul; Mamluk military manual, AD 1470, Bib. Nat., Ms. Arabe 2824, Paris.)

E2: Julban (junior mamluk), c.1400

The *zamt* fluffy red woollen hat was the most characteristic garment of the later Mamluk period, though it had earlier been the headgear of the civilian poor. Several pieces of clothing survive from 15th-century Egypt, including a *zamt*, this man's printed cotton *kaftan* and his elaborately decorated mail-

The small fort at Aqaba in southern Jordan was made famous by Lawrence of Arabia during the First World War. The present structure was largely built by the Mamluk Sultan al Ghuri to guard Red Sea trade routes from Portuguese piracy. (Author's photo)

lined *kazarghand*. The *kaftan* has tightly pleated triangular inserts on each hip, while the *kazaghand* has *tiraz* bands dedicated to Sultan Jaqmaq. The man's decorated quiver is taken from an Italian sketch of one used by a Byzantine Emperor's guards which was clearly a diplomatic gift either from the Mamluk Sultan or from a Turkish ruler in Anatolia. (Main sources: *zamt* cap, Coptic Mus., Cairo; 15th-cent. *kaftan*, Mus. of Islamic Art, Cairo; 15th-cent. *kazaghand*, Mus. Nazionale, Florence; sketch by Pisanello, Art Instit., Chicago.)

E3: Mamluk Rammaha lancer, c.1450

Mamluk 15th-century representational art is very stylized, but in addition to surviving weaponry there are Italian drawings and paintings based on sketches made in the Middle East itself. This fully equipped trooper is based on such a variety of evidence. His large helmet has the sliding nasal characteristic of the Turkish *chichak* and the 17th-century European 'Cromwellian' helmet. Beneath a wrap-around coat he has a mail-and-plate cuirass and scale-and-plate leg defences. A banner is furled beneath a silvered *tu* symbolic blade, while the fringed shield is mentioned by travellers and appears in Italian pictures of Muslim soldiers. The horse armour is virtually identical to that used in Persia and the Ottoman Empire. In addition to a heavy sabre this man also has a spear and mace thrust beneath his saddle. (Main sources: *Helmet of Bars-bay*, Mus. du Louvre, Paris; chamfron, Mamluk, 15th cent., Askeri Mus., no. 5710, Istanbul; *tu* standard finial, Mamluk 15th cent., Askeri Mus., no. 454, Istanbul; *Shahnamah*, Mamluk, AD 1510, Topkapi Lib., Ms. Haz. 1519, Istanbul; *Story of St. George*, painted panels by Carpaccio, late 15th cent., *in situ* Church of San Giorgio degli Schiavoni, Venice.)

On a different scale to other mamluk *fortifications is Sultan Qait-bay's castle overlooking Alexandria harbour. It was completed, with gunpowder artillery in mind, in 1479, and consists of a large inner citadel surrounded by a strong but lower outer wall. (Author's photo)*

During the 15th century the **mamluks** *built a series of fortified caravanserais along the main trade roads. On the left is Khan 'Ayyun al Tujjar in the Galilee, dating from around 1440. All these structures consisted of a strongly walled enclosure with corner-towers and living quarters. Such a plan can be seen more clearly on the right, at Khan Johadar on Syria's Israeli-occupied Golan Heights. (Author's photos)*

Plate F: Infantry and naval troops, 1400–1450

F1: Maghribi naval crossbowman, c.1450

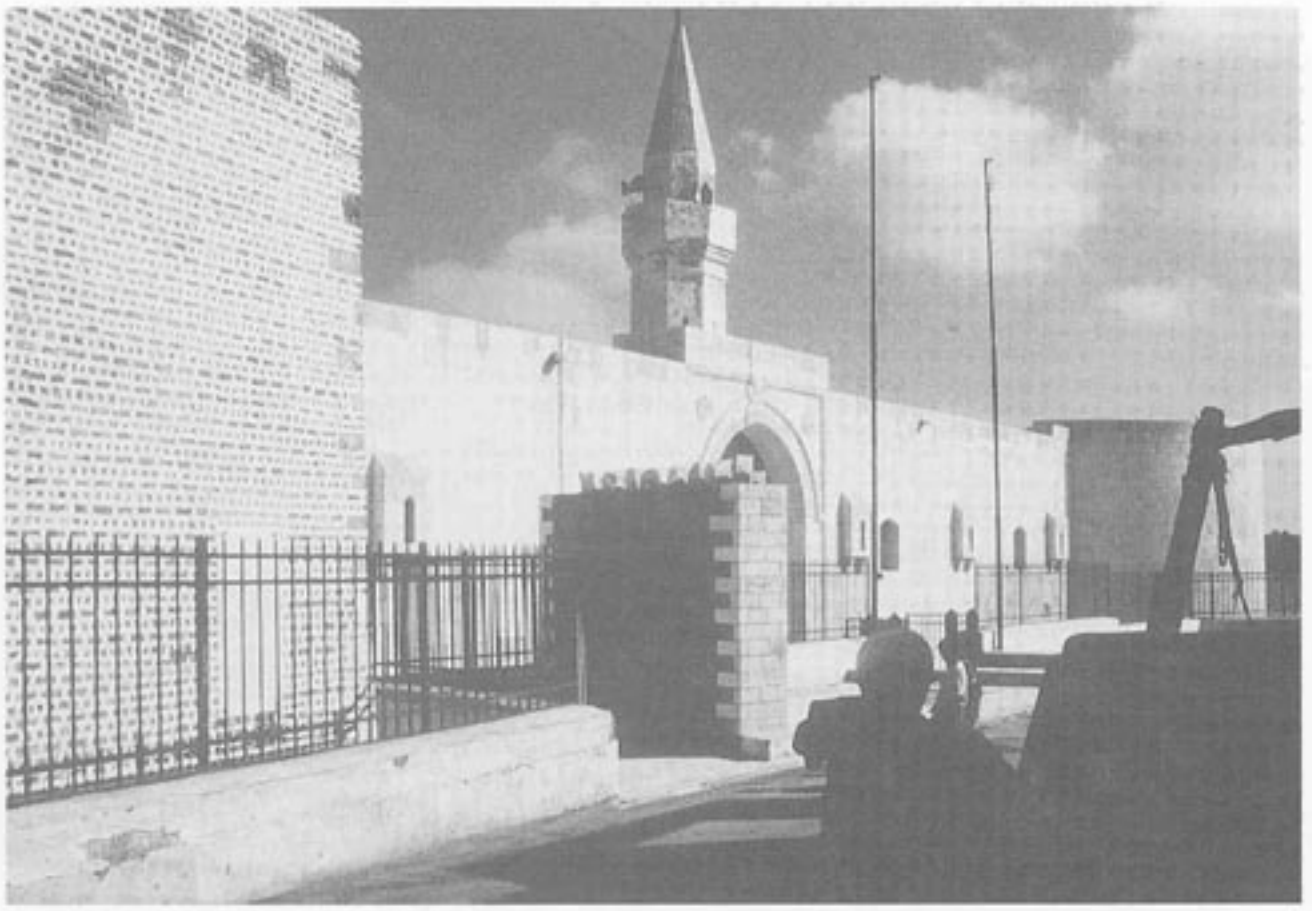
The Mamluks, always short of naval personnel, recruited sailors and marines from Muslim North Africa. This marine from Morocco or Algeria is dressed in typical Maghribi (North African) style as shown by the winding of his turban and the heavy weatherproof *burnus* cloak around his shoulders. The crossbow was also typical of naval warfare, and is based in pictures as well as a surviving example from Muslim Spain. His dagger and sword also come from that region. (Main sources: mid-late 15th-cent. crossbow, Archaeol, Mus., Granada; sword from Cadiz region, 14–15th cents., Archaeol. Mus., Seville.)

F2: Halqa infantryman, c.1450

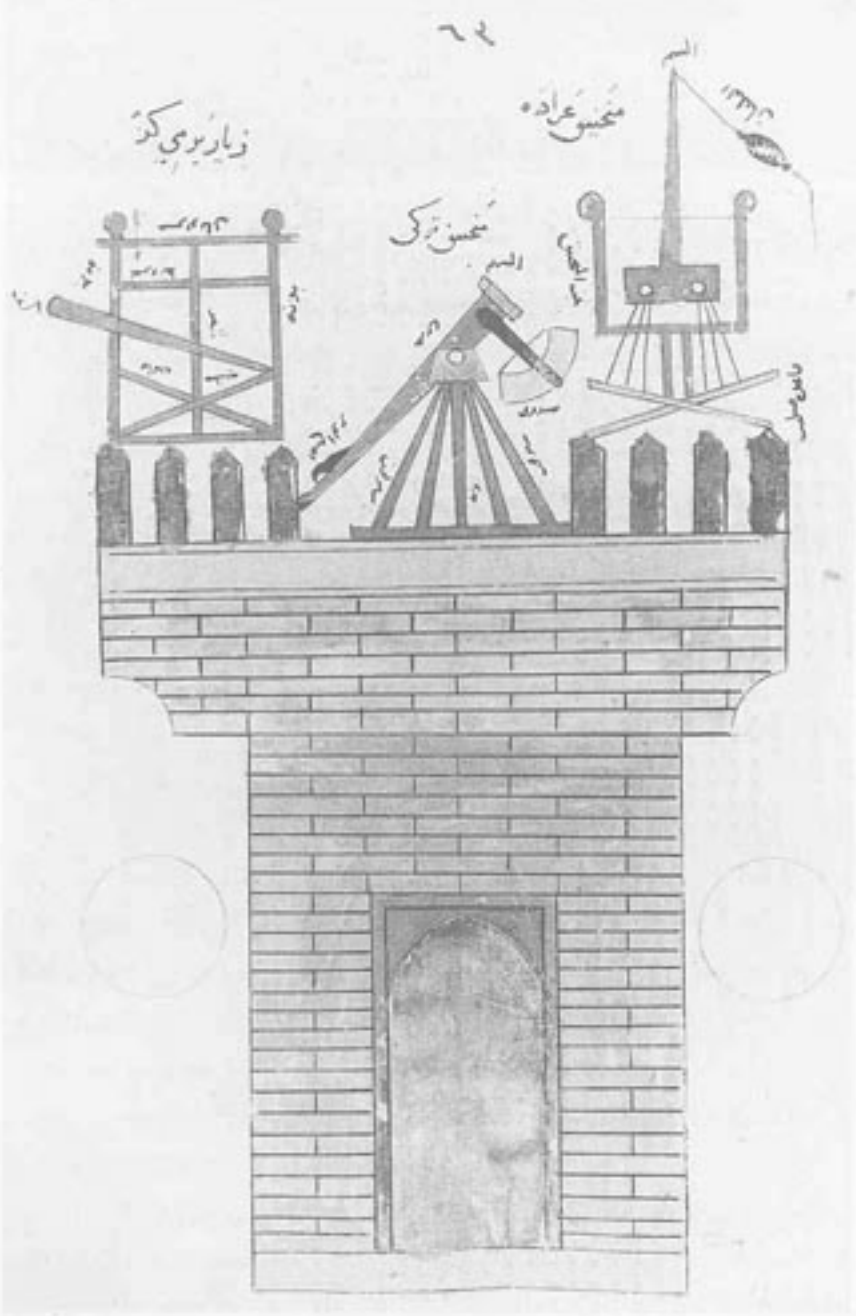
By the 15th century the *halqa* had declined into a barely trained infantry militia, though in Syria they still played a vital military role. Most appear to have been infantry archers. This man's red *zamt* hat proclaims his military status and he has wrapped a turban around it to distinguish himself from the neighbouring, frequently hostile, Aq-Qoyunlu Turks, who also wore red hats. The rest of his costume, including his *maluta* coat here worn off the shoulder while using a bow, was that of an Arab peasant or bedouin. His bronze-hilted sword is probably of a Byzantine or Balkan form, perhaps captured during the Mamluks' conquest of Cyprus. (Main sources: *Reception of Venetian Ambassadors in Damascus*, anon. Venetian panel painting, late 15th cent., Louvre Mus., Paris; *St. Ursula Cycle*, paintings by Carpaccio, late 15th cent., Accademia, Venice.)

F3: Egyptian naval captain, c.1450

Whereas the preceding figure is based on reasonably reliable Italian paintings of Mamluk troops, this figure of a heavily protected naval captain is based on surviving pieces of approximately dated costume, arms and armour. His quilted cap is worn over a remarkable mail-and-plate coif which forms part of a mail-and-plate cuirass. His massive halbard-like axe appears both in Italian drawings of Muslim infantry and as surviving weapons in a little-known Turkish museum. It may, however, have originated in Eu-



In the same year that Qaitbay completed his fortress at Alexandria, a more modest fort was completed six kilometres upriver from the port of Rashid. It consisted of a rectangle with round corner-towers and a slightly higher inner keep. The latter was demolished, probably when the corner-towers were encased by massive brick bastions by the invading French in 1799. The famous 'Rosetta Stone' was found during this French rebuilding. (Author's photo)



This illustration comes from a 1462 copy of a mid-14th-century work on siege engineering entitled Kitab al'aniq fi'l manajiq, *'Books of keys (to the understanding) of mangonels.' It shows three distinct engines. In the centre is a 'Turkish mangonel' of the normal counterweight type. On the right is a* manjaniq arradah *which is powered by a team of men pulling on ropes. On the left is a* ziyar *virtually identical to that shown on an early 13th-century plate from Iran. (Topkapi Lib., Ms. Ahmet III 3469, f.63, Istanbul)*

rope. (Main sources: quilted cap from a recently excavated Coptic grave, 15th cent., Cairo; mail-and-plate cuirass, 15th–16th cents., Nat. Mus., Damascus; halbard or axe, undated, Bektashi Mus., Haji Bektash; sketch by Carpaccio, late 15th cent., Louvre Mus., Paris.)

Plate G: Mamluk military music, 1450–1500

G1: Mamluk bandsman, c.1475

Military music played a major role in the Mamluk state, but in the later years more people, including civil as well as military officials, were given the right to have drums played outside their houses. It seems that many of the musicians were of African origin, unlike the *mamluk* élite, who were now drawn from the Caucasus region. This drummer has a large red *zamt* cap and a red *kaftan* with the side-pleats typical of the period. His drum and the way of holding it are based on Venetian paintings of *mamluks*. (Main

Here, in an Ottoman manuscript painted five years after the event, the Ottomans attack Mamluk Damascus in 1516. The cavalry of both sides are similarly equipped, although the mamluks *on the right have different and more varied turbans. Three typical Janissary handgunners fire from the left, while three* mamluks *with their* zamt *hats operate cannon in the centre. One of these gunners also wears a mail shirt, as do two* mamluk *horse-archers. (Topkapi Lib., Ms. Haz. 15978, f.235r, Istanbul)*

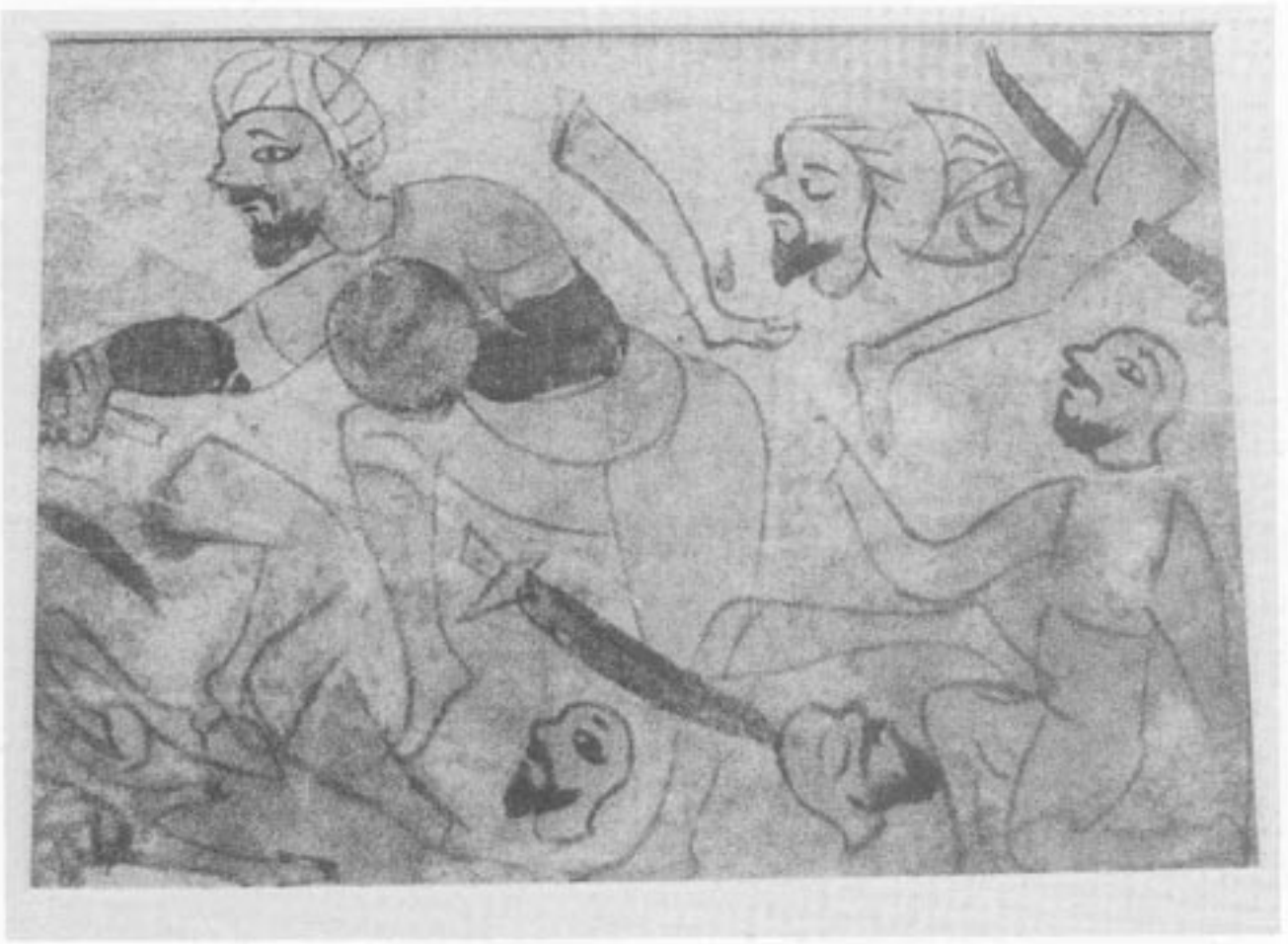
sources: recently excavated *kaftan*, Egypt 15th cent., Mus. of Islamic Art, Cairo; *Story of St. George*, painted panels by Carpaccio, late 15th cent., *in situ* Church of San Giorgio degli Schiavoni, Venice.)

G2: Amir of qaranis mamluks, c.1460

The costume, horse harness and military equipment of later *mamluk* armies was similar to that of the Ottomans, who based their military ideas on those of the Mamluk Sultanate. Here a senior officer of a *qaranis* regiment, meaning those recruited by a previous ruler, has a finely decorated helmet with sliding nasal bar and hinged cheek-pieces. Only the mail of his mail-and-plate cuirass is visible, the abdomen plates being hidden beneath a *sallari* coat lined with lynx fur. The use of metal shields was a response to an increasing use of handguns by infantry. Also note the small drum attached to his saddle. (Main sources: *mamluk* helmet, late 15th cent., Hermitage Mus., St. Petersburg; decorated *mamluk* iron shield, late 15th cent., Askeri Mus., no. 17410, Istanbul; *Story of St. George*, painted panels by Carpaccio, late 15 cent, *in situ* Church of San Giorgio degli Schiavoni, Venice.)

G3: Wealthy lady in outdoor costume, c.1500

A few fragments of female Islamic attire of the late Mamluk period survive, and such dress also appears



The 'folk' art of the Mamluk Sultanate was far simpler than that of the court, though often equally warlike. This gruesome sketch was made in the first half of the 14th century. (Met. Mus., inv. 1975.360, New York, author's photo)

in the European books of world costume that became popular during the Renaissance. Whereas indoors the wealthier Muslim women of Egypt and Syria wore magnificent and colourful dresses, modesty prevailed when they went outside. This lady has a large 'head veil' covering much of her body; this is attached by a narrow strip of cloth to a 'face veil' of lighter material. Beneath these she wears a long dress over very light muslin cotton trousers. Also note the outdoor slippers worn over similarly coloured indoor slippers. (Main sources: *Story of St. George*, painted panels by Carpaccio, late 15th cent., *in situ* Church of San Giorgio degli Schiavoni, Venice; *Shahnamah*, Mamluk, AD 1510, Topkapi Lib., Ms. Haz.1519, Istanbul; woodcuts of costume in *Pilgerfahrt* by Arnold von Harff, late 15th cent.)

Plate H: The last mamluk armies, 1500–1517

H1: Khassaki, c.1515

The Mamluk state had declined a long way by the early 16th century but its armies were still well equipped. This man is an élite *khassaki*, one of the Sultan's own *mamluks*. Normally his richly gilded mail-and-plate cuirass would be hidden beneath his marten fur-lined coat. Note that he wears his helmet over a skullcap and that, as described in various Mamluk training manuals, he puts on the left arm vambrace before the right. The covering of his horse's armour reflects the inlaid decoration on his arm and leg protection, perhaps as a form of individual identification, and the reins are strengthened with a series of chain-linked iron plates. (Main sources: *Shahnamah*, Mamluk, AD 1510, Topkapi Lib., Ms. Haz. 1519, Istanbul; vambrace and leg armour, late 15th cent., Askeri Mus., nos. 1/A–4–11/C–8, Istanbul; *mamluk* war-axe, late 15th-early 16th cents., Met. Mus. of Art, New York; *mamluk* cuirass, late 15th cent., Met. Mus. of Art, New York; *mamluk* helmet, early 16th cent., Topkapi Mus., Istanbul.)

H2: Qaranis, c.1515

The equipment of this *qaranis mamluk* is only marginally less magnificent than that of the *khassaki*. He has a comparable helmet with a mail aventail that covers much of his face, a mail hauberk, and leg protection, the upper part covering thighs and knees, the lower shins and ankles. The tying of the bow to the spear-shaft when not in use does not appear in any pictures but is recommended in some training manuals. (Main sources: *Shahnamah*, Mamluk, AD 1510, Topkapi Lib., Ms. Haz. 1519, Istanbul; mail-and-splint leg armour, probably *mamluk*, early 16th cent., Tower of London Armouries.)

H3: African handgunner, c.1517

The similarity in shape if not the colour of the late *mamluk* military *zamt* fur hat and the European busby is astonishing. This soldier of African origin also wears a tunic with very stylized pseudo-inscriptions over a simple mail hauberk, and is armed with a winged mace in addition to his matchlock arquebus. The latter is a European import which, instead of a trigger, has a press-button on the side of the lock. (Main sources: sketches of *mamluk* soldiers by Carpaccio, late 15th-early, 16th cents., Louvre Mus., Paris; Turks besieging Mamluk Damascus, Ottoman manuscript c.AD 1521–24, Topkapi Lib., Ms. Haz. 15978, Istanbul.)

Another illustration from the late 15th century* furusiyah *manual by Ibn Akhi Khazam shows* mamluks *exercising with wooden staves to strengthen their spear arms. They also wear tall caps without the turban clothes normally wound around them. (Bib. Nat., Ms. Ar. 2824, f.17v, Paris)

Notes sur les planches en couleur

A1 Le manteau en laine blanc est porté par dessus le 'hauberk' de mailles'; la casquette 'kalawta' de l'ancien style; à noter les cheveux longs chez les Turcs et Mongols, même après qu'ils se soient convertis à l'Islam. Les pantalons jaunes sont typiques chez les soldats et la couleur rappelle l'ancienne dynastie Ayyubid; la ceinture d'épée portée par les officiers. A2 Habit typique du marchand puissant arabe ou perse du 13ème siècle; grand turban, 'aba', châle et bas foncés en laine; à noter la tête rasée et la barbe typiques chez la plupart des musulmans de la période. A3 Le nomade des steppes du sud de la Russie et de l'Ukraine porte le chapeau élevé et une tunique à broderie byzantine charactéristique de ces peuples.

B1 Mamluk élite des forces personnelles appartenant au Sultan; son armure du style des Mongols avait été utilisée depuis quelque temps en Iran et au Turkestan; on voit plutôt l'armure du cheval en toile en Iraq qu'en Egypte. B2 Moins prestigieuse, cette classe de la cavalrie est quand même bien équipée. On voit sur les illustrations les chapeaux larges ou les casques, ainsi qu'un chapeau guerrier italien puisque les Génois vendaient du matériel aux mamluks; à noter les épaisseurs de mailles couverts de toile pendants. La tunique est d'un style turc; il porte une lance, une massue et un poignard 'khanjar'. B3 D'une position encore moins élevée, il porte quand même une armure à lamelles. A noter aussi les bandes en cuir pour éviter d'accrocher la corde. Modèle plus récent de la casquette 'kalawta'. La hache est tenue en place par un anneau dans la ceinture sous l'écharpe.

C1 Certains membres de l'infantrie professionnelle portent les armes 'naft' qui sont des armes incendiaires grecs. Cet homme porte des grenades céramiques et ses habits et sa casquette sont doublés de mica ignifuge (silicate de magnésium). C2 Le terme 'harfush', utilisé pour les auxiliaires de l'infantrie, signifie la cohue; bien qu'ils soient habillés comme des paysans, ils sont d'une grande valeur pendant les sièges et les guerres montagnardes. C3 Les auxiliaires 'Ashir' de la Syrie comprennent des guerriers riches—à noter le manteau doublé de mailles et l'épée fine de la Perse. Le motif héraldique sur les bottes identifie le service de coursiers 'barid' du Sultan.

Farbtafeln

A1 Ein weißer Sommer-Wollmantel über einer Panzer-Halsberge; eine frühe Kalawta-Kappe. Man beachte das für Türken und Mongolen typische lange Haar, auch nach dem Übertritt zum Islam. Die gelben Hosen sind typisch für diese Soldaten – die Farbe geht auf die frühere Ayyubid-Dynastie zurück; Schwertgehänge eines Offiziers. A2 Typische Tracht eines wohlhabenden arabischen oder persischen Kaufmanns des 13. Jahrhunderts: großer Turban, dunkle Woll-Aba, Schal und Strümpfe; siehe geschorenen Kopf und den Bart, typisch für die meisten Moslems jener Periode. A3 Nomaden aus den Steppen Südrußlands und der Ukraine mit hohen Hüten – typisch für diese Leute – und Blusen mit byzantinischer Stickerei.

B1 Elite-Mameluck der Leibkavallerie des Sultans; seine Rüstung im mongolischen Stil wurde im Iran und in Turkestan schon seit einiger Zeit verwendet; der Pferdepanzer aus Stoff war eher im Iran als in Ägypten zu sehen. B2 Diese Klasse der Kavallerie war von etwas geringerem Prestige, aber doch sehr gut ausgerüstet. Abbildungen zeigen breite Hüte oder Helme, und wir sehen hier einen italienischen Helm, weil die Genueser Ausrüstung an die Mameluken verkauften; man beachte hier die Lagen von stoffbedecktem Panzer. Die Bluse hat türkischen Stil; er trägt einen Speer, Streitkolben und Khanjar-Dolch. B3 Von noch geringerem Ansehen, ist er doch gepanzert – hier mit einem Schuppenpanzer – siehe Lederstreifen, die verhinder sollen, daß die Bogenschnur hängen bleibt. Späte Form der Kalawta-Kappe; Streitaxt hängt in einem Ring vom Gürtel unter der Schärpe.

C1 Manche Berufsinfanteristen trugen Naft-Waffen – Brandbomben wie "Griechisches Feuer". Dieser Mann hat Keramik-Granaten; seine Kleidung und und Kapuze ist mit feuerfestem Glimmer oder Magnesiumsilikat ausgelegt. C2 Das Wort "Harfush" für Hilfsinfanteristen, bedeutete soviel wie Gesindel; obwohl nur gekleidet wie gewöhnliche Bauern, waren diese Männer doch bei Belagerungen und im Gebirgskrieg sehr wertvoll. C3 Die Ashir-Hilfstruppen aus Syrien umfaßten auch reiche Stammeskrieger; siehe panzergefütterten Mantel und das gute persische

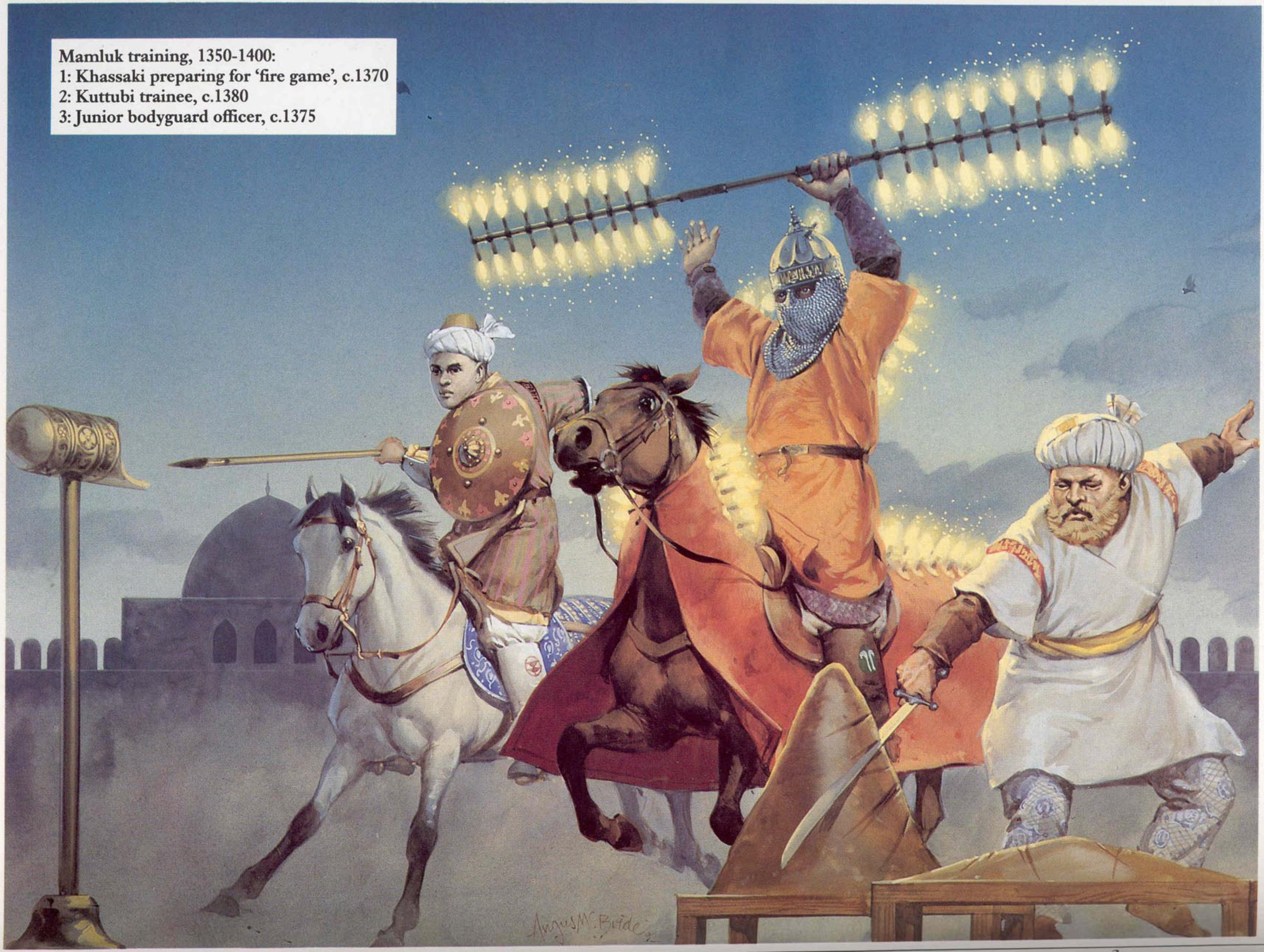
Mamluk recruitment, 1230-1300:
1: Mamluk senior amir, c.1270
2: Khawaja slave merchant, c.1270
3: Turkish slave recruit, c.1270

Cavalry, 1300-1350:
1: Khassaki (ruler's mamluk), c.1300
2: Amir's mamluk, c.1315
3: Halqa trooper, c.1315

Infantry, 1300-1350:
1: Jandar infantryman, c.1300
2: Harfush auxiliary, c.1325
3: Ashir Syrian auxiliary, c.1325

Angus McBride '92

Mamluk training, 1350-1400:
1: Khassaki preparing for 'fire game', c.1370
2: Kuttubi trainee, c.1380
3: Junior bodyguard officer, c.1375



Cavalry hunting in Nile Delta, 15th C:
1: Tarkhan, c.1425 2: Julban, c.1400 3: Rammaha lancer, c.1450

Infantry & naval troops, 1400-1450:
1: Maghribi marine, c.1450
2: Halqa infantryman, c.1450
3: Egyptian naval captain, c.1450

Military music, 1450-1500:
1: Mamluk bandsman, c.1475
2: Amir, qaranis mamluks, c.1460
3: Lady in outdoor costume, c.1500

The last mamluk armies, 1500-1517:
1: Khassaki, c.1515
2: Qaranis, c.1515
3: African handgunner, c.1517