



## Wars and Weapons – The Weapons Collection of the Herat National Museum

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The Islamic World of the Middle Ages was relatively rich in iron deposits.<sup>1</sup> The iron ore mines reached from Spain in the West to Transoxania in the East. Cities like Toledo, Damascus, places in Yemen, and also Bukhara and Herat were famous for their iron and steel production. Iron was considered vital and its possession was at the same time an invariable source of power.

The most important invention within metallurgy has been turning iron into steel.<sup>2</sup> In this context the various hardening and steeling processes have to be considered the most significant ones. Steel, more specifically watered steel, has been highly engineered and given artistic form to. The particular use of steel technology and the material's artistic scope in terms of design was greatly valued in the production of arms and armour. Compared to other material groups, a maximum of technical and formal sophistication and aesthetic delicacy of feeling was achieved here in Greater Iran – exceeding all other countries. Specific weapons, partly made out of this precious basic material as represented by examples of the Herat National Museum, shall be the matter of subject in this essay and considered within their cultural and military-historical context, taking into account the weapon technology of the wider region – in this case Khorasan.

### Weapons' Raw Material: Steel

Greater Iran is a cultural landscape of nearly all times. Especially within weaponry it functioned as a kind of centre and its impact was so high that surrounding cultures were influenced.<sup>3</sup> Already in the 9<sup>th</sup> century the Iranians were highly developed in this respect. Under the Abbasid Caliphate (749–1258) iron and steel technology flourished and its development was fos-

tered to technical and aesthetic peak performances as proven in the treatise by al-Kindi, the Arabian philosopher and scientist. In his opus *'Risāla fī Anwā' as-suyūf wa-l-ḥadīd'* (On Swords and Their Kinds), also referred to as *'Risāla fī Ḡawāhir as-suyūf'*<sup>4</sup>, al-Kindi for the first time searched for the chemical composition of iron and steel. He deals with various steel and iron grades and alloys, and tries to deduce quality features by the material. Aesthetics, hardness at flexibility and elasticity as well as weight were characteristics according to which he determined the quality of a sword and which still applies today. The statements of al-Kindi about steel and steel ingots, representing the principal raw materials for forging a sword, are very detailed. His treatise is also the first known source to provide information about the exported and imported raw steel. Al-Kindi highlights Indian steel as raw material but fails to note anything about its import.<sup>5</sup> He furthermore refers to a type of Khorasani sword forged from Sri Lankan (*al-Sarandībīya*) iron.<sup>6</sup> Naturally, the Sri Lankan origin of the raw material implicates its being shipped, but it can be assumed that material from Central and South India also came by sea through the Persian Gulf to Fars, while other supplies of the Indian iron probably arrived overland in Khorasan.<sup>7</sup>

Al-Kindi mentions Khorasan as an Iranian centre of production. In this cultural landscape iron mining as well as forging and further workmanship of the raw material were conducted.<sup>8</sup> In the 9<sup>th</sup> century al-Kindi already differentiated between the place of raw material production and that of its further processing. Though al-Kindi had his focus on swords, many of his remarks may be transferred to other types of steel arms and armour produced in Iran from Indian raw material.

The importance of al-Kindi's achievements on iron became apparent through al-Biruni's analysis in one of his works on minerals. In this book *'Kitāb al-Ḡamāhir fī ma'rifat al-ḡawāhir'*<sup>9</sup> (The Book most Comprehensive in Knowledge of Precious Stones), probably written under the reign of the Ghaznavid Sultan Shihab al-Daula Maudud ibn Mas'ud (r. 1041–1050), he describes the production process and the variations of watered steel, which, according to him, originated in India.<sup>10</sup> He likewise refers to the East Indian trade route which already had served the Sasanids and the early Islamic dynasties for coastal trade.<sup>11</sup>

1 Nicolle 1981, 23.

2 Allan 1979, 102.

3 Zeller/Rohrer 1955, 35.

4 Ullmann 1972, 114.

5 Allan/Gilmour 2000, 49–50.

6 Allan 1979, 69. - Pigott 1985, 630. - Hoyland/Gilmour 2006, 20–21.

7 Pigott 1985, 630.

8 Hoyland/Gilmour 2006, 20–21.

9 Boilot 1960, 1236. - Ullmann 1972, 121. - Hoyland/Gilmour 2006, 148.

10 Zaky 1979, 210.

11 Hoyland/Gilmour 2006, 158. The book *'Kitāb Tā'rīḥ al-Hind'* by al-Biruni provides more information on the eastern regions such as present-day Pakistan and India.

Furthermore, al-Biruni provides information about places of manufacture not mentioned by al-Kindi, like Herat.<sup>12</sup> He mentions Herat as a famous centre of steel-making<sup>13</sup>, noted for its egg-shaped ingots.<sup>14</sup> What is even more important, ingots are said to have been exported from there to northern India.<sup>15</sup> Surprisingly, methods of ironworking, melting techniques similar to the region around his Central Asian home city Kath<sup>16</sup> on the Amu Darya are not mentioned by al-Biruni.<sup>17</sup>

Because of its ore reserves<sup>18</sup> Khorasan had also become a very well known region for metalwork. As related by al-Kindi, the working of iron and the later forging of the raw material took place on site.<sup>19</sup> The early establishment of the art of manufacturing weapons at this place is also demonstrated by al-Kindi. A straight sword blade from Nishapur, Khorasan, is equally evidence for a production in the 10<sup>th</sup> century.<sup>20</sup> Furthermore, in the region of Khorasan, Mashhad and Herat were especially renowned for their blades.<sup>21</sup> A coin from a private collection, minted in Herat, is dated to 1048/1049 and shows the depiction of two sabres<sup>22</sup>, which can be regarded as proof of an existing production in Herat and emphasises its significance in the 11<sup>th</sup> century (Fig. 1).<sup>23</sup> Its importance as metalworking centre outlasted the 12<sup>th</sup> century.<sup>24</sup> In the early 13<sup>th</sup> century Herat came for a short period of time under the control of the Khwarazm Shahs before the Mongols stormed Khorasan.<sup>25</sup> In terms of production in the pre-Mongol period, it has been already indicated that most Iranian armour was produced in Khorasan and Transoxiana, whereas the important role of the region Ghur in this context has been emphasised by al-Juzjani.<sup>26</sup> In addition, the metalwork of the late Middle Ages bears witness to the high technological standard and refined quality. The most prominent example is undoubtedly the monumental Herat bronze basin ordered by the Kart ruler Ghiyath al-Din Muhammad in 1372.<sup>27</sup> The perfection of its workmanship shows metallurgical technology at its very finest and supports the assumption of a continuous tradition of metalwork production in Herat.



Fig. 1 Gold dinar, Herat, dated 439 H / 1047-48 CE  
Two sabres beside inscription

Herat was relevant with respect to its smiths and as a consequence, its steel products were highly considered.<sup>28</sup> Iranian artisans from cities like Tabriz, Shiraz and Isfahan also worked in Central Asia<sup>29</sup>, which points towards the existence of a wide-spread tradition. Several factors should, however, be taken into account in this context. The main sources of sovereigns for the supply with arms and armour were: trade with local peoples, the employment of specialised craftsmen, who often would be prisoners of war, and the taxation of conquered populations.<sup>30</sup>

### Weapons' Scenery: Wars and Warfare

Armies in general consisted of cavalry, infantry and technical companies. With regard to armament sword and sabre, because of their strength of cutting and thrusting as well as their carving effect, were the most important military weapons. For a long period of time arrow, bow, sabre and mace were the weapons of the mounted warrior of Central Asia. It is said about the Mongols that they "shot their arrows like rain"<sup>31</sup>, a metaphor already used by Zahir al-Din Mohammad Babur, founder of the Mughal dynasty, in his autobiography<sup>32</sup>, an excellent proof of the Mongols' use of bow and arrow in the 13<sup>th</sup> century. The bows were made out of wood and horn; the arrowheads of iron, steel, bone or horn.<sup>33</sup>

28 Brandenburg 1977, 9. Herat as a centre of high quality for metal art in Asia; cf. von Gladiß 2008, 39–48.  
29 Golombek/Wilber 1988, XXII.  
30 Sinor 1981, 142.  
31 Sinor 1981, 140.  
32 "The enemy attacked us front and rear, raining in arrows on us.", Beveridge 1922, 140.  
33 Sinor 1981, 140.

The Mongolian conduct of war was characterised by a high level of discipline combined with command coordination and traditional nomad strengths as flexible manoeuvre and fierceness. The weaponry had remained unchanged for decades, as reported by the monk Giovanni da Pian del Carpine, who was in the service of Pope Innocent IV in Mongolia, seemingly as missionary but also acting as spy in 1246, some 19 years after the Mongol storm on Afghanistan.<sup>34</sup> Giovanni da Pian del Carpine wrote: "Moreover they are enjoined to have these weapons following. Two long bows or one good one at the least, three quivers full of arrows, and one axe, and ropes to draw engines withal. But richer sort have single-edged swords, with sharp points, and somewhat crooked. They have also armed horses, with their shoulders and breasts defenced; they have helmets and brigandines [...] Some of them upon the neck of their lance have an [sic] hook, wherewithal they attempt to pull men out of their saddles. The heads of their arrows are exceedingly sharp, cutting both ways like a two-edged sword ..."<sup>35</sup>

After the split of the Mongol Empire in the mid-13<sup>th</sup> century, present-day Iraq, Iran and Afghanistan fell under Ilkhanid rule until the region was again fragmented in the first half of the 14<sup>th</sup> century. Even though it cannot be compared with earlier pompousness, a royal *kār khāna* (workshop) was founded 1264/1265 in post-Mongol Herat at the behest of Ilkhan Abaqa<sup>36</sup> and gives proof of royal interest in the production. During that period Khorasan, which at that time included modern Afghanistan, was divided between numerous local rulers.<sup>37</sup> However, the rise of Timur, founder of the Timurid Empire, led to the replacement of local dynasties between Bagdad and China, and the Herat oasis simply turned into one of the districts of his immense empire. As capital of Khorasan, it was nevertheless one of the most important cities.<sup>38</sup> When the city of Herat fell to the Timurid ruler in 1383, it had to pay a heavy tribute, which included sending numerous artisans, artists and intellectuals to Samarqand<sup>39</sup>,

34 Tanner 2002, 85.  
35 De Plano Carpini 1964, 235–236.  
36 Szuppe 2004, 209.  
37 Nicolle 1999, 255.  
38 Allen 1983, 15.  
39 Szuppe 2004, 209.



Fig. 2 Jamshid teaches the crafts of tailoring and smithing.  
Miniature from the Baysonqur Shah-name. Herat, 1429–1430.  
Gulistan Palace Library, Teheran, MS 716, fol. 16v

implicating at the same time a certain pauperisation and paralysation of the city. Considering the heavy tributes they had to pay, it is rather astonishing how fast Iranian cities managed to adapt to the given situation.<sup>40</sup>

Patronage, one may also call it 'control by the ruler', was the establishment of workshops principally working for the court. This is the phenomenon, which D. Sinor refers to as "employment of specialised craftsmen".<sup>41</sup> Among these workshops those practicing the arts of the book were held in highest esteem.<sup>42</sup>

40 After the battle of Chaldiran in 1514, Tabriz artists and armourers were deported to Istanbul. Nevertheless, at the time of Shah Tahmasp, Tabriz was still one of the strongest places of production.  
41 Sinor 1981, 142 (cf. note 30).  
42 Roxburgh 2005, 15; 23; 25; 28; passim.

12 Allan/Gilmour 2000, 38.

13 Allan 1979, 67.

14 Hoyland/Gilmour 2006, 151; 155.

15 Validi 1936, 21.

16 Said/Khan 1990, 57.

17 Hoyland and Gilmour (2006, 161) suspect the reason to be a possible lack of knowledge about crucible steel.

18 Also al-Hamdani (1968, 142–145 fol. 24b–25a) praises the mines of Khorasan.

19 Hoyland/Gilmour 2006, 20–21.

20 Metropolitan Museum of Art, New York, Inv. No. 40.170.168. – Allan 1982, 56–58; 108–109.

21 Allan/Gilmour 2000, 39. Herat looks back on a past rich in tradition. Already during the reign of the Sasanids the city was an important military centre; cf. Frye 1971, 177.

22 The curvature of the depicted blade incidentally provides information about the established use of curved blades.

23 Private collection, Herat 439. I thank Michael Bates and Stefan Heidemann for the information and pictorial material.

24 von Gladiß 2008, 47.

25 Allen 1983, 14.

26 Allan 1979, 98, after al-Juzjani, *Minhāj al-Dīn 'Uthmān ibn Sirāj, Ṭabaqāt-i Nāsiri*, Lees/Hosain/al-Hai 1864 (transl. Raverty 1881–1897), 40; 47; 59.

27 Melikian-Chirvani 1982, 232 Fig. 58.

Their designs were copied by various art forms, such as weaponry. Early examples of workshops, kept purposely by Timurid rulers and governors at their courts, are mentioned in a chronicle by the Shiraz calligrapher Ahmad ibn 'Abdallah al-Hijazi in 1422. As patrons of the arts he mentions Shah Rokh and Ulugh Beg, the sultans of Samarqand and Herat, and the princely brothers Ibrahim Sultan of Shiraz und Baysonqur of Herat. The princes' habit of making presents to each other – mostly in the form of manuscripts – is revealed in Baysonqur's library inscription in a Shiraz manuscript of a poet's anthology from 1420.<sup>43</sup> One of the miniatures of the manuscript shows King Jamshid teaching the craft of smithing, one decade later in a Herat manuscript he is presented teaching the craft of smithing weapons (Fig. 2).<sup>44</sup> Around 1420 the *kitāb khāna* operated, actively using the courtly workshop as idea and motif generator. These various courts with their centres at the same time ensured competition in cultural life.<sup>45</sup>

Herat had been Timurid since 1383, but it was the fourth and only surviving son of Timur, Shah Rokh (r. 1405–1447), who changed Herat into an imperial city competing with Samarqand, when he was at Herat as governor of Khorasan.<sup>46</sup> He established Herat as the capital of his empire<sup>47</sup> and a Timurid cultural centre.

Sent to the Timurid Empire by emperor Yung-Lo, the Chinese diplomat Ch'en arrived at Herat in 1413, having followed an ancient caravan route across Central Asia north of the Takla Makan desert. Herat was the most important stop on his journey, where he stayed two months at the court of Shah Rokh. His visit was a response to the caravan of merchants from Shiraz, Herat, Andkhuy and Samarqand send by the Timurid Empire. China had realised the benefits of this network since the caravan also brought along military intelligence.<sup>48</sup> Weapons and their production played a central role in the trade of the region and were strictly controlled by the rulers, especially in border areas, a tradition of the region since early times kept until the end of the Ming Dynasty (1368–1644).<sup>49</sup> It did, however, not prevent for example arrow heads from being smuggled in wine vessels into Western Mongolia.<sup>50</sup>

Herat flourished as Timurid cultural centre under the rule of Sultan Hosayn Bayqara (1469–1506).<sup>51</sup> During the 38 years reign of this last great Timurid ruler Herat had reached its peak; it was the capital of a prosperous province and had become the most distinguished city in Asia, a centre of Iranian and Turkish culture.<sup>52</sup>

43 Museum für Islamische Kunst, Berlin, Inv. No. I. 4628. The so-called 'Baysunqur'-Anthology'.

44 Miniature of Baysonqur Shahname, Herat, 1429/1430, Teheran, Gulistan Palace Library, MS 716, fol. 16v.

45 Haase 2008, 25.

46 Golombek/Wilber 1988, XXII. - Lentz/Lowry 1989, 69. - Szuppe 2004, 209.

47 Allen 1983, 15; 17; 47; 57. Before Shah Rokh made Herat his capital, it was only a large provincial town, particularly since the court and the centre of intellectual activity did not move to Herat until after Timur's death.

48 Hecker 1993, 86.

49 Detailed documentation is provided by Serruys 1975, 59–72.

50 Sinor 1981, 143.

51 Frye 1971, 177.

52 Allen 1983, 15. About the conditions in the city of Herat see al-Isfizari 1338–1339/1959–1960, 85.



Fig. 3 Timurid sabre, probably Central Asia, first half of the 15<sup>th</sup> century. Topkapı Palace Museum, Istanbul, inv. no. 1/220



Fig. 4 Shamshir, c. 18<sup>th</sup> century, Iran (HNM 08.03.86a, cat. no. W1)

Strategically located along trade routes from the Mediterranean Sea to India or China, Herat was a significant trading centre<sup>53</sup>, an important place of transshipment sending various products on their way.<sup>54</sup> Its attraction however made it worth fighting for.

The city of Herat was captured 1507 by the Uzbeks, under the command of Shaybani Khan (1501–1510)<sup>55</sup>, who still fought with the main weapons: sabre, bow and arrow.<sup>56</sup> Shaybani Khan had by then already forced the Timurid prince Babur to leave his country. Babur, who, as a consequence, had united with Hoseyn Bayqara of Herat, had no good words left for his nemesis Shaybani Khan in his autobiography, after his conquest of Herat.<sup>57</sup> Hoseyn Bayqara died in 1506 and only Badi' al-Zaman Mirza, his eldest son from his first marriage with Biqa Sultan Begum, could escape from occupied Herat.<sup>58</sup> This last Timurid prince of Herat, Badi' al-Zaman Mirza, sought protection by the Safavid ruler Shah Isma'il.<sup>59</sup> He stayed six years in Tabriz before he, in consequence of its capture by Sultan Selim, went on to Istanbul with his retinue and artists, where he died in 1515.<sup>60</sup> A ceremonial Timurid sabre, today in the Topkapı Palace Museum (Fig. 3)<sup>61</sup>, attributed to the Timurid prince Ulugh Beg by D. Alexander<sup>62</sup>, could have found its way to Istanbul with Badi' al-Zaman Mirza as Sultan Selim in 1514 plundered Tabriz and its treasures and brought them to Istanbul. Both Shah Rokh and Ulugh Beg had a preference for jade, which is asserted very well through the jade quality used for the dragon headed cross-guard and hilt of this sabre.<sup>63</sup>

## Weapons

The personal weapon of a warrior was, as a matter of course, the slightly curved sabre. However, the sabre was usually carried by wealthy and distinguished persons, as indicated by the example in the Topkapı Palace Museum. The average warrior fought with the mace.<sup>64</sup>

The weapons collection of the Herat National Museum, founded in 1924, is fairly modest in comparison to previous fame and tradition, notably in Timurid times. This is particularly comprehensible as the museum's collection

53 Frye 1971, 177.

54 Brandenburg 1977, 9. - Haase 2008, 20.

55 Frye 1971, 177. - Haase 2008, 26.

56 "Firearms were not to their liking and did not fit their nomadic type of warfare", Matthee 1999, 623.

57 Beveridge 1922, 328. - Brandenburg 1977, 17. Barthold (1937, 87–88) quotes Babur calling Shaybani Khan a "engstirniger Hirtenlümmler".

58 Brandenburg 1977, 16.

59 Bouvat 1934, 274.

60 Gerelyes 1994, 17.

61 Topkapı Palace Museum, Istanbul, Inv. No. 1/220; see Lentz/Lowry 1989, Cat. No. 121.

62 Alexander 1984, Cat. No. 32; Alexander 1996, vol. 2, 99.

63 For the latest considerations on jade crossguards, like the one in the Metropolitan Museum of Art in New York, see Ekhtiar et al. 2011, 195–196.

64 Sinor 1981, 141.