THE MILITARY TECHNOLOGY OF CLASSICAL ISLAM

VOLUME I

David Nicolle

Thesis presented to the University of Edinburgh for the Degree of Doctor of Philosophy
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BEST COPY

AVAILABLE

Variable print quality
In memory of the late Dr. Abd al Rahman Zaki, and of a meeting at Groppi's which set the whole ball rolling.
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183. Fresco from Fares Cathedral, St. Mercurius, late 8th century AD, Nubian, Polish National Museum no.149672MN, Warsaw (Michal).


185. Fresco from Fares Cathedral, Nativity, 10th century AD, Nubian, Sudan National Museum, Khartoum (Michal).

186. Fresco from Fares Cathedral, late 10th century AD, Nubian, Polish National Museum no.234039MN, Warsaw (Michal).


188. Fresco fragments from the Church of C'abd Alläh Nirqi, St. Mercurius and an unknown saint, late 10th-early 11th centuries AD, Nubian, Sudan National Museum, Khartoum (Michal).

189. Fresco fragment from the Church of C'abd Alläh Nirqi, St. Phibemann (?), early 11th century AD, Nubian, Sudan National Museum, Khartoum (Michal).

191. Iron helmet, 10th-11th centuries AD, Maghribî or Egyptian, Provincial Museum, Qayrawân (from a drawing by Dr. M. Brett).

192. Ceramic fragment from Sabra, late 10th–early 11th centuries AD, Maghribî, Bardo, Tunis (Zbi).

193. Ceramic plaque from Sabra, mid-11th century AD, Maghribî, Bardo, Tunis (Zbi).

194. Ceramic plaque from Sabra, mid-11th century AD, Maghribî, Bardo, Tunis (Zbi).


198. Ivory box, Defeated warriors of Ai (?), 8th to 10th centuries AD, Byzantine, Victoria and Albert Museum no.247.1865 (Gol).


204. Relief from Eskigehir, Demon (?), 9th–10th centuries AD, Paulician, Archaeological Museum no.755, Istanbul (Grab S).
205. Fresco, The Betrayal, 9th-10th centuries AD, Byzantine, in situ, Kokar Kilise, Paristrema Valley, Cappadocia (Thi).

206. Ivory oliphant from Jasz-Oreny, 9th to 12th centuries AD, Byzantine, National Museum, Budapest (Hamp).

207. Fresco, early 10th century AD, Byzantine, in situ, Tokali Kilise, Göreme, Cappadocia (Cor).


209. Ivory reliquary, David and Goliath, 10th century AD, Byzantine, Cathedral, Treasury, Sens.


211. Manuscript, David and Goliath, 10th century AD, Byzantine, Bib. Nat. Ms. Gr.139, f.3v, Paris (Hoa).

212. Ivory box, Joshun defeats Ai, 10th century AD, Byzantine, Metropolitan Museum no. 17.190.137, New York (Flea).

213A and 213B. Fresco, A - Forty Martyrs, B - Donors, 963-969 AD, Byzantine, in situ, Dovecote Church, Çavuşin, Cappadocia (Cor).

214. Fresco, Pursuit of Elizabeth, 970-980 AD, Byzantine, in situ, Chapel 11, Göreme, Cappadocia (Cor).

215A and 215B. Fresco, A - Death of Zekarius, B - Pursuit of Elizabeth, 10th-11th centuries AD, Byzantine, in situ, Behattin Kilisesi, Peristrema Valley, Cappadocia (Cor).

216A and 216B. Fresco, A - Flight into Egypt, B - Crucifixion, 10th-11th centuries AD, Byzantine, in situ, Seki Kilisesi, Peristrema Valley, Cappadocia (Cor).

217. Relief plaque, 10th-11th centuries AD, Byzantine, Hermitage, Leningrad (Car).

218. Ivory panel, 10th-11th centuries AD, Byzantine, Victoria and Albert Museum no. A525, 1910 (Col).

219. Ivory box, 10th-11th centuries AD, Byzantine, Royal Scottish Museum no. 1884.44.11, Edinburgh (Col).


221. Mosaic, St. Prokopius, c.1000 AD, Byzantine, in situ, Hosios Loukas, Greece (Dem).

223. Ivory box, 11th century AD, Byzantine, Cathedral Treasury, Troyes (Ric 8).


225. Fresco, Crucifixion, c. 1070 AD, Byzantine, in situ, Sakli Kilise, Chapel 2A, Gûreme, Cappadocia (Cor).

226. Relief from St. Catherine's Church, Digenes Akritas, 1100-1150 AD, Byzantine, Archaeological Museum, Thessaloniki (Grab 5).

227. Alabaster plaque, St. George, 12th century AD, Byzantine, Archaeological Museum Inv. 1000, Plovdiv.


229. Ceramic fragment from the Athens Agora, St. George (?), 12th century AD, Byzantine, Archaeological Museum, Athens.


231A to 231D. Frescoes, A - Christ before Pilate, B - Crucifixion, C - Road to Calvary, D - The Betrayal, c. 1200 AD, Byzantine, in situ, Hermitage of St. Neophytos, Enkleistra, Cyprus.


233. Inlaid metal dish, 12th century AD, Byzantine or Caucasian, Basilevsky Coll., Hermitage, Leningrad (Dar).

234. Metal dish from Vilgort, Urals, 12th century AD, Byzantine or Caucasian, Hermitage, Leningrad (Dar).

235. Metal dish from the Prince's Palace, Chernigov, late 12th century AD, Byzantine or Caucasian, Hermitage, Leningrad (Dar).


237A to 237C. Manuscript, A - Chaldeans, B - Driving the Women from the City, C - Reclining Demon, 13th century AD, Byzantine, Bodleian Lib., Ms. Barocci 201, ff. 18v, 163r and 36v, Oxford.

238. Fresco, Crucifixion, c. 1200 AD, Byzantine, in situ, Church of Panagiatou Moutoulou, Corfu.
239. Relief, Princes Narseh Kamsakour and David Saharan, c. 640 AD, Armenian, In situ, Cathedral of Mren (Thi).


243A and 243B. Manuscript, A - Guard at the Tomb, B - Crucifixion, 1038 AD, Armenian, Matenadaran Lib., Ms. 6201, Yerevan (Douv).

244. Manuscript, The Betrayal, 1057 AD, Armenian, Patriarchal Lib., Ms. 3626, Etchmiadzin (Mec).


246. Manuscript, Guard of the King of Nineveh, 11th-12th centuries AD, Armenian, Vatopedi Monastery Lib., Ms. 608, ff. 283, Mount Athos.


248. Manuscript, Massacre of the Innocents, mid-13th century AD, Armenian, Matenadaran Lib., Ms. 7654, Yerevan (Douv).


250A to 250E. Manuscript, A - Jesus before Pilate, B - Judgement of Pilate, C - Guards at the Tomb, D - The Betrayal, E - Jesus before Pilate, c. 1270 AD, Armenian, Freer Gallery, Ms. 32-16, ff. 180, 184, 194, 310 and 315, Washington.

251. Manuscript, 1289 AD, Armenian Cilicia, Matenadaran Lib., Ms. 979, Yerevan (Douv).


255. Stucco relief of Qilij Arslan II, 1156-1188 AD, Saljuq Rûm, Museum of Turkish Art, Istanbul.

256. Fragment of gilded glass, 12th century AD, Saljuq Rûm, British Museum.

257. Fresco, **Guards at the Tomb**, 1200-1210 AD, Byzantino-Saljuq, in situ, Kırkmük Kilise, Obrema, Cappadocia (Cor).

258. Relief from Konya, 13th century AD, Saljuq Rûm, Museum of Turkish Art, Istanbul (Ric S).

259. Inlaid metal candlestick, 13th century AD, Rûm or Azerbaycan, Louvre, Paris.


262A and 262B. Frescoes, A - St. George, B - Crucifixion, 1283-1295 AD, Byzantino-Saljuq, in situ, Kirkdam alti Kilise, Peristrema Valley, Cappadocia (Cor).


264. Relief, late 13th century AD, Saljuq Rûm, Ince Minare Museum, Konya (Ric S).

265. Sabres, late 13th (?) century AD, Saljuq Rûm, Bey Kayunoglu Coll., Konya (Ric S).

266. Iron helmets, late 13th-early 14th centuries AD, Saljuq Rûm, Topkapu Museum store, Istanbul (Sto T).


269. Capitals, late 12th century AD, Crusader States, Nazareth Museum (Fra).

270. Ceramic fragment from al Minah, early 13th century AD, Crusader States or Syrian, Antioch Museum.

271. Icons, 13th century AD, Crusader States, Monastery of St. Catherine, Sinai (Weitz).

272. Icon, late 13th century AD, Crusader States, Monastery of St. Catherine, Sinai (Weitz).


277. Ceramic fragment, 10th-12th centuries AD, Jazīrāh, Staatliche Museen Dahlem, West Berlin.

278. Relief inscribed to Sultan Malik Shah, 1089-90 AD, Saljūq, *in situ*, walls of Diyarbakr (Ger).

279. Enamelled bronze dish, early 12th century AD, Artuqid, Ferdinandum, Innsbruck (Ric 1).

280. Reliefs on gateway from Sinjār, early 12th century AD, Saljūq, National Museum, Baghdad (Ric 1).

281. Ceramic bottle-stopper from Raqqa, 12th century AD, Jazīrāh, Staatliche Museen Dahlem, West Berlin.

282. Ceramic figurine, 12th century AD, Jazīrāh or Iranian, National Museum, Damascus (Ric I).


284. Stucco frieze dedicated to Jumhrīl Ben, late 12th century AD, Saljūq, Museum of Art, Pennsylvania (Pop).

285. Ceramic bowl, late 12th century AD, Jazīrāh, Staatliche Museen Dahlem, West Berlin (Bris).


289. Inlaid metal ewer by Ibrāhīm ibn Mawāliyyah, early 13th century AD, Mosul (?), Louvre no. 54.35, Paris.


293. Inlaid metal cup, The Weda Cup, c. 1220 AD, Jazīrah or Azerbayjan, Museum of Art, Cleveland.

294A to 294C. Manuscript, A - Massacre of the Innocents, B - Stoning of Stephen, C - The Betrayal, 1225 AD, Syriac Jazīrah, ex-Bishop's Lib., Midyat, ff. 29v, 45v and 200r, now hidden (Ler S).


300. Inlaid metal candlestick-base, mid-13th century AD, Ayyūbid Jazīrah, Coll. of Dr. P. Costa (NC).


303. Relief, mid-13th century AD, Syriac Jazīrah, in situ, Monastery of Mār Bahnam, near Mosul.

304. Manuscript from Mosul, Kitāb al-Dīryak, mid-13th century AD, National Lib., Ms. AF.10, Vienna (Mard).

305A to 305C. Manuscript, A - The Betrayal, B - Crucifixion, C - Guards at the Tomb, c. 1250 AD, Syriac Jazīrah, Office of the Jacobite Metropolitan, Mardin (Ler S).
306A to 306F. Manucript, A - The Betrayal, B - Denial of Peter, C - Beheading of the Baptist, D - Crucifixion, E - John Preaching, F - Massacre of the Innocents, 13th century AD, Syriac Jazîrah, Bib. Vat., Ms. Syr. 559, ff. 133v, 135v, 18v, 139r, 26r and 18r, Rome (Ler S).


309. Inlaid metal basin, late 13th century AD, Jazîrah, Kaiser-Friedrich Museum no. 3031 or 3036, Berlin (Sar).


311. Manuscript, Manâmat al Harîlî, late 13th century AD, Jazîrah, Süleymaniye Lib., Ms. Esad Effendi 2916, ff. 89r, 92r, 93r and 118v, Istanbul.


317. Lustre dish, 10th century AD, Abbasid, Keir Coll., London.


326. Sword attributed to an unnamed Khalif, 13th century AD, Iraq, Topkapu Armoury, Istanbul (Zak).

327. First sword attributed to the Khalif Musteسلام Billäh, 1242-1258 AD, Iraq, Topkapu Armoury, Istanbul (Zak).

328. Second sword attributed to the Khalif Muste السلام Billäh, 1242-1258 AD, Iraq, Topkapu Armoury, Istanbul (Zak).


330A to 3301. Rock-cut statue, early 7th century AD, Sassanian, in situ, Taq-i Bustän. (Fuk).

331. Bronze ewer, undated late Sassanian or early Islamic, Lewisohn Coll., New York (Pope).


333. Fresco, Sun and Moon gods, 7th century AD, Fundükistan, Archaeological Museum, Kabul (Dog).

334. Statue from the Monastery of Fundükistan, Donor figure, 7th-8th centuries AD, Afghanistan, Kabul Museum (Ric A).

335. Glazed ewer from Hamadan, late 7th century AD, Umayyad, ex-Demotte Coll., present location unknown (Pope).


337. Stucco plaque from Chal Tarkhan-Ashqabad, 7th-8th centuries AD, Umayyad, Royal Ontario Museum no. 946.104.1-5 (Thom F).


341. Silver-gilt dish, 8th-9th centuries AD, Khurasan, Hermitage, Leningrad (Ric A).

342. Silver dish, 8th-9th centuries AD, Iranian or Transoxanian, Hermitage, Leningrad (Orb).

343. Ceramic bowl, 9th to 11th centuries AD, Iranian, Louvre, Paris (Pez).

344. Ceramic bottle, 9th-10th centuries AD, north Iranian, Louvre, Paris (Pez).


347. Ceramic dish, 10th century AD, Khurasan, Coll. of Mr. Fatamod, Frankfurt (Kle).

348. Ceramic bowl, 10th century AD, Khurasan, Furughi Coll., Tehran (Ric I).

349. Fragment of ceramic bowl, 10th century AD, Khurasan, Archaeological Museum, Tehran.


352. Ceramic plate, 10th century AD, Khurasan, Nelson Gallery of Art, Kansas (Greg B).


354. Ceramic bowl, 10th century AD, Khurasan, Metropolitan Museum no. 66.176, New York.

355. Fresco fragment from Sabz Pushan, 10th century AD, Khurasan, (ex-Bulletin of the Metropolitan Museum, XXXIII 1938).

356. Fresco, 10th century AD, Nishapur, Archaeological Museum, Tehran (Elg).

357. Silver medallion from Nishapur, 10th century AD (?), Khurasan, Bohrami Coll., Tehran (Kou).

358. Section of a gold necklace, 10th century AD, Iranian, Cincinnati Art Museum (Grab B).

359. Medallion of C. Achad al Dawla (?), late 10th century AD, Buyid, Freer Gallery of Art, Washington (Kou).


362. Bronze hilt and fragment of iron blade, early 11th century AD, east Iranian or Indian, Bodrum Castle Museum (Bas).


364. Fresco, 11th century AD, Ghaznawid, in situ, Lashkor-i Bāzār, Afghanistan (Koh).

365. Relief, 11th to 13th centuries AD, Ghaznawid, Kabul Museum (Pope).


369. Inlaid bronze lamp-stand, 12th century AD, east Iranian, Kabul Museum.

370. Bronze mirror, 12th century AD, Iranian, location unknown (ex-Pope).

371. Sgraffito bowl, 12th century AD, Iranian, Freer Gallery of Art no. 61,21, Washington (At).

372. Ceramic plate, 12th century AD, Iranian, Keir Coll. no. 151, London (Grub).


375. Ceramic plate, late 12th–early 13th centuries AD, Iranian, Toledo Museum of Art, Edward Drummond Libbey Gift, Ohio (Grab B).

376. Ceramic tile, 12th-13th centuries AD, Iranian, Keir Coll. no. 182, London (Grub).

378. Ceramic tile, Iranians leave the castle of Farwed, late 12th-
early 13th centuries AD, Iranian, Museum of Fine Arts, Boston (Pepo).

379. Ceramic bowl, 12th-13th centuries AD, Ghaznavid, Kabul Museum.

380. Ceramic plate from Sava, 12th-13th centuries AD, Iranian, Hermitage, Leningrad (But).

381. Ceramic figure from Gurgan, late 12th century AD, Iranian, Archaeological Museum, Tehran.

382. Ceramic figure, 12th-13th centuries AD, Iranian, Museum of Islamic Art no. 1750, Cairo.

383. Ceramic figure from Gurgan, late 12th-early 13th centuries AD, Iranian, Archaeological Museum, Tehran (Feh).

384. Fresco fragment from Rayy (?), 12th-13th centuries AD, Iranian, present location unknown (ex-Pope).


397. Inlaid metal candlestick, 13th century AD, Iranian, Shrine of Ardabil (Ric Sf).

398. Carved stucco slab, 13th century AD, Iranian, Art Institute, Chicago (Ric).


400. Ceramic plate, 13th century AD, Iranian, present location unknown (ex-Pope).


407. Cold or gilt sword quillons, 13th-14th centuries AD, Iranian, City Art Museum, St. Louis.


413. Wooden door panel, 10th-11th centuries AD, Georgian, in situ, Chukuli, Georgia (Ars).

414. Wooden door panel, 10th-11th centuries AD, Georgian, in situ, Shvpi Tavurnski, Georgia (Ars).

415. Wooden door panels, 10th-11th centuries AD, Georgian, in situ, Lashes-Vanli, Georgia.

416. Silver altar plaque from Shemokmedi, Guards at the Tomb, late 10th-early 11th centuries AD, Georgian, National Museum, Tbilisi (Mep).

417. Icon, St. George, 1010-1020 AD, Georgian, Hermitage, Leningrad.

418. Relief, mid-11th century AD, Georgian, in situ, Church of Nicorzminda (Mep).

419. Relief, 11th-12th centuries AD, Daghistan Metropolitain Museum, New York (Iv, Bask).

420. Relief, 11th-12th centuries AD, Daghistan, Louvre, Paris (Salm).


423. Relief, 12th-13th centuries AD, Dānihistān, Hermitage, Leningrad (Ric A).

424. Relief, 12th-13th centuries AD, Dānihistān, Hermitage, Leningrad (Iv, Bask).

425. Relief, 12th-13th centuries AD, Dānihistān, Hermitage, Leningrad (Iv, Bask).


428. Fresco from Pianjikent Reception Hall VI/1, 7th-8th centuries AD, Transoxanian, Hermitage, Leningrad (Aka S, Yaku).

429. Fresco from Pianjikent Room VI/41, 7th-8th centuries AD, Transoxanian, Hermitage, Leningrad (Aka S, Yaku).

430. Fresco from Pianjikent Reception Hall XII/1, 7th-8th centuries AD, Transoxanian, Hermitage, Leningrad (Aka S, Yaku).

431. Fresco from Pianjikent Room VI/41, 7th-8th centuries AD, Transoxanian, Hermitage, Leningrad (Aka S, Yaku).

432. Fresco from Pianjikent Room VI/4, 7th-8th centuries AD, Transoxanian, Hermitage, Leningrad (Aka S, Yaku).

433. Fresco from Pianjikent Reception Hall VI/1, 7th-8th centuries AD, Transoxanian, Hermitage, Leningrad (Aka S, Yaku).

434. Fresco from Pianjikent House III/6, 7th-8th centuries AD, Transoxanian, Hermitage, Leningrad (Aka S, Yaku).

435. Fresco from Pianjikent Room XVI/10, 7th-8th centuries AD, Transoxanian, Hermitage, Leningrad (Aka S, Yaku).

436. Fresco from Pianjikent Room VI/41, 7th-8th centuries AD, Transoxanian, Hermitage, Leningrad (Aka S, Yaku).

437. Fresco from Pianjikent Room XXI/1, 7th-8th centuries AD, Transoxanian, Hermitage, Leningrad (Aka S, Yaku).

438. Fresco from Pianjikent Reception Hall VI/1, 7th-8th centuries AD, Transoxanian, Hermitage, Leningrad (Aka S, Yaku).

439. Fresco from Pianjikent Room XXI/1, 7th-8th centuries AD, Transoxanian, Hermitage, Leningrad (Aka S, Yaku).

440. Fresco from Pianjikent Room VI/55, 7th-8th centuries AD, Transoxanian, Hermitage, Leningrad (Aka S, Yaku).

441. Pottery figurines, 7th-8th centuries AD, Transoxanian, Hermitage, Leningrad (Belen).
442. Silver dish from Kulaghyeh, 7th-8th centuries AD, Khurāsān or Transoxanian, Hermitage, Leningrad (Thor A, Ric A).

443. Fragment of a painted shield from the Castle of Mug, early 8th century AD, west Turkistan, Hermitage, Leningrad (Rob OA, Ric A).

444. Silver dish, 8th century AD, west Turkistan, Hermitage, Leningrad (Rob OA).


446. Fresco from Ustrukhānā, late 9th century AD, west Turkistan, in situ, Tadžikistān (ex-Neg).

447. Silver dish, 9th-10th centuries AD, Transoxanian or Khurāsān, Hermitage, Leningrad (Gor D, Knob).

448. Ceramic bowl, 10th century AD, Afrāsiyāb or Nishāpūr, Metropolitan Museum no. 40.170.23, New York.


451. Clay statuette from Astāna, 7th-8th centuries AD, east Turkistan, British Museum (Stein S).

452. Fresco, 8th century AD, east Turkistan, in situ, Qereshahr (Stein S).

453. Buddhist fresco, Hanaraya, 8th century AD (?), east Turkistan, in situ, Kizil (Stein S, Coq).

454. Fresco in City Cave, 8th century AD, east Turkistan, in situ, Sorcuk (Stein S).

455. Statuette from Sorcuk, 8th century AD, east Turkistan, Museum für Völk., Staatliche Museen Dahlem, West Berlin (Coq).

456. Stucco horse from Mingöl, 8th century AD, east Turkistan, British Museum (Stein S, Coq).

457. Painted panel from Dandan Uiliq, c. 780 AD, Khotanese, British Museum (Stein A).

458. Statuette fragment from Mingöl, 8th to 10th centuries AD, east Turkistan, British Museum no. Mi.XI.6018.

459. Ceramic horse from Mingöl, 8th to 10th centuries AD, east Turkistan, British Museum no. Mi.XI.00138 (Ric A).
460. Assorted leather lamellae from Mîrân, late 8th-early 9th centuries AD, Tibetan, British Museum (Stein A).

461. Statue fragment from Sorcuk, 8th-9th centuries AD, east Turkistan, Museum für Völker, Staatliche Museen Dahlem, West Berlin (Coq).

462. Painted silk and paper fragments from a Manichean temple, Koço, 8th-9th centuries AD, east Turkistan, Museum für Völker, Staatliche Museen Dahlem, West Berlin (Coq).

463. Statuette from Qarashahr, 9th century AD, east Turkistan, British Museum.

464. Painted paper fragment from Yar, 9th century AD, east Turkistan, Staatliche Museen Dahlem, West Berlin (Coq).


466. Painted silk fragment from Toyuq, 9th-10th centuries AD, east Turkistan, Staatliche Museen Dahlem, West Berlin (Coq).

467. Fresco from Turfan, 9th-10th centuries AD, east Turkistan, Museum für Völker, Staatliche Museen Dahlem, West Berlin (Coq).

468. Fresco from Gázéklik, Semitic and Iranian merchants, 9th-10th centuries AD, east Turkistan, Staatliche Museen Dahlem, West Berlin.

469. Re-engraved Sassanian metal plate from Perm, 7th-8th centuries AD, Siberian, Hermitage, Leningrad.

470. Silver-mounted sword from the Altai mountains, 8th century AD, Turkish, Hermitage, Leningrad.

471. Tomb figure, 385-535 AD, Northern Wei Chinese, Musée Cernuschi, Paris (Rob OA).


476. Iron arrow-heads, 7th to 10th centuries AD, east Turkish, Mongolia, present location unknown (ex-Now).
477. Ceramic figurine, Semitic trader, 9th century AD (?), Chinese, Royal Ontario Museum (Leu).


479. Ceramic statuette, Officer, 9th century AD (?), Chinese, Royal Ontario Museum (Leu).

480. Tomb figure, 907-960 AD, Five Dynasties Chinese, Coll. of M. Sorimachi, Tokyo (Rob OA).


482. Drawing by Kao Hsüan, c.1135 AD, Chinese, present location unknown (ex-see).


484. Relief, Attendants of the Sun God, c.700 AD, Indian, British Museum.

485. Relief, 8th century AD, Javanese, in situ, Borobudur (Ver).

486. Statue from Crissa, Dura, 8th century AD, Indian, British Museum no. 1872.7-1.39.


488. Statue, Dura slays the buffalo demon, 9th-10th centuries AD, east Indian, British Museum no. 1872.7-1.79, London.

489. Relief from Kanauj, Attendants of Vishnu, late 10th century AD, central Indian, British Museum no. 1872.7-1.41, London.

490. Relief, Yasoda suckling Krishna, c.1000 AD, east Rajasthan, British Museum no.1872.7-1.107, London.

491. Relief, 11th-12th centuries AD, Indian, in situ, Orissa.

492. Iron horse-bit, early 8th century AD, Visigothic or Andalusian, Real Armeria, Madrid (Hof A).

493. Iron horse-bit, 8th-9th centuries AD, Andalusian, Metropolitan Museum no. 47.100.24, New York.

494. Ceramic fragment from Madina al Zahra, 10th century AD, Andalusian, Madina al Zahra Museum.

495. Ivory chess piece, 10th century AD (?), Andalusian, Fulda Coll., Frankfurt (Weit).

497. Ivory box inscribed to "Abd al-Malik al-Muzaffar, 1005 AD, Andalusian, Cathedral Treasury, Pamplona (Deb).

498. Relief on a fountain basin, early 11th century AD, Andalusian, Archaeological Museum, Jativa (Deb).

499. Ivory box from Cuenca, 1026 AD, Andalusian, Archaeological Museum, Burgos (Hof A).

500. Silk fabric from the Tomb of San Pedro de Osma, Cathedral of Burgos de Osma, Andalusian, Museum of Fine Arts, Boston (Bre).


503. Relief on vaulting boss, 848 AD, Spanish, in situ, Church of Santa Maria, Naranco (Cor).


508. Ivory box, Herod's Guards, c.1000 AD, Spanish, Demotte Coll.


510. Manuscript, Psalter of San Millan de la Cogolla, 11th century AD, Mozarab, Bib. de la Academia de la Historia, Madrid (Chu).


512. Metal altar-back, Demons at Crucifixion, 1075 AD, Spanish, Camera Santa, Oviedo.

514. Relief from Santa Cruz de los Seros, Tomb of Doña Sanche, 1095 AD, Spanish, in situ, Benedictine Convent, Jaca (Kin).

515. Manuscript, Roda Bible, 11th century AD, Catalan, Bib. Nat., Ms. Lat. 6, ff. 99v, 19v, 145, 144, 144r, 144r, 19v, 99v, 134, 144 and 145 (Hof A).


518. Fresco from San Baudelio de Berlanga, Soria, early 12th century AD, Mozarab, Prado, Madrid.


522. Capital, Templar fighting Moor, 12th century AD, Spanish, in situ, Church of St. Martin, Segovia.

523. Sculpture, Guards at the Tomb, 12th century AD, Spanish, in situ, Cloisters, Monastery of Santo Domingo de Silos (La).

524. Relief, c. 1155 AD, Spanish, in situ, Church of Santa Maria la Real, Sanguesa, Navarre.

525. Capital from Santa Maria de Aguilar de Campo, Massacre of the Innocents, 12th century AD, Spanish, Archaeological Museum, Madrid.

526. Relief on sarcophagus, 12th century AD, Spanish, Nuestra Señora de Irache, Estella.

527. Relief, St. Vincent, mid-12th century AD, Spanish, in situ, Portal, San Isidora, Leon.

528. Capitals, mid-12th century AD, Spanish, in situ, Cloisters, San Pedro, Sorin.

529. Relief, St. James, 12th century AD, Spanish, in situ, Church of Santiago, Betanzos, La Coruña.
530. Manuscript from Santo Domingo do Silos, **Guards at the Tomb,**
12th century AD, Spanish, Bib. Nat., Nouv. Acq. Lat. 2176,
f. 265, Paris.

C - "Pharaoh's Army," G - "Pharaoh's Army,"
L - "Companion strikes the Prophet," M - "Death of Ahab,"
N - "Guards at the Tomb," O - "Cog and Magog,"
*Bible of King Sencho' 1197 AD, Spanish, Bib. Munic., Ms.
108, ff. 7r, 12r, 46v, 49r, 50v, 85v, 86v, 87v, 89v, 91r, 111v, 113v, 119v and 249v, Amiens (War)."

532. Manuscript, *Vasques of Berenguer I,* late 12th century AD,
Catalan, Escorial (Tre).


534. Capital, *Faragut,* late 12th century AD, Spanish, *in situ,*
Cloisters, Cathedral, Tarragona.


536. Capital, *Faragut,* late 12th century AD, Spanish, *in situ,*
Old Cathedral, Salamanca.

537. Capital, *Faragut and companion,* late 12th century AD, Spanish,
*in situ,* Palace of the Dukes of Granada, Estella (Elg).


540. Fresco from the Church of San Baudelio de Berlanga, *The Marys at the Tomb,* late 12th century AD, Spanish, Museum of Fine Arts, Boston.

541. Fresco, Arrest of St. James Major, early 13th century AD,
Spanish, *in situ,* Santo Juan Ermita, Uncastillo.


543A to 543G. Manuscript, A - "Horsemen of the Apocalypse,"
B - "Army of Nebuchadnezzar," C - "Destruction of Jerusalem,"
G - "Horsemen of the Apocalypse," *Beatus of Liebana,* c. 1220 AD, Spanish, Pierpont Morgan Lib.,
Ms. 429, New York (Elg).


548. Fresco, James of Aragon enters Valencia, Muslim Garrison, late 13th century AD, Spanish, in situ, Castel d'Alcanyis.

549. Painted wooden panel, c. 1300 AD, Spanish, Museum of the History of Barcelona, Barcelona.

550. Manuscript, Martyrdom of Santa Lucia, late 13th century AD, Spanish, Bosch Coll., Barcelona.


553. Iron helmet and detail of decoration, Sutton Hoo Treasure, early 7th century AD, Anglo-Saxon, British Museum (Dix).

554. Bronze plaque, 7th-8th centuries AD, Lombard, Bargello, Florence.

555. Stirrup, late 7th-early 8th centuries AD, Lombard (ex-Monumenti Antichi, XII).

556. Bronze belt-end, late 7th-early 8th centuries AD, Lombard (ex-Monumenti Antichi, XII).


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Shahnāmah, isolated pages, c. 1340 AD, Iran (Fogg Art Museum, Boston).


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<td>B. Farès, <em>Une miniature religieuse de l'École Arabe de Bengdad</em>, (Cairo 1948).</td>
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Any study of arms and armour relies on three sources of evidence: archaeological, pictorial and written. The former naturally take precedence as such studies are essentially concerned with material culture. For similar reasons this thesis gives greater priority to pictorial sources rather than to the written, descriptive, record. This is despite the limitations of artistic conventions such as archaism. Written evidence seems to suffer from comparable limitations while at the same time often having an obscure vocabulary and a strongly poetic style.

In fact, the terminology of Islamic military equipment remains far from clear, and seems likely to remain so until archaeology uncovers a greater number of surviving artifacts. Nor can the study of terminology answer all questions relating to the structure, development or appearance of items of arms and armour.

Nevertheless, a study of the known vocabulary does suggest certain features, most of which are backed up by both the archaeological and pictorial evidence. Iranian influences were probably much stronger in pre-Islamic and early Islamic Arabia than were those from Byzantium. Iranian and Central Asian technological advances subsequently had an increasing impact on Muslim military technology, until Central Asian influences came to predominate in all regions outside North Africa and the Iberian peninsula. This eastern influence did not reflect a backward nomadic culture, but rather one that boasted advanced metallurgical techniques as well as sophisticated tactical concepts.
In the west, European influences dominated all other external factors. At the same time it would be wrong to see the Maghrib and al-Andalus solely as the adopters of other peoples' technical developments. During the early Middle Ages there was probably a two-way flow of ideas and techniques across the Mediterranean, just as there was across the frontier between Islam and Byzantium. In these central regions, however, the Byzantine and Muslim worlds were both rapidly absorbing Central Asian military fashions.

One of the most characteristic features of Classical Islamic civilization was, in fact, its eclecticism. This was particularly true in military matters. As the armies of the Prophet advanced east and west they had met the warriors of rival cultures whose military traditions Islam then gradually absorbed.

Thus the military technologies and tactics of the late-Romano-Byzantine world, the Berbers, the Iberian peninsula, Armenia, the Sassanian Empire, Buddhist Afghanistan and Turkish Transoxania, were all added to those of ancient Arabia. The process by which they blended to produce something new was slow and far from regular. Influences from Persia and Turkistan were clearly more important than those from Egypt and North Africa, while the impact of Visigothic Spain was limited almost entirely to the Muslim culture of al-Andalus that succeeded it.

At first infantry dominated the armies of Islam, but during the Umayyad period cavalry became ever more important. This was particularly true of an Iranian-style heavy cavalry which made use of the newly adopted stirrup. Such changes were soon reflected in the organization of both Umayyad and Abbasid forces. Nevertheless, skilled professional, and often mercenary, infantry continued
to play a vital role as the borders of Islam became relatively fixed and campaigns were generally limited to siege-warfare.

In the 11th century the arrival of the Saljuqs led to a sudden, but not sustained, rise in the importance of Central Asian, nomad-style, horse-archery. This was later reinforced by the Mongol conquests and was felt in all regions of the Muslim world. Such an impact was, however, minimal in the Maghrib and virtually non-existent in al-Andalus, where a local version of early medieval western European military traditions continued to predominate.
GLOSSARY OF EUROPEAN

ARMS AND ARMOUR TERMINOLOGY


À la bride. Style of riding with long- or straight-legged position and tall or peaked saddle.

À la jineta. Style of riding with short- or bent-legged position and low saddle.

Annon. Barbed javelin with slender blade, used by early Franks.

Arming Cap. Padded cap worn beneath some helmets or beneath a mail coif.

Arrow-guide. Device for shooting short arrows, the simplest of split bamboo held against the bow by an archer’s left hand.

Aventail. Mail attached to a helmet, protecting neck and throat.

Baldric. Strap to hold a sword, suspended from the right shoulder to a scabbard on the left hip.

Ballista. Stone- or javelin-throwing siege engine in the form of a large crossbow mounted on a wooden carriage.

Ballock-dagger. Form of dagger, also known as the kidney dagger, in which the quillons take the form of two swellings or balls.

Bands. Metal straps around a scabbard, carrying rings or other hanging points for a baldric or sword-belt.

Bard. Set of horse armour.

Bill. Long-hafted infantry weapon, perhaps developed from an agricultural pruning hook.

Bolt. Heavy arrow or quarrel shot from a crossbow.

Bose. Metal bowl fastened to the centre of a shield and covering the hand-grip.

Bowcase. Case for carrying a strung or unstrung bow, normally on the left hip.

Bracer. Guard worn on the left wrist by archers.

Bridle Gauntlet. Long iron gauntlet protecting the left forearm.
Bridoon. Horse-bit, often in two pieces, with rings at each end, also called a snaffle bit.

Brigandine. Jacket lined with small metal plates.

Brunia. Probably an early term for a byrnie or mail shirt.

Buckler. Small, round, hand-held shield.

Burnonet. Light open helmet, normally with ear-flaps and neck-guard.

Caltraps. Four-spiked pieces of metal thrown on the ground to lame horses.

Cantile. Raised rear of a saddle.

Caparison. Ornamental cloth covering a horse.

Chanfron. Head- armour for a horse.

Cape. Metal base or reinforcement at the bottom of a scabbard.

Cheek Pieces. Plates on either side of a helmet.


Coif. Mail hood to protect the head and neck.

Comb. Ridge running from front to rear of a helmet.

Composite Bow. Bow built up from layers of wood, horn, bone or sinew.

Corsasca. Hafted infantry weapon in the form of a trident.

Couched Lance. A way of holding the horseman's lance in which the weapon is locked between the arm and the body.

Crinet. Neck armour for a horse.

Crown. Top of a helmet.

Crupper Strap. Strop from a saddle around a horse's rear or under a horse's tail.

Cuirace. Cuir-bouilli or hardened leather cuirass worn under or over a surcoat, probably the same as acuirie or quirist.

Cuir-bouilli. Leather moulded and hardened in hot oil.

Cuirass. Body armour including breast and back plates.

Cuirie. (see Cuirace).
Cuish. Armour for the thighs.

Curb Bit. Horse bit having a plate or extension within the animal's mouth to be pressed against the interior of the mouth by drawing on the bridle.

Dart. Normally a small arrow, shot by using an arrow-guide.

Ferrule. Metal strengthening at the top or mouth of a scabbard.

Franks. Small, single-edged war-axe, often thrown.

Fuller. Groove or channel down a sword-blade.

Gamesson. Quilted, shock-absorbent garment often worn beneath mail, possible sleeveless.

Glaive. Hafted infantry weapon, possibly developed from a scythe, having its blade mounted vertically.

Gorget. Armoured collar to protect the throat.

Great Helm. Heavy helmet protecting the entire head, the earliest having a flat top.

Greek Fire. Inflammable substance of varied composition but basically bituminous, noted for its capacity to burn on water.

Guige. Shoulder strap to bear the weight of a large shield.

Haft. Shaft of a thrusting weapon such as a spear, javelin or glaive.

Halbard. Staff weapon with cutting and thrusting blades, and sometimes a hook to unhorse horsemen.

Haubergeon. Probably a short coat of mail.

Hauberk. Full coat of mail.

Helmet Laces. Laces to tighten a helmet around the wearer's head.

Hilt. Handle of a sword or dagger.
Javelin. Short throwing spear.

Lamellar. Armour of small metal or leather plates (lamelles) laced together and overlapping both horizontally and vertically.

Laminated Armour. Armour of metal strips overlapping horizontally.

Lance. Heavy spear, normally used by horsemen.

Lannet. Extension down the blade from the quillons of a sword, normally overlapping the outside of the scabbard.

Limb. Flexible part of a composite bow between the ears and the handle.

Linked Scale Armour. Armour in which the scales are linked both horizontally and vertically by metal staples.

Locket. Band around the top of a scabbard beneath the ferrule, often carrying a hanging ring for the baldric or sword-belt.

Long-bow. Bow of simple, not composite, construction, normally about man-height.

Mail. Flexible armour of small interlocking rings.

Manconel. Siege engine using the sling principle to throw large stones.

Mantlet. Large shield rested on the ground, normally used in siege warfare.

Martingale. Strap from a horse's bridle to breast-band.

Mittens. Fingerless armoured gloves, normally of mail.

Mounts. Various metal attachments for suspension, etc., on a scabbard of wood or leather.

Mouth. Opening at the top of a scabbard.

Mouthpiece. Portion of a horse's bit held within the animal's mouth.

Nasal. Fixed or movable iron bar in front of a helmet to protect the face.

Nock (of an arrow). Slot in the rear of an arrowshaft in which the bowstring is placed.

Nocks (of a bow). Slots in the ends of a bow to hold the bowstring.

Nut. Element of a crossbow that holds the drawn bowstring and which is released by the trigger.
Onager. Light stone throwing siege-engine, also used in open battle, tension provided by twisted cords.

Pennon. Small flag, normally carried on a lance.

Peytral. Armour for the chest of a horse.

Pike. Very long infantry spear used against horsemen.

Plektro. Half breast-plate to protect the abdomen.

Pole-axe. Long hafted axe with a spear-point.

Poleyns. Armour for the knees.

Pommel (of a saddle). Raised front of a saddle.

Pommel (of a sword). Knob at the end of a sword-grip.

Psalions. Separate bars or cheek-pieces on the outside of a bridle.

Quarrel. Short heavy arrow shot from a crossbow.

Quillons. Straight or curved bars between the grip and blade of a sword to protect the hand.

Quilted Armour. Shock-absorbent armour of cloth, normally worn with other forms of protection.

Quiver. Container for an archer's arrows.

Ricasso. Blunted portion of some sword-blades adjacent to the quillons.

Rivets. Pegs to hold the elements of a sword-hilt to the tang of the blade.

Sabatons. Armoured shoes.

Sabre. Curved sword with a single cutting edge.

Scabbard-slide. Loop on the flat side of a scabbard through which was passed the baldric or sword-belt.

Scramasax. Short, single-edged sword used by early Germanic peoples.

Segments. Vertical elements of a spangenhelm, normally fastened to a metal frame.

Seat Cushion. Padded portion of a saddle.

Shoe. Metal reinforcement on the bottom of a spear or pike.

Simple Bow. Bow made from one piece of wood or bamboo.
Snaffle Bit. (see Bridoon).

Socket. Hollow rear of an arrowhead or spearhead into which the shaft is slotted.

Spannenhelm. Helmet built up from triangular segments, normally fastened to a metal frame.

Splinted Armour. Armour built up of vertical metal strips.

Stapled Lamellar. Lamellar armour in which the lamellae are held together with metal staples, comparable to linked scale armour.

Surcoat. Decorative garment worn over armour.

Surcingle. Band around a horse's body either as a girth or to hold a horse blanket in place.

Sword Belt. Belt from which was hung the scabbard.

Sword Knots. Tassels on a sword hilt, perhaps originally to secure the weapon to the user's wrist.

Tang (of an arrowhead). Spike on an arrowhead to be slotted into the arrowshaft.

Tang (of a sword). Extension of the sword-blade to which the hilt, quillons and pommel are attached.

Tassets. Plates attached to a cuirass to protect the thighs.

Testudo. Overhead protection for troops, either of overlapping shields or a small shed.

Thrace. Byzantine province having its own provincial army.

Throat Lash. Rear strap of bridle, behind cheeks, around throat.

Thumb Ring. Archer's ring protecting thumb when using thumb-draw.

Trebuchet. Mangonel siege engine using counterweight principle.

Trident. Spear with three points.

War Hammer. Specialized mace to break armour.

Watering. Patterns on a sword-blade produced during manufacture.

Winded Mace. Mace having head of multiple flanges or wings, designed to penetrate armour.
PART ONE

Discussion of Sources
CHAPTER 1

The study of arms and armour, of whatever culture, period or region, must rely on three sources of evidence. These, in what I would consider to be a descending order of importance, consist of the archaeological, the pictorial and the written material.

The primacy given to archaeological evidence by most students of arms and armour is surely natural, since such studies are essentially concerned with objects. Any insight into trends and developments in military technology will normally be gained via a knowledge of material culture rather than through any particular appreciation of more abstract aspects of the culture in question. This is not to say that the ideas and beliefs current at the time had no bearing on a civilization's military technology. Clearly they often did. It is merely to argue that the objects themselves must be given pride of place.

For the same reasons I would give greater weight to pictorial evidence than to the written sources. This is in despite of the obvious limitations placed on pictorial evidence by artistic conventions such as archaism and the ignorance of military matters shown by many artists.

Written evidence must, I believe, take a third place. In general it is subject to the same conventional limitations as is the pictorial evidence, and may be even more so, while at the same time suffering the added difficulties of obscure vocabulary and often of poetic style. The only advantage that
written evidence enjoys over the pictorial is its greater ability to describe the material from which an object is made. In general it also gives a much fuller context for the use of the weapon in question. Those rare sources that are specifically concerned with military technology may also describe methods of construction. Such sources are, of course, in a category of their own and must be placed on the same level as objects surviving in pristine condition or pictorial sources in a purely naturalistic, highly detailed and non-conventionalized style.

In general, however, it must be admitted that, as yet, the archaeological, pictorial and documentary evidence dealing with early Islamic arms and armour remains thin. Difficulties of dating and provenance also make it dangerous to draw definite conclusions. Nevertheless, such problems should also be recognized as inherent in any study of this subject. At the same time it may also be recognized that new evidence, from all three of my above-mentioned categories, is frequently being discovered, recovered or otherwise made available for future scholars.

Archaeological Evidence

Surviving items of military equipment from the early centuries of Islam are rare in the extreme. A few survive or, in some cases, are believed to survive in museums, private collections and religious reliquaries.

One major reason for this dearth of surviving artifacts can be found in the character of Islamic civilization itself. Here was a culture opposed on religious grounds to the burying in graves of objects for use in an after life. The same might be said of Christianity, but Islam reinforced this situation by a more puritanical and egalitarian attitude towards burial.
and tomb decoration. Only rarely do weapons seem to have been interred with the dead, and this only in limited areas. Moreover, Islamic civilization has, so far, not enjoyed the same degree of archaeological attention as have, for example, Ancient Rome or Dark Age Europe. Even today, when interest in Classical Islam is rapidly increasing among Muslim archaeologists, grave sites are unlikely to yield even what little information they could, simply because of strong and even strengthening religious prohibitions against the disturbance of the Muslim dead. From a purely archaeological point of view, as opposed to an ethical one, this is an inevitable limitation when dealing with a surviving civilization whose religious foundations remain far firmer than, for example, those of Christian Europe.

Mesopotamia also is a region of the world that has suffered more than its fair share of destructive invasions during the last millennium. These inroads may well have destroyed ancient arms and armour such as might otherwise have survived in palace

2. Ibid.
3. This issue was mentioned in passing, though not fully discussed, at the recent Conference of Oman Studies (*Heritage of Oman Festival*), (1st–8th November 1980, Muscat).
treasuries or religious reliquaries like that which is still
to be seen in the Topkapu Museum.

The ancient weapons, mostly swords, that are preserved
in the Topkapu Reliquary are associated with specific historical
figures, from the Prophet Muhammad himself to the last Abbasid
Caliph of Baghdad. But such associations, like those of other
weapons in other museums, have little or no documentary support.
Traditions should not be dismissed out of hand, however, for
other evidence, archaeological and pictorial, goes some way to
supporting their dating if not the personalities involved.

Surviving objects also appear occasionally in sale-rooms
while others remain in little-known private collections. Since
they lack both traditional associations and documentary support,
their identification relies solely on pictorial or other parallels
unless they also possess inscriptions.

The strictly archaeological evidence, consisting of artifacts
found in a known archaeological context, is even more sparse.
A certain amount has emerged from beyond the past or present
frontiers of Islam, for example in Spain and the USSR. Less
has been recovered from the Muslim heartlands. Excavations
at 10th century Ishapur and of the wreck of an 11th century
Muslim merchant ship in the Aegean are encouraging exceptions.
Such material, though meagre, is of paramount importance precisely
because of its datability. It is, however, inevitably random
in that such objects reached their ultimate destinations either
as booty or as items of trade. They may also have passed through
many hands over many years. Strictly archaeological evidence
from within the bounds of Islam remains almost non-existent.
Soss helmets are said to exist in Tunisia, but their archaeological
context, even if known, does not appear to have been published. Some fragmentary weapons from Syria and Palestine suffer similar drawbacks.

Yet there is still much to hope for. The Sultanate of Oman and perhaps even the Yemen may yet answer many questions concerning the military technology and capabilities of Arabia before and during the time of the Prophet. Here were two areas possessing large settled communities with high levels of material culture and, apparently, some tradition of interring their dead with artifacts. Here also are areas which have, quite recently, attracted both a great deal of archaeological interest and some of the financial backing needed to pursue that interest.

Pictorial Sources

The reasons that lead me to give great value to pictorial evidence may be summarized as follows. The study of arms and armour has essentially two dimensions. One concerns the technology, usually metallurgical, involved in the manufacture of arms. The other concerns the shape, construction in terms of joining smaller elements to form a rigid or flexible whole, and the precise purposes of the items in question. The centuries under consideration were a time of limited technological capability and very slow technological development. These factors, particularly the latter, lead me to believe that changes in shape, fashions of construction and military purpose, rather than strictly technological or metallurgical advances, were more significant from the point of

4. The potential importance of Oman, and of eastern and southern Arabia as a whole, was clearly demonstrated by numerous speakers at the Conference of Oman Studies (Heritage of Oman Festival), (1st-3th November 1980, Muscat), the proceedings of which will shortly be published in a special edition of the Journal of Oman Studies.
view of Muslim military and social history. Hence, I believe, the importance, previously neglected, of pictorial sources.

Representational evidence dealing with the arms and armour of Classical Islam includes illuminated manuscripts, decorated metalwork, ceramics, frescoes and other such sources. In 1976 I was privileged to publish a short, preliminary work on this aspect of the subject, under the auspices of the Instituto de Estudios Sobre Armas Antiguas, Consejo Superior de Investigaciones Científicas of Madrid. Other works have, of course, also recently been published on this subject, including a wide-ranging article by Dr. M.V. Gorelik of Moscow.

Illustrated, or what might be termed "art", sources pose a number of typical problems from whatever culture they originate. The chief of these is, as always, that of dating and provenance. This I consider to be far more serious than any unreliability or tendency towards the use of conventional images inherent in the material itself. The scope for disagreement in this field is, however, immense, particularly where portable objects are concerned. Having chosen a very large canvas, both geographically and chronologically, for this present study, I find myself dealing with the products of a great variety of cultures ranging from


6. N. V. Gorelik, "Oriental Armour of the Near and Middle East from the eighth to the fifteenth centuries as shown in works of art," in *Islamic Arms and Armour*, R. Elgood edit., (London 1979).
regional variations within the Muslim world, through the artistic creations of debatable frontier zones, to the representational art of those neighbouring lands which met Islam both on the field of battle and in more peaceful circumstances. Some of these have so far received little scholarly attention. Others among the arts and cultures in question have been under the art historian's microscope for generations. A few seem to be represented by no more than a handful of barely published objects in obscure museums. A number of more spectacular items have, by contrast, been widely publicized, often through splendid coloured photographs, before the drier scholarly analyses have appeared in print.

In many cases I have seriously considered and subsequently chosen to accept dates and provenances offered not only by recognized scholars writing in their own specialized fields, but also those offered by museum authorities. In both categories dates and provenances have sometimes been put forward
without much apparent supporting evidence. In these latter instances, of course, less reliance has been placed on such dates or provenances. In general I have merely used them as guidelines. On the other hand, I have disputed such opinions solely when specific items of military equipment, illustrated in or on such sources, seem to conflict with these dates or provenances. In such cases I have offered alternatives, though at the same time making it clear that I have done so. Interestingly enough, it has proved necessary to do this on relatively few occasions, which may indicate that the study of a manuscript, carving or other item, solely on the grounds of its artistic style, is more reliable than sceptics might believe.

As a final general observation it might be worth pointing out that, although numerous pictorial sources clearly illustrate huntsmen rather than warriors, I have considered these relevant to my thesis. The hunt and the equipment used during this pastime were, after all, closely associated with both warfare and military training among the warrior classes of medieval Islam, just as they were in contemporary Christian Europe.

Cultural frontiers naturally loom large when studying developments in military equipment at a time when most such changes sprang from the movements of peoples and the diffusion of ideas rather than from indigenous technological developments. Much interest has, in fact, focused upon those regions where civilizations merged or competed during the early medieval period. Previous generations of scholars have clearly been fascinated by the Iberian peninsula for precisely this reason, while more recently a comparable degree of interest has focused upon the
eastern frontiers of Islam. Here the development of a new school of art, embracing both stucco and metalwork, in the first century of Islam has recently been argued. Sicily and southern Italy in the Norman period have similarly attracted much attention. In these latter regions many cultural strands, including the Islamic, came together and are visible in architecture, sculpture, painting and the minor arts. They are also apparent where military equipment is illustrated.

The same might be said of the 9th and 10th century rock-cut churches of Cappadocia and the probable Muslim influence seen in some of their frescoes, also in the accuracy of Muslim


costume detail in late 13th century Spanish manuscript illumination,\textsuperscript{12} in the multitude of contemporary and archaic costume influences in Mozarab illumination,\textsuperscript{13} and even in the close artistic link between Romanesque Le Puy and Spain.\textsuperscript{14} This latter feature could render such sources as the frescoes of Cressac in France, which probably illustrate the defeat of Nūr al Din in the Buqailah in 1163 AD,\textsuperscript{15} more reliable than they would appear at first sight.

Of course, such French representations of Muslims were probably inspired by Moorish al Andalus rather than by Zengid Syria.

The majority of the studies dealing with these subjects start, however, from an European perspective. This does not, of course, invalidate them from the point of view of Muslim civilization. Yet it does seem to indicate that similar investigations should be made of these culturally cross-fertilized frontier regions from a medieval Islamic perspective. Such studies might prove particularly valuable to the social historian if, as was suggested in the Introduction to Parry and Yapp's anthology on War, Technology and Society in the Middle East, medieval Muslim empires reflected their societies rather than these societies reflecting the demands of war and technology, as might now be

said of much of the Middle East. 16

My own researches seem to show that the representational art of the border rather than of the metropolitan regions of Islam tends to be more useful when studying arms, armour or other aspects of costume. The same is certainly the case where Byzantine art is concerned and may even hold true, though to a lesser extent, of medieval western European art.

The reasons for such a state of affairs are probably the same in all cases. While the art of isolated or backward frontier provinces might be crudely executed and sometimes difficult to interpret, it is often relatively free of the artistic conventions and fashionable archaisms that are so frequently a feature of palace-orientated metropolitan art. Those archaisms that do appear on the frontiers tend to concern styles of execution and iconography rather than details of costume and equipment. These latter aspects generally seem, with a naivety paralleling that of the local artistic style, to reflect current local usage.

Provincial art also benefits from three other possible factors where arms and armour details are concerned. The first is obvious enough. Warlike subjects are often more popular in such regions, where frontier forays may have been endemic, than they were in metropolitan centres where other aspects of courtly life, such as hunting, music-making and wine-drinking often demanded the artist's attention. The second factor stems from the very poverty of such outlying regions, for here there was less tendency to remake or replace the artistic products of a previous generation in a modern fashion. The third factor

may seem surprising in view of the presumably more war-orientated character of society in such areas. It is the frequent, though far from universal, tendency for the fixed rather than the portable arts of these provinces to survive intact and in situ. Invasion, destruction, looting and political change do disperse or smash, but pottery, metalwork and so on are surely far more susceptible to theft and vandalism. This would be even more true if, as I believe, a passing medieval army generally wrought less widespread, though perhaps as much concentrated, havoc as does a modern force when actually in combat. The victorious invader would, I also submit, tend to stamp his authority on a newly conquered metropolitan region by replacing the art of his defeated predecessors with that of his own people. These views are admittedly subjective and lacking in proof, but they could well pin-point an area of potentially valuable research for a military historian.

Thus many of the pictorial sources to which I have given prominence in this study will either be little known, of doubtful artistic merit or at best lie outside the mainstream of medieval art, Islamic or otherwise. It is, however, their content rather than their quality with which this thesis is concerned.
Documentary Sources

In 1960, at the 25th Congress of Orientalists in Moscow, Dr. George Scanlon delivered a paper entitled *Source Material for a History of Medieval Muslim Warfare.* In it he argued strongly for more work to be done on this subject, and also pointed out that even the problems of nomenclature had yet to be solved.

Documentary sources suffer, in fact, from three basic difficulties. Most surviving histories of the first Muslim century were written many decades after the events they describe, although there is reason to suppose that their authors sometimes relied heavily on earlier sources now lost. How far they retained the original vocabulary is, however, debatable. Even if they did so, and even where these later authors were writing of their own times, problems of nomenclature remain. In many cases we simply do not know what a technical term originally meant. Later dictionaries, even those compiled in the Middle Ages, cannot necessarily be relied on. Hence a student must see such terms within their own contexts and bear in mind the known technological limitations of the period, in addition to those cultural, linguistic and even ethnic forces at work at the time. As if this were not problem enough, there was also an increasing tendency for both Arab and Persian authors to indulge in conscious archaism and elaboration in their use of vocabulary. This problem,

which is well known to students of Islamic literature, is even more acute when one is studying the content of such literature rather than its aesthetic quality. Finally, there is the fact that many works which once existed appear no longer to do so, although we know many of their titles. It is, of course, still possible that manuscripts may yet be unearthed.

There are, however, a number of other factors to be placed on the credit side. Many poets of 7th century Arabia, be they truly pre-Islamic or dating from the early decades of Islam, seem to have written of war from personal experience. Similarly, authors such as Usamah ibn Munqidh, the poet Mutanabbi and others, had themselves been soldiers. Even historians like Imad al Din and Ben al Din observed the warlike events of late 12th century Syria at first hand. The same might be said of certain European authors, both named and anonymous, who wrote of these and other conflicts between Cross and Crescent. At the very close of the period under review, or perhaps more accurately a decade or so after, there appeared those widely discussed furūsīyah manuals. These may have been written for use by soldiers, both leaders and rank-and-file, although some authors doubt this and consider

them unreliable. I incline towards a view, somewhat between these two extremes, that regards one of the earliest such furūsiyya manuscripts as evidence that Islam had reached an advanced stage of military thinking, that it drew upon ancient traditions while at the same time developing new ideas and that the readership of such manuscripts possessed a serious and professional approach to the art of war.

In using contemporary documentary sources I have, wherever possible, tried to obtain both an edited version of the original text and a translation into an European language. The use of the latter has enabled me to read a large number of sources, despite my limited Arabic and Persian. Such translations have also allowed me to pinpoint relevant lines without reading an entire work. In some cases I have noticed other nearby passages dealing with military matters that have, in my opinion, been mistranslated. Various references in al Ṣafarī, al Baladhuri, al Šuḫzī, the Šāhānšāh and Usūr ibn Rūqādh's Kitāb al Iʿtibār come into this category, as do some minor poetical works.

Where translations have been available but published editions of the original text have not, I was obliged to rely on these translations though naturally giving them much less weight as evidence. A number of vital edited sources have been made available, either as published works or as unpublished theses. Here I have attempted to make my own selective translations. The most obvious


cases have been the Nihayat al Sul, supposedly by al Aqsarani, the Fadâb al Harb by Fakhr al Din Rukbaksh, Al Suyûf wa Ajnasuha by al Kindi, the Kitab al Jama'hir fî Na'irat al Jama'hir by al Biruni, and Al Bayan wa'l Ischîn by al Jâhid. Important sections of some of these works have, of course, already been published, most notably a chapter on archery in the Fadâb al Harb.

A broad spectrum of secondary sources are also available dealing wholly or in part with Islamic military technology. Some were published over a century ago and have now largely been superseded by later publications. The works of Reinaud and Rehatsek may, however, still have value as starting points or lists of terminology, although they appear to contain a number of inaccuracies and misinterpretations.


31. Rehatsek, op. cit.
Where Arabic and Persian military technology is concerned, I have chosen to be selective in my use of certain well-known secondary sources. F. W. Schwarzlose, for example, included in his vital work on early Arab arms and armour many terms that I consider purely poetical. They certainly appeared in early Arab verses, but while this may make them interesting from a literary point of view it does not necessarily make them relevant in a study concerned with the reality, the structure and the appearance of items of military equipment. A number of original sources also use terms that solely reflect the geographical origins of swords and other weapons. While this does not render such terms irrelevant to this thesis, it does cause them to look larger in analyses of trade and distribution, such as that recently published by Dr. J. Allen. I have, however, used many such terms in the preparation of Map A, dealing with the manufacture and distribution of military equipment during the period under review, which is to be found at the end of this thesis.

PART TWO

Muslim Military Equipment
CHAPTER 1

EDGED WEAPONS

Swords (general)

Swords represent the one aspect of Islamic military technology that has been studied in depth by both European and Middle Eastern scholars, 1 perhaps because of the special place the sword held in

A number of such weapons and their furnishings, whole, fragmentary, well or dubiousely dated, survive from the period under review. Others, such as those recently excavated at Nishapur but as yet unpublished, are still being discovered, so that edged weapons represent the only aspect of early Islamic arms and armour that is even reasonably well covered by existing artifacts.

The sword was always known as saif in Arabic, a word that may have developed from the Greek xiphos in ancient times. This term referred to the sword as a whole, and not to any particular type or shape of weapon. According to one tradition that supposedly originated in the time of the Caliph Umar (634-644 AD), the sword was, despite its prestige, even then regarded as an inadequate weapon when used on its own. Such a tradition probably reflects the roles of the lance, javelin, bow and other penetrating weapons among the first Muslims. The sword was, at this early date, an almost entirely cutting rather than thrusting weapon, despite the existence of both straight-bladed single and double-edged varieties. The arts of Islam and neighbouring cultures show swords with blades of many shapes. Few would contradict the

2. A. R. Zaki, al-Sayf fī jil Qālin al-Islām (Cairo 1957), passim.
descriptions of swords in al-Kindī, most of which seem to indicate weapons with regular, though differing, widths to their blades. In other words they did not taper, although their tips could be rounded, conical or perhaps even flat. The fact that al-Kindī emphasized how Frankish, or European, differed from the normal Muslim blade by tapering from base to tip, would also seem to indicate that in general Muslim blades did not so taper. Whether a blade had a raised spine down its centre or a groove does not seem necessarily to have affected the name given to the blade in question. The nala blade, for example, could have either a spine or a fuller in the early 11th century.

The great majority of art sources, however, portray swords that have tips that are either so rounded as to make a thrusting blow impossible or are so regularly broad along their length as to be clearly designed for cut rather than thrust. In the 7th century (Figs. 111-114, 116 and 141), 8th century (Figs. 116, 182 and 470), 9th century (Figs. 143, 202, 447 and 502), 10th century (Figs. 213A, 316, 317, 347, 350, 354, 496, 505 and 507) and 11th century (Figs. 153, 194, 361, 363, 497, 499, 517 and 597) these forms of sword clearly predominated throughout the Muslim world. They persisted through the 12th century (Figs. 161, 166, 168, 282, 286, 316, 371, 372, 422, 529, 604 and 606), 13th century (Figs. 130, 132, 133, 165, 172, 250, 263, 287, 288, 292, 298, 300, 326-328 ans 392), and even into the early 14th century.

century (Figs. 64, 64B and 650A). Yet during these years the heavy straight sword was gradually giving way to weapons with slender or curved blades in many regions of Islam.

Weapons with much more acutely pointed blades that might have been designed primarily for a thrusting style of sword-play appear far more rarely. The earliest such representations in Islamic art come from 9th century Iran. Most of this type are relatively short and are seen in the hands of infantrymen, although some are as long as the previously discussed broad-swords, while a few are wielded by horsemen (Figs. 310, 348, 356 and 407). In the 13th century, with the spread of Persian influence via various Turkish and Kurdish dynasties, such weapons, again generally short though now as often in the hands of horsemen as of infantry, are to be seen in Iran, the Fertile Crescent and Egypt (Figs. 39, 170, 178B, 291, 299, 324G, 392 and 406). Many, such as an example appearing on an early 14th century pottery flask from Syria (Fig. 653), are virtually oversize daggers. Indeed, the sharply tapering swords so far mentioned may all be varieties of khanjar, a weapon that, generally shorter than a sānīf but longer than a true dagger, was regarded as the typical thrusting sword of Classical Islam. As such they will be discussed below.

Other swords with heavy, long and essentially triangular blades appear in certain areas which were under strong European influence in the 12th and 13th centuries. These include al Andalus (Figs. 532 and 547), Sicily (Fig. 606), Rūm (Fig. 255) and Egypt (Fig. 169), where such swords seem so thoroughly European in style that they may well have been imported. Muslim importation of pattern welded sword-blades from Europe is well documented, though they

are generally assumed to have originated in western regions such as the Rhineland. More recently, however, it has been suggested that many of these weapons were actually manufactured in the Slav areas of central and eastern Europe. Apart from those widely studied, but not very reliably dated, swords in the Topkapu reliquary and armoury, there is additional evidence to suggest that the earliest Muslim swords were not particularly heavy. One weapon, for example, that was retaken from the Byzantines in Sicily in the early 9th century, was recorded as having been inscribed with the legend, "This sword is from Kind. It weighs 170 minthānīl (approx. 550 grams) and it wounded many men before the Apostle of God." Other sources give a fair indication of the dimensions of these early Islamic blades. In the 9th century al Kindī described a sword made in Ḳhurmān as having a width of only two and a half fingers, approximately five centimetres. He does, however, also describe other larger weapons of probable Turkish origin as having


13. Ibid.


a width of four fingers, some eight centimetres, a length of four
opens, up to eighty centimetres, and weights varying from three
and a half to four and half rtl. Unfortunately the 10th century
rtl will probably remain effectively unconvertible until surviving
marked weights are unearthed. On the other hand, lighter blades
made in Fars, Iraq and Yemen were, according to al Kindī, clearly
smaller, mostly being around 5.5 centimetres wide and 60 centimetres
long. Such weapons are clearly similar to a fragmented sword
recently recovered in Oman (Fig. 6) but as yet unpublished. It
is also worth noting at this point that, according to al Ṣāḥīz
in the 9th century, Arab warriors made a point of celebrating the
relative shortness of their sword-blades.

Supposedly Indian swords, either made in the sub-continent
or manufactured from imported Indian ingots, were widely used
throughout the Umayyad Empire. Here their superior quality soon
seems to have taken on an almost legendary aspect. In fact, swords
of various types were clearly numerous, particularly among Muslim
infantry, in 7th and 8th century Islam, and many may have been
manufactured in the Yemen from imported iron or steel, including

19. Al Ṣāḥīz, Al Ṣāarih wa'll Ṭabyīn, H. al Sunqūṭī edit., (Cairo
20. Al Ṣāḥīz, Tārikh al Ṣunūl wa'll Nulūk, M. J. de Goeje edit.,
(Lugduni Batavorum 1879-1901), vol. II, pp. 731, 1002, 1049,
1431 and 1432.
l'Encron des an de IXe au Xle siècle, p. 154; N. Frée, Das
Herrscherwesen der Araber zur Zeit der Omajjaden, (Tübingen
alpānī iron or steel from north-eastern Iran.  

That the status of the ṣanvāf al Ḥind, or Indian broad-sword, was by the 9th and 10th centuries more traditional than real is, however, suggested by Qazwīnī’s statement that such weapons were inferior to European “Frankish” blades, and Ibn ʿAbd al Rabbihi’s similar suggestion that they were inferior to those made in Arabia. It is, nevertheless, far from certain that these criticisms applied to swords made in Muslim India, or Sind, at Multan which were forged from ingots or Harātī steel from Khurāsān.  

By the 11th century it might appear that the term Hindī referred primarily to swords made in Hindu India and Buddhist Sri Lanka. 

Swords in general, however, remained cutting weapons. Even as late as the 14th century they were wielded “like a mace” and were considered less effective than a thrusting khanjar when two warriors grappled closely. 

In Persian the term ṣhamshīr was probably synonymous with

22. Allan, op. cit., p. 69.  
25. Fatimi, loc. cit.  
29. Ibid., p. 335.
Many centuries would pass before it would generally be taken to refer to a distinctly curved sabre. The word *shamshir*, like *sayf*, seems to have applied to the entire weapon rather than simply to a blade. From the 10th to 13th centuries this latter blade was normally distinguished as the *tinn* (see Terminology).

There is, in fact, nothing in early sources to suggest that the *shamshir* was anything but a straight broad-sword designed primarily for a cutting blow. This interpretation is reinforced in a military treatise from early 13th century Muslim India which suggests that a *shamshir* should be carried by infantry in addition to a thrusting *kard buzurn* or large knife. As such this source is comparable to an early 14th century Mamluk treatise which similarly distinguishes between the cutting sword and the thrusting *khanjar*.

Another possible, and indeed probable, heavy cutting sword was the *ndaq*, a weapon mentioned but not described in the 13th century Indian *Adab al Hacib*. It may be associated with the pre-Islamic Indian *nacha*, which has been described as a form of

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33. Al Aqara'I, *op. cit.*, passim.
mace,\textsuperscript{35} or the 14th century Mamluk 
\textit{muddurrah}, which has been 
rather peculiarly described as a horseman's mace capable of 
cutting off a man's arm.\textsuperscript{36} I, however, am inclined to regard 
all these weapons as swords, "shaft-like" in their appearances 
only through their lack of quillons and their distinctive non-
tapering blades. This was, after all, the form of yet another 
weapon with a comparable name, the later Persian \textit{muddurrah}.\textsuperscript{37}

\textsuperscript{35} P. Holstein, \textit{Contribution à l'Étude des Armes Orientales, 


\textsuperscript{37} Zaki, "On Islamic Swords," p. 279.
Terminology

**gadr** - هدر
Probably a straight, non-tapering sword^{38} (Persian, perhaps from the Indian गधा).
Early 13th century Northern India^{39}

**mawāshed** - مورد
"Bright" sword^{40} (Arabic نارضأ to compete in brightness).
Early 12th century al Andalus^{41}

Mid-12th century Fātimid Egypt^{42}

Late 12th century Ayyūbid Syria^{43}

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38. Khwānārī seems to support the theory that this was a maces on it., op. cit., p. 425.
paršak — پرسلم
"Excellent steel" sword (Persian).
Early 13th century Northern India

parand — پرسلم
"Glittering surfaced" sword, probably referring to watering (Persian).
Late 10th century Khurasan

par-i magas — پرسلم
"Bright" sword (Persian, lit. "fly's wing").
Early 13th century Northern India

shams — شمس
"Finely tempered, well forged" sword (Arabic to persevere).

47. F. Steingass, loc. cit.
48. Steingass, op. cit.
49. Mubarakshah, loc. cit.
Late 11th or early 12th century Fatimid Egypt

Early 12th century al Andalus

\textit{s\c{c}arin} - \\
"Cutting" sword (Arabic 
\textit{rather} to be sharp or to cut).

Early 12th century al Andalus

Mid-13th century al Andalus

\textit{sayf} - \\
Generic term for the sword (Arabic).

\textit{shamshir} - \\
Generic term for the sword (Persian).

51. Ibn al Tuwayr, in \textit{al Muqri\ddot{i}, Khit\ddot{at},} (Cairo n.d.), p. 446.
52. Ibn Bujja, in Monroe, \textit{op. cit.}, pp. 206-207.
54. Ibn CAbdun, \textit{loc. cit.}
55. Nu\c{c}in al Qarn\u{y}rann\ddot{a}, in Monroe, \textit{op. cit.}, pp. 326-326.
Swords (curved)

A curved sword, in the true sense of the word, is one in which the entire blade has a distinctly concave back. As such it is different, if only in degree, from those single-edged weapons that merely have convex cutting edges. The question of when such swords appeared in Islam has yet to be adequately answered, but much of the argument has, so far, centered upon an interpretation of terminology. The late Dr. A. R. Zaki, for instance, believed that he had found a reference to a curved Yemeni sword in al KindI. More recently Dr. Allan has disputed this interpretation by pointing out that Dr. Zaki may have misread ḥanṭaf, long and curved, ḥafaf, light in weight. I could further complicate the issue by focusing attention on the fact that the sword in question was also referred to as a malṭuri sword, a term that, in my opinion, almost always refers to a curved sabre-like weapon (see Terminology below). In Arabic such a concentration upon vocabulary may be reasonably reliable where such descriptive terms as muḥaddab (cambered, convex or bent) are concerned. This particular word may appear in late 11th or early 12th century Fatimid Egypt, although a great deal of doubt has been cast upon its accuracy, both by M. Canard and Dr. Allen. On the

62. Ibid.
63. In private conversation.
other hand the possibility of the presumably curved *nahlūrī* blade being known in the 10th or 11th centuries in Egypt\(^64\) and being manufactured in 9th century Yemen, \(^65\) from which source Egypt probably imported numerous weapons, could make the accuracy of the term *muḥaddablāb* more likely in its given context.

The problem are different where Persian terms are at issue, for here there is a danger of assuming that the known characteristics of surviving 17th to 19th century swords were equally characteristic of similarly named weapons in earlier centuries. This is unfortunate, as it is generally assumed that the curved sword, or sabre, spread across Islam from Turkish Central Asia via Iran. Such a thesis does not, of course, preclude the possibility of curved weapons from other neighbouring regions having some impact upon the Muslim world. Al Biruni\(^4\) could, in one instance, be interpreted as saying that some Singhalese swords had curved edges, possibly shaped like the Arabic letter \(\raisebox{.7ex}{\text{ṣ}}\).\(^66\)

Weapons with such a shape, though reversed in that the cutting edge was on the inside of the curve, certainly appeared in the art of eastern regions under Indian cultural influence (Fig. 485), as they had similarly appeared earlier in India itself, at Ajanta.

There is little reason to doubt the accepted wisdom concerning the primary origin of the Muslim curved sabre, particularly if one agrees that the *nahlūrī* and various linguistic variations such as *nahlūrī*, *nālūrī* and perhaps even *nānčul*, all probably


\(^{65}\) Al Kindī, *loc. cit.*

stemming from the original Turkish word *kili*. Such a Turkish, Central Asian root would also make a curved form even more likely. The early 13th century 

*Adab al-Harb* manuscript clearly stated that it was curved in the Ghurid east, and there is little reason to suppose that this weapon differed greatly elsewhere.

Indeed, there is an abundance of pictorial evidence to suggest that a long, curved, tapering or non-tapering sword was known in Iran (Fig. 356) and was reflected in Byzantine illustrations of eastern foes (Fig. 2203) in the 10th century. There is even a suggestion that such weapons were manufactured in Basra in the 10th century. No illustrations seem to survive from the next one hundred years, but by the 12th century the long, curved, tapering or non-tapering sabre is again seen in some numbers in Iran (Figs. 369, 369, 373 and 380), in neighbouring Georgia (Fig. 421), Azerbaycan (Fig. 422), the Jazirah area (Fig. 280) and even in Egypt (Fig. 160).

Such weapons became increasingly popular in these eastern and central Islamic lands during the 13th century, coming to predominate in Iran (Figs. 309 and 641), particularly after the Mongol conquest (Figs. 309, 410 and 638). A comparable process took place in Egypt (Figs. 172, 174, 175, 177, 179, 392 and 651), and was reflected in other regions such as the Fertile Crescent (Figs. 306 and 312), Cilicia (Fig. 240) and Armenia (Fig. 250).


Other, less reliably dated evidence from the Caucasus (Fig. 425) and Rüri (Fig. 265) suggests that, as would be expected, curved sabres were similarly being adopted in these areas.

Of course, such northern lands, including those that earlier formed part of the Byzantine Empire, had already learned of the curved sword from their direct contact with the Turkish nomad society of the Eurasian steppes. This latter area was almost certainly the birthplace of the cavalry sabre as we now know it, although the advances in metallurgical technology that permitted its development may have originated in China in the 1st century BC. The technique of creating iron soon spread from its place of origin to Islam but its progress may then have slowed for it was not fully utilized in Europe until the 15th century. This is not, however, to suggest that swords with curved blades, though perhaps different in overall shape and internal structure, were not developed independently in other parts of the world in other centuries. Mild, or unhardened, steel was also produced from wrought iron by having the iron's carbon content raised by heating it together with carbonaceous matter for many hours. This produced a carburized surface which could be repeatedly folded and reforged to produce homogenous mild steel. This, in turn, could then be hardened by the dramatic process of quenching, or sudden cooling, from a temperature above 900°C. Such a process was described by a number of early Islamic authors. It produced a brittle, though intensely hard, solid solution of carbon and iron known as martensite. A higher quality, or at least more serviceable, steel

70. Moucharabé, op. cit., p. 626.

71. Allen, op. cit., pp. 75-76.
for sword blades was that popularly known as Damascus steel. It originated in southern India as wootz, a cast steel made by heating iron and charcoal in a crucible over some days. A slow cooling then allowed large iron carbide crystals to grow. These cakes or ingots of wootz were generally exported and were made into sword blades elsewhere. Skilful forging then permitted the characteristic surface-pattern called maml, or watering, 72 to grow from the green carbide crystals. A False-Damascus could also be produced by the application of some acidic substance. 73 With true Damascus the series of operations produced a very hard steel, without the brittleness caused by the quenching process. A major disadvantage, however, was that such Damascus steel was very difficult to shape and only proved suitable for relatively simple forms such as sword blades or small items of plate armour, rather than for complex shapes such as those found in later medieval European armour. 74

The earliest surviving datable sabre was discovered in a tomb near Khorkov, together with some 8th century Muslim coins, and was probably manufactured early in the 9th century 75 (Fig. 613). Curved blades do, however, appear in Central Asian and Siberian art from this and earlier periods (Figs. 465, 466 and 469). The so-called Sabre of the Prophet Muhammad, now in the Topkapı

75. Lombard, Les M étalux dans l'Ancien Monde du Ve au XIIe Siècle, p. 120.
Reliquary (Fig. 100) may, in fact, be quite early. But the earlier its origins the more unlikely it is to be of Muslim manufacture. This weapon was probably made in Central Asia, although it could also be Avar or Magyar and have reached the world of Islam via Byzantium. The Avars brought comparable weapons to eastern Europe in the 7th and 8th centuries but they were apparently not copied by their western neighbours. Slightly curved swords for cavalry were certainly adopted by the Byzantines in the 9th century. Perhaps these were used by Khazar mercenaries, although the weapon may also have been copied by the Byzantines themselves, if not from these mercenaries then perhaps from the Avars or their Magyar successors (Figs. 619 and 620).

The known reluctance of western European warriors to adopt the curved sword, and the appearance of a similar weapon in a late 10th or early 11th century Spanish Bible (Vat. Lib., Cod. Lat. 5729), may suggest that the sabre spread throughout Islam in the 10th century, even as far as al Andalus. Nevertheless, it probably remained rare in such western regions. Distinctly sabre-like swords also appear, though crudely, in Sicily (Figs. 606 and 609 I). Such evidence would surely support the possibly mid-13th date offered, solely on the grounds of its decoration, for the state-sword named Gomera of the Katsina people of Nigeria.

76. Lombard, Les Fêtesaux dene l'Ancien Monde du Ve au Xle Siècle, p. 120.
والثناء على عشر أيام ونشأ وآتاج وسُمعب
من ثم ورجع من ودحهم سنة ما انتهت
صلبه خليل على يارا وأوصلوا رصانة
وبطروا يا مغفوه فذكر وصف وتمتع
أن حيى ما تأمره لا يا إله إلإ أن يكون
أينما بلصننا نحن نجعله إسماً بما
ذبح وركنا طلوبي وورأى قنال
طليت لما نحن شالاً نتبندهم
الشبل اصناو لا يشعرون به منا قاب
**Terminology**

**muḥaddab** — مُحَدَّب

"Cambered, convex" sword.⁰⁰ (Arabic مَحَدَّب, to make convex, curved or crooked).

Late 11th or early 12th century Fatimid Egypt.⁸¹

**qalāchūr** — قلْقُحُر

"Curved sabre".⁸² (Persian, from Turkish kılı).

10th-12th century Ghurids Afghanistan.⁶⁴

**qaljūrī** — قَلْجُرِي

"Curved sabre".⁶⁶ (Arabic, from Turkish kılı).

Mid-9th century Iraq.⁶⁷

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⁰⁰ Canard doubts the reliability of this term: "La Procession du Nouvel An chez les Fatimides," p. 359.

⁸¹ Ibn al-Tuwayr, op. cit., p. 446.


⁸³ Allan, op. cit., p. 90.

⁸⁴ Kubārakshāh, op. cit., p. 269.

⁸⁵ Kubārakshāh, op. cit., p. 260.

⁸⁶ Beshir believes that the qaljūrī sword was imported into Egypt from Qaljūr in the western Dilād al-Sūdān, op. cit., p. 70.

⁸⁷ Al Kindī, op. cit., p. 17.
"Curved sabre (Probably synonymous with Persian qalnchur
and qaræchul, all from Turkish kiliğ)."
Early 13th century Northern India

Sword (straight, single-edged)

In a period of such military experimentation and technological change as that of the so-called Dark Ages, it is clearly impossible to put every weapon, whether a surviving specimen or an illustrated representation, into a clearly defined category. It may even be misleading to try. Nevertheless, a third general form of sword can be noted, in addition to the previously discussed and relatively straight-forward categories of heavy broad-sword and curved sabre.

This more nebulous group of weapons generally have straight and single-edged blades. Some are full-length while others are shorter, though not as short as true daggers. Their cutting edges tend to be curved towards the point, though their backs may either be straight or more or less curved forward.

Single-edged, straight-backed swords could be mentioned by al Kindî in the 9th century, but this author’s terminology is once again far from clear. Such a single-edged, normally though not invariably straight-backed and relatively slender, sword was certainly known in the Middle East and India in pre- and early Islamic times, as is shown in surviving illustrated sources (Figs. 2, 20, 77, 110, 122, 121 and 240). Most such weapons lacked quillons

88. Mubârakshâh, op. cit., p. 252.
89. Al Kindî, op. cit., p. 10.
or any form of guard, unlike the roughly comparable though generally shorter sword-cum-dagger seen in the art of Iran and Turkistan (Figs. 447, 457, 462 and 475). While the former tradition seems to have persisted in areas under Byzantine influence (Figs. 213A, 558 and 601), there may be some link between the Central Asian form and a multitude of accrocorax blades from Dark Age western Europe (Figs. 80, 94 and 98).

Whether the heavy European falchion, perhaps first seen in 11th century southern France (Fig. 563), was an independent development or reflected a merging of these two traditions from north and south, remains unclear. There is, however, little doubt that comparable single-edged swords of various lengths continued to be used throughout most of the Muslim world in the 12th and 13th centuries (Figs. 177E-F, 178A-G, 250, 294, 401, 591, 609 I and 641).

The persistence of short, single-edged weapons in Islam, carried as a more personal defence than the heavier sword, is reflected in many eastern Arabic and Persian written sources. Such a weapon is probably that referred to as a *khanjar*. Although it could be used for both cut and thrust, and might even be thrown, it was generally regarded as the closest of close-combat swords. This would be the case whether it was in the hands of infantry or cavalry. In both instances it would normally be carried in addition to a sword, spear, bow or javelin. Larger than a dagger but


smaller than a true sword, and at times kept either in a bowcase or a horseman's boot, this khanjar could nevertheless behead a fallen foe. As such it may have been comparable to the nimir with which Salāh al-Dīn virtually severed the shoulder of Reynald of Chatillon in 1107. 32

**Terminology**

khanjar - خنجر

"Large dagger or small sword" (Persian).

7th century Sassanian Iraq

Wanda riba' bih bākī in ra's al-anfi

Early 6th century Umayyad east

al-anfi bih bākī shahām bi-nabara

Early 9th century Iraq, Persia and Khurasan

References:


"Short sword or falchion" (Arabic, from Persian nīmach, "little half").

Late 12th century Ayyūbid Syria

Garbal

Curved short-sword with decorated guard (origin obscure).

Mid-10th century Sind

Qudub (also mīqāb)

"Chopping" sword, or one reminiscent of a pruning hook, probably a falchion (Arabic چمن to chop off or prune).

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102. Dānā al Din, op. cit., p. 64.


Late 12th century IIfriqiya. 106

Early 12th century al Andalus 107

Late 12th century Syria, referring to both Ayyubid Crusader weapons 108

Daggers

Having already discussed swords of various types, and having distinguished short-swords from both long-swords and daggers, it only remains to identify the main forms of true dagger that appear in the arts of Islam and its neighbours. Clearly such categories tend to be arbitrary, but having accepted this limitation one may go on to note that such weapons essentially fall into three forms.

First, there are those with distinctly curved blades. These are rare, both in the Muslim world and among its western neighbours. The earliest medieval representations may be those in a possibly 9th or 10th century fresco from Cappadocia (Fig. 205) and in a southern Italian manuscript dated 1023 AD (Fig. 564). Such southern Italian sources were, of course, under strong Byzantine influence. Add to this the fact that there may be an Armenian element in the Cappadocian fresco in question, and an Anatolian origin for the medieval curved dagger becomes a possibility.

Indeed, this interpretation may be reinforced by the subsequent

108. İmâd al Din, op. cit., p. 19.
appearance of such weapons in 12th and 13th century western
Iran (Figs. 306 and 641) and in a Mamlük source from Egypt or
Syria (Fig. 177) where the curved dagger is wielded by a "foe."

Daggers or knives with single, though generally curved,
cutting edges are more commonly illustrated in both Muslim and
neighbouring Christian art. They also predominate among the
daggers from early medieval south European grave-sites. Most
such weapons lack any form of quillons or guard and were probably
multi-purpose knives, used not only in war but also for more
peaceful purposes. Their basic shape changed little from the
5th to 7th centuries (Fig. 79), through the 9th (Fig. 201G), 10th
(Fig. 222) and 11th (Figs. 152, 231 and 564) to the 12th century
(Figs. 610 and 587).

Though obviously used in combat, such single-edged knives
should not, perhaps, be regarded primarily as weapons. The double-
edged and quite often triangular dagger may, however, have simply
been a weapon. Unfortunately, it is not apparently possible
to attach specific Muslim terms, such as dashnah, kard or sikkīnah,
to one or other of these types of blade. At least, I feel unable
to do so. All were worn both at the belt and in a horseman's
boot, or khuff. This latter habit seems to have been characteristic
of the eastern Muslim world from the start of the 8th century,\(^{109}\)
throughout the intervening period,\(^{110}\) to the late 13th or early 14th
centuries.\(^{111}\)


A General History of the Muhammadan Dynasties of Asia,

Slender-bladed knives that were clearly designed for stabbing, in other words for fighting, are as widespread in the art of Islam and its neighbours as are the single-edged varieties. Those from the early centuries tend to be more slender and quite short, often with both cutting edges curved slightly towards their point (Figs. 89, 205, 241 and 564). During the 12th and 13th centuries, however, a broader more triangularly shaped blade, often with full quillons, appears in the hands of the warriors of Islam and some neighbouring areas under strong Muslim influence (Figs. 130, 153, 171, 295, 323, 531 and 603).

In this connection it is interesting to note that the ballock-dagger, which was common in 14th century western Europe, is clearly illustrated in one mid-13th century Islamic source from the Jazīrah (Fig. 296). Such a style of guard may well have remained traditional to this region, for it was shown on a 14th century statue from Hatra (Fig. 25) and also on a possibly west Iranian silver dish of the late 4th century (Fig. 54). Whether or not the European ballock-dagger was copied from those of the east remains unclear. The same may be said of another interesting, but even more tenuous, link between the daggers of Christendom and Islam. This time it concerns terminology. Could the late 12th century long-bladed Saracenic dagger known as a madyah, whose name appears to be rooted in the concept of "granting a respite to," have lain behind the European misericorde, a thin-bladed dagger of the 14th century whose name stems from the Latin misericordia or mercy?
Terminology

dashnah - دشناه

"Small, curved two-edged dagger"\textsuperscript{112} (Persian).

Early 13th century Northern India\textsuperscript{113}

 dashah - دشها

"Broad-bladed dagger"\textsuperscript{114} (Persian).

Late 10th century Khurasan\textsuperscript{115}

Early 13th century Northern India\textsuperscript{116}

 dashh - دشح

"Dagger"\textsuperscript{117} (Arabic, from Persian dashnah).

Early 12th century Syria\textsuperscript{118}

\textsuperscript{112} Steingass, \textit{op. cit.}
\textsuperscript{113} Mubārakshāh, \textit{op. cit.}, p. 260.
\textsuperscript{115} Firdawāsī, \textit{op. cit.}, p. 59.
\textsuperscript{116} Mubārakshāh, \textit{op. cit.}, p. 260.
\textsuperscript{117} P. K. Hitti, \textit{Memories of an Arab-Syrian Gentleman}, (Beirut 1964), p. 80.
\textsuperscript{118} Usāmah ibn Fūnqīdī, \textit{op. cit.}, pp. 51–52.
kārīd - کارد
Generic term for dagger\(^\text{119}\) (Persian).
Early 13th century Northern India\(^\text{120}\)

mādyeh - مديه
Probably a "long-bladed dagger"\(^\text{121}\) (Arabic مديه to grant a respite to).
Late 12th century Syria, used by Crusaders\(^\text{122}\)

ṣikkīnāh - سكينة (also sikkīn - سكين)
Generic term for dagger\(^\text{123}\) (Arabic سكين to stop or be still).
Lute 7th and early 8th century Umayyad Caliphate\(^\text{124}\)
Early 9th century Iraq\(^\text{125}\)

\(^{119}\) Cohen regards the kārīd as a knife, Un Traité d'Armurerie Composé pour Saladin, p. 60; Rehatsch translates kārīd as a form of sword, op. cit., p. 240; Steingass, op. cit.

\(^{120}\) Mubārakshāh, op. cit., pp. 262 and 330.

\(^{121}\) Mehr, op. cit.

\(^{122}\) ʿImād al Dīn, op. cit., p. 330.

\(^{123}\) Mayer, Mamluk Costume, p. 37.


\(^{125}\) Al Ḫādifī, Resālīl al Ḫādifī, p. 26.
Mid-10th century Yemen\textsuperscript{126}

The world of Classical Islam used a great variety of terms for the various parts of such weapons as swords and daggers. Most are descriptive and many would seem to have been for poetic rather than everyday use. Some such terminology changed from century to century and region to region. Most, however, seem to reflect artistic fashions and conventions in a very literate, and literature-orientated, aristocratic society. Only rarely may the choice of a term shed some light on the appearance of the item in question, and this seems to be as true of sword furnishings such as scabbard, sword-belt or baldric, as of blades, hilts or quillons. Even more rarely can such terminology be linked to changing fashions in sword furnishings, as illustrated by the very few surviving pieces (Figs. 144, 362, 407 and 660).

\begin{itemize}
\item 126. Al Hamdani, \textit{Al Ikhtif}, N. A. Faris edit., (Princeton 1940), p. 27.
\item 127. Usamah ibn Munqidh, \textit{op. cit.}, p. 77.
\item 128. al Imad al Din, \textit{op. cit.}, pp. 227-228.
\item 129. Al Byadhq, \textit{op. cit.}, p. 119.
\end{itemize}
Terminology

BLADE

"Sharp edge" of sword\(^{130}\) (Arabic \(\text{مسم} = \text{to cut}\)).

Late 10th-early 11th century al Andalus\(^{131}\)

Mid-late 11th century al Andalus\(^{132}\)

Late 11th-early 12th century al Andalus\(^{133}\)

muqabirūmān - متبرومن

Unspecified type of high quality sword-blade(?),\(^{134}\) perhaps decorated (Persian \(\text{سَبَرَ} = \text{belongs to a burial ground}\)).

Early 13th century Northern India\(^{135}\)

\(^{130}\) Wehr, op. cit.


\(^{132}\) Ibn Cammar, in Monroe, op. cit., pp. 188-189.

\(^{133}\) Ibn Khafajā, in Monroe, op. cit., pp. 242-243.

\(^{134}\) Khwāngārī, op. cit., pp. 258-259.

\(^{135}\) Mubārakshāh, op. cit., pp. 258-259.
nurhafah — مرفة
"Slender" sword-blade\textsuperscript{136} (Arabic رهش to be thin).

Mid-13th century al Andalus\textsuperscript{137}

ناصل — نصل
Blade of sword or any other weapon\textsuperscript{138} (Arabic نصل to fall).

Early 11th century Iran\textsuperscript{139}

نافهص — نفهص (also نفتش — نفتش)
"Broad or flat" sword-blade\textsuperscript{140} (Arabic سويلب to flatten).

Late 11th century al Andalus\textsuperscript{141}

تَح — تَح
Sword,\textsuperscript{142} context usually indicates blade rather than entire
weapon (Persian).

\textsuperscript{136} Wehr, op. cit.

\textsuperscript{137} Hāzim al Qaratjann\textsuperscript{I}, in Monroe, op. cit., pp. 326-327.

\textsuperscript{138} Wehr, op. cit.

\textsuperscript{139} Al Sirūn\textsuperscript{I}, op. cit., p. 252.

\textsuperscript{140} H. Massé, Conquête de la Syrie et de la Palestine par Saladin, (Paris 1972), p. 268.

\textsuperscript{141} Al Ṣufi, in Monroe, op. cit., pp. 196-197.

\textsuperscript{142} Steingase, op. cit.
Late 10th century Najavans

Early 12th century Persia

Early 13th century Northern India

Fuller on blade 146 (Arabic to cut into strips)

Mid-9th century India

"Decoration" of sword or harness 148 (Arabic to adorn)

7th century Arabia


146. Al Kindī, pp. cit., p. 16 note 7; Hammer-Purgstall, op. cit., p. 73.

147. Al Kindī, pp. cit., p. 16.


149. Ibid.
EDGE OF SWORD-BLADE

 destac

Cutting edge of blade (Persian side).

Mid-9th century Iran

 Entire edge of sword-blade (Arabic to turn away from).

Late 12th century Syria

Side or edge of sword-blade (Arabic to leave marks upon).

Late 12th century Syria

Marks of sword-blade (Arabic to leave marks upon).

7th and early 8th century Umayyad Caliphate

References:

152. Al KindI, op. cit., p. 16.
154. Imad al Din, op. cit., p. 77.
155. Fries, op. cit., p. 49.
sanbuk - سنابك
"Edge of sword," probably where it curves towards the tip (Arabic سنابك، toe of the hoof, owl or skiff).
Early 10th century al-Andalus

shafrah - شفرة
"Edge of a broad-sword" (Arabic شفرة to decrease).
Mid-9th century Iraq

zubah - الزبلة
"Edge of sword" (Arabic، origin obscure).

159. El Gindi, op. cit., p. 156.
160. Al Kindi, op. cit., p. 16.
161. Al Nasawi, edit. and trans. Ezzedin Ibrahim and D. Johnson-Davies, Forty Hadith, (Damascus 1977), no. 17. The dating of these hadith is very debatable, although the dates of their compilers are, of course, often known.
163. Fries, op. cit., p. 49.
Late 7th century Umayyad Caliphate\textsuperscript{164}

Early 9th century Iraq\textsuperscript{165}

Mid-late 11th century al Andalus\textsuperscript{166}

Early 12th century al Andalus\textsuperscript{167}

GRIP

miqbad - مقبض

"Grip" of sword,\textsuperscript{168} also of a bow or shield (Arabic to take in the fingers).

Late 12th century Ayyubid Syria\textsuperscript{169}

Early 14th century Mamluk Egypt\textsuperscript{170}

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166. Ibn CAmmar, in Monroe, \textit{op. cit.}, pp. 190-191.
169. CImāḍ al Din, \textit{op. cit.}, p. 19.
"Grip" of sword (Arabic تبض to take in the fingers).
Early 12th century Persia

"Hilt" of dagger (Arabic نصب to raise).
Mid-10th century Yemen

"Entire hilt" of sword (Arabic ياق to stand up).
Late 7th and early 6th century Umayyad Caliphate

175. Fries, op. cit., pp. 48-49.
Early 12th century al Andalus

Mid-12th century Zangid Syria

RIVETS (fixing hilt to tang of sword)

missār

"Nail or peg" (Arabic سمّر to nail or rivet).

Early 9th century Iraq

POINT OF SWORD OR DAGGER

ḥadd

"Point" of a sword-blade (Arabic دَخَّل to define a limit cr thrust back).

Late 7th century Unayyad Caliphate

12th century Zangid Syria

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Mid-12th century al Andalus

Late 12th century Ayyūbid Syria

sar - "Point" of a sword (Persian).

Late 10th century Khurāsān

POMMEL

qabīlah - "Pommel" of a sword (Arabic چ to conceal one's head in one's clothes).

Early 8th century Umayyad Caliphate

Early 9th century Iraq

187. Steingass, op. cit.
188. Firdowsī, op. cit., p. 1308.
189. Fries, op. cit., p. 49.
191. Al Jāhiz, Rasā'il al Jāhiz, p. 72.
GUILLONS

sharkb - (also sherbân -) شرب (شربة)

"Quillon" of sword-hilt\(^{192}\) (lit. "moustache", Arabic شرب to drink).

Early 14th century Mamlûk Egypt\(^ {193}\)

SWORD-KNOTS
dhurâbah - ذرارة

"Tassels" or sword-knots on hilt\(^ {194}\) (Arabic ذار to plait the forelocks of), also tassels of spears, see Staff Weapons.

Early 14th century Mamlûk Egypt\(^ {195}\)

TANG
eilân - سبيلان

"Tang" of sword-blade\(^ {196}\) (Arabic سبيل to flow).

\(^{192}\) El Gindi, op. cit., p. 156.

\(^{193}\) Al Aqsarâ'I, op. cit., p. 329.


\(^{195}\) Al Aqsarâ'I, op. cit., p. 329.
Early 9th century Iraq

والذى يحمل سامير السكين

Mid-9th century Iraq

تربيتها خوخش لب سعد السكين

BALDRIC

ميلة

Probably "baldric" holding scabbard (Arabic ج炸弹 to carry).

7th century Arabia

لئن الكتاب اليمين شن عمل

Late 7th century Umayyad Caliphate

ثم استمتع مجالس الرؤوس

Early 9th century Iraq

والذى سبلى و ركز نعله و قلق الأمي ك لوز مارا

Late 10th century Persia

راوس أسرى لهما

196. Al Jahiz, Anna'il al Jahiz, pp. 71-72.
197. Al Kindi, op. cit., p. 16.
199. Schwarzlose, op. cit., p. 207.
201. Al Jahiz, Rema'il al Jahiz, pp. 71-72.
taqalladah -

"Caldric-style" of carrying a sword\textsuperscript{203} (Arabic قلدلد to wind a thing upon something).

Late 7th century Umayyad Caliphate\textsuperscript{204}

Mid-12th century Syria\textsuperscript{205}

\begin{quote}
CHAPE
\end{quote}

na'\textsuperscript{206} (also na'a\textsuperscript{207} (Arabic جل to give sandals to).

7th century Arabia\textsuperscript{208}

Early 9th century Iraq\textsuperscript{209}

\textsuperscript{203} Mayer, \textit{op. cit.}, p. 45.
\textsuperscript{204} Al JaberI, \textit{op. cit.}, vol.II, p. 912.
\textsuperscript{205} Usamah ibn Munqidh, \textit{op. cit.}, p. 65.
\textsuperscript{206} Fries, \textit{op. cit.}, p. 48.
\textsuperscript{207} Schwarzlose, \textit{op. cit.}, p. 208.
\textsuperscript{208} Al JaberI, \textit{op. cit.}, vol.II, p. 479.
\textsuperscript{209} Al Jahiz, \textit{Ma\'a'il al Jahiz}, pp. 71-72.
SCABBARD-SLIDE OR BALDRIC KNOT

Meaning unconfirmed\(^{210}\) (Arabic رمح to adhere to).

7th century Arabia\(^{211}\)

RING ON BALDRIC

"Ring or hoop" on baldric to which scabbard probably attached\(^{212}\)

(Arabic طرقات to put a ring on).

7th century Arabia\(^{213}\)

zarafayn - مزز

"Two rings on baldric" to which scabbard attached\(^{214}\)

(Arabic زرف to re-open).

Early 14th century Mamluk Egypt\(^{215}\)

\(^{210}\) Schwarzlose, op. cit., pp. 206-207.

\(^{211}\) Ibid.

\(^{212}\) Ibid.

\(^{213}\) Schwarzlose, op. cit., p. 207 note 8.

\(^{214}\) Lutful-Huq, op. cit., p. 314.

\(^{215}\) Al Akqaar'I, op. cit., p. 314.
SCABBARD

"Wooden scabbard covered in leather" (Arabic to cover or repair).

Early 8th century Umayyad Caliphate

Late 8th century Abbāsid Caliphate

Early 9th century Iraq

Early 10th century al Andalus

Late 11th century al Andalus

Late 12th century Ayyūbīd Syria

Mid-13th century al Andalus

222. ʿImād al Dīn, op. cit., p. 15.
Early 14th century Mamluk Egypt

Jafn -  

"Scabbard", probably mostly of leather (Arabic to slaughter an animal).

Late 7th century Umayyad Caliphate

Late 8th century Abbassid Caliphate

10th century Marhrib and al Andalus

Mid-12th century Zungid Syria

khilah -  

"Scabbard" (Arabic to pierce).

References:
225. Fries, op. cit., p. 46.
230. Ubayd Allah ibn As'as/Mawgillā in Ghaiṭ, op. cit., p. 126.
niyām - نیام

"Scabbard"231 (Persian).

11th century Azerbaijan232

نتاو کرد را درنیام

SCABBARD-CASE

qirāb - قراب

"Leather bag or sheath" holding both scabbard and sword233

(Arabic قراب to put into).

Late 12th century Ayyubid Syria234

والترابع التربة

Early 14th century Mamluk Egypt235

والابن في قراب

SCABBARD MOUNTS

almālah - الامالح

"Bonds around scabbard" probably as attachment points for baldric or sword-belt236 (Arabic لمل to carry).

7th century Arabia237

واعدثير اسمع نبية لاسائل

231. Wolff, op. cit.


234. 'Īsād al Dīn, op. cit., p. 20.


237. Schwarzlose, op. cit., p. 207.
Late 11th century Persia

LOCKET

"Reinforced top" to protect opening of scabbard

(Arabic شرب to drink).

Early 9th century Iraq

SUARO-BEET

manātīq

"Spear-belt" (Arabic نطق to gird on or reach the middle of).

Late 10th century Iran

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SWORD-STRAPS

"nâlîq - ملايق

Probably "straps from sword-belt to scabbard"\(^{243}\) (Arabic مايق to hang or be suspended).

Early 9th century Iraq\(^{244}\)

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244. Al Mas\(\text{عد}^ {i}\), op. cit., vol.VII, p. 46.
CHAPTER 2

THE MACE AND THE AXE

Maces

The medieval mace was almost certainly of Middle Eastern, Iranian or Indian origin. Sassanian armoured cavalry are believed to have used it extensively, and though a possible simple form of this weapon may appear on the mid-3rd century Roman "Ludovisi Battle Sarcophagus" in the Museo Nazionale in Rome, far more sophisticated maces are seen in Parthian art and (Fig. 47), the frescoes of Pianjikent (Fig. 430), east-Iranian material from the 7th or 6th centuries (Figs. 333 and 442), while a possible mace-head may even survive from pre-Islamic Turkistan (Fig. 63). The dating of this latter item and even its function remain, however, dubious. Such maces were soon adopted by the early Muslims among whom two types, or at least two terms, OWNER and nurz being Arabic and Persian respectively, were known in Umayyad times. Much of the earliest illustrated material from the Islamic world, none of it strictly Muslim, seems to illustrate maces (Figs. 115, 136 and 441), though all of these appear simpler in style than from Parthian and Sassanian sources.

Such geographical limitations may be significant. The


Mace was, above all, an anti-armour and especially helmet-breaking weapon to be carried by armoured troops, and this it remained throughout its history. Thus one would naturally expect more often to find the mace among warriors who habitually used large amounts of armour. This is, in fact, what one does find. As will be discussed later, Iranian cavalry warriors seem to have worn heavier defences than, for example, their Romano-Byzantine foes. Eastern Iranians, and above all the warriors of Transoxania, perhaps the heaviest armour of the contemporary world. Similarly, the readiness with which various forms of mace were adopted by Umayyad warriors may prove to be yet another piece of evidence to support the thesis that a great many troops of the first Muslim empire were themselves heavily armoured. The high status in which these weapons were held may be indicated by their highly decorated appearance when, as so often happened, they were seen in the hands of élite guard units some years later.

As already stated, the mace was apparently in widespread use in Umayyad times. In later centuries the weapon would seem to have been more common in the richer central and eastern regions, where heavier armour was also found. In the 10th century, for


example, maces are recorded in Egypt\(^5\) and Iraq.\(^6\) Islamic illustrations from this period are rare, though they do show two types of maces from Khurasan or Turkistan (Fig. 447), two simple round-headed types, probably from Egypt (Figs. 148 and 677) and perhaps a comparable weapon in a scabbard on a horseman's right hip (Fig. 487) from Sind or eastern Iran. Maces remained popular, perhaps even increasingly so, in these and neighbouring regions until the Mongol conquest.

A spiked type, or perhaps a stylized representation of a winged mace, appears in an Armenian Gospel dated 1057 AD (Fig. 244). In fact, an early mace of this winged type may survive from the 11th to 13th centuries (Fig. 366). This is likely to have been the ḥamūd, for although we have no specific confirmation there is evidence that the ḥamūd, or at least parts of it, could easily get bent in battle.\(^7\) A little later its presumably more jagged head was recorded as inflicting worse wounds than the simple ḏabbūs mace.\(^8\) The similarly named, 8th or 9th century, Indian ṇukta also came in a variety of forms, most of which were characterized by spikes or lumps on the mace-heads.\(^9\) The best-known illustration of 11th century Muslim maces is on a


damaged Ghaznavid fresco at Lashkar-i Bazar in Afghanistan (Fig. 364). These weapons are incomplete but would seem to have been similar to other possible maces seen only in outline on the carved wooden panels of a Fatimid palace ceiling in Cairo (Fig. 153).

The 12th century is more generous, both with its illustrations and in the variety of forms shown. The basic round-headed dabbūs mace is quite common (Figs. 255, 260, 280 and 394), though clearly this type could also have iron teeth or even some sorts of blades added. Meanwhile, an asymmetrical mace, probably known as the nurz, and its more sophisticated animal-headed development seen to be restricted to Iran (Figs. 377, 378, 388A, 394 and 399).

Various knobbed or apparently spiked forms are illustrated (Figs. 165, 268, 279 and 394) while the genuine winged type is represented by a surviving miniature or symbolic mace from eastern Iran that is believed to date from between 1199 and 1220 AD (Fig. 449).

Crusader chronicles seem to indicate that some of Islam's foes were quite impressed by these armour-smashing weapons, particularly those described as "bristling with "sharp teeth". These may well correspond to the serrated latt maces of the late Fatimid, and subsequent Ayyūbid Middle East. These had earlier been recorded in the hands of ex-Abbāsid ghulams operating in Syria late in the 10th century. All this evidence could suggest, if tentatively,

10. Al Jāransī, loc. cit.
11. Anon., Itinerarium Perarinarum, pp. 64, 70, 93 and 131–132.
that these more sophisticated forms of mace reached the Fertile Crescent and Egypt from Iran or even further east.

Much the same situation is to be found in the 13th century, with a similar variety of weapons being seen in similar regions of the Muslim world (Figs. 260, 273, 274, 296, 301, 319, 324E, 392, 408 and 651). The appearance of the mace in Europe seems to follow its widespread adoption in Islam. This occurred rapidly in Byzantium but far more slowly in western Europe. Byzantine heavy cavalry, and perhaps also some infantry, adopted the winged mace in the 10th century. A hundred years later it is reported to have been hung from the saddle, as was normal in some parts of Islam, and was still being used by Byzantine heavy cavalry in the 12th century. Maces appear similarly early in al-Andalus where, however, they seem to have been regarded as infantry weapons in the 10th century. Although clubs were wielded by some 11th century European horsemen, including Normans, more complicated forms of mace such as the winged variety do not seem to have appeared until the later 12th or 13th centuries. An iron bludgeon,

20. Ibid., p. 258.
of a type known to the Arabs as the ١٠٠٠٠٠ was, however, used by some German Crusaders in the late 12th century. Yet it is still to Spain (Figs. 504, 507-8, 516, 526, 533, 535, 538 and 543), Sicily (Figs. 604A, 605 and 610E) and neighbouring areas of southern Italy (Figs. 559, 567, 573, 583 and 588) that one must go to find the bulk of European illustrations of maces from the 11th to 12th centuries.

The weight of Muslim maces also seems to have been quite considerable, even allowing for the impossibility of accurately translating early medieval units of weight. One all-iron ١٠٠٠ of the early Unayyad era was recorded as weighing twelve رت٢, perhaps six kilograms, while two Unayyad ١٠٠٠ maces are described as weighing fifteen and eighteen رت٢, perhaps seven and nine kilograms respectively. Some centuries later the practice and the war ١٠٠٠ maces of a Ghaznavid ruler were described as weighing seven and four رت٢ respectively, perhaps seven and four kilograms.

21. ١٠٠٠ al Din, op. cit., p. 265.
23. Ibid., pp. 966 and 1039.
24. Mubarakshah, op. cit., p. 263.
**Terminology**

**اومود**

"Winged mace"\(^{25}\) (Arabic "اومود" to prop up on columns, or perhaps from Indian "امكت"\(^{26}\)).

Late 7th century Umayyad Caliphate\(^{27}\)

Early 8th century Umayyad Caliphate\(^{28}\)

Early 9th century Abbāsid Caliphate\(^{29}\)

Mid-10th century Abbāsid Caliphate\(^{30}\)

Late 10th century Khurasan\(^{31}\)

11th century Azerbeyjan\(^{32}\)

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26. P. Holstein describes a number of Indian "امكتas" in detail, *op. cit.*, p. 100.


32. Ayūbī, *op. cit.*, verse 331.
Late 12th century Ayyūbid Egypt

Early 13th century Northern India

Early 14th century Mamlūk Egypt

Late 7th century Umayyad Caliphate

Late 12th century Syria, used by Crusaders

Early 13th century Northern India

Staff" or cudgel, come of iron (Arabic عصا to strike with a stick).

Knobbed mace or mace-head, possibly synonymous with the Arab dabbūs (lit. Persian "grape stones").

Early 13th century Northern India

Banaka Bakhtiyar

33. Al Jersūsī, op. cit., p. 117.
36. Schwarcz, op. cit., p. 52.
38. Imād al Din, op. cit., p. 265.
40. Khwānsarānī, op. cit., p. 269.
41. Mubarakshāh, op. cit., p. 269.
"Shaft" of mace 42 (Persian).
10th-11th century Persia 43

Possibly an "iron staff" mace, or "iron bound stake" to be driven into the ground to form a defence line (Persian).
Early 13th century Northern India 44

"Basic mace," may be knobbed or spiked but not of the winged variety 45 (Arabic دبس treacle or molasses, perhaps associated in appearance with a bunch of grapes or dates, or with a drop of treacle).
Mid-9th century Abbasid Caliphate 46

10th century Khurasan 47

Mid-10th century Abbasid Jazīrah 48

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42. Wolff, op. cit.
43. Nizām al Mulk, op. cit., p. 96.
44. Mubarakshāh, op. cit., p. 330.
45. Al Jarsusī, op. cit., p. 117.
47. Nizām al Mulk, op. cit., p. 74.
Late 12th century Ayyūbid Syria and Egypt

حيلاف - غلاف

"Container" for mace, perhaps a scabbard or bag (Arabic غلاف to put in a case).

Early 14th century Mamlūk Egypt

وكذلک التمرون في غلاف؟

جوبال - جوبال

"Iron mace“ (Persian).

Late 10th century Khurāsān

ساف جوبال من ببينبیر

جبر - جبر

"Mace“ sometimes specified as being of iron and with an animal-shaped head (Persian).

11th-12th century Afghanistan

شيرب جبر هفتاد غنی لعب گرزی

Early 12th century Persia

و جبر اند دست

49. Al TarsüšI, op. cit., p. 117.

50. Schwarzlose, depending on context, translates حيلاف as: a wooden scabbard or a bag to hold armour, op. cit., pp. 208 and 348.


52. Wulff, op. cit.


54. Rehateek, "Notes on Some Old Arms and Instruments of War, chiefly among the Arabs," p. 248; Freis, op. cit., p. 51.


halqa

"Ring" to suspend mace\textsuperscript{57} (Arabic ملق \textsuperscript{57} to circle in the air).

10th century Persia\textsuperscript{58}

dubosi که در دبوس هلاقه آویختی

Early 14th century Mamlûk Egypt\textsuperscript{59}

ان برده ایل هلاقه

kāfir kūbat

"Infidel striking" mace of unspecified form\textsuperscript{60} (Persian).

Early 9th century Khurasan\textsuperscript{61}

والکافر کوبات و الطُّرُفَت

khurz

"Mace\textsuperscript{62} (Arabic, from Persian gurz).

Late 12th century Ayyubid Egypt\textsuperscript{63}

فاما ال‌نزَّالات لا تنثبت لراشی

latt

"Mace with serrated head,\textsuperscript{64} not winged (Arabic لدت to pound or crush).

\textsuperscript{57} Lutful-Huq, \textit{op. cit.}, p. 329.

\textsuperscript{58} Nizām al Mulk, \textit{loc. cit.}.

\textsuperscript{59} Al Aqsa‘I, \textit{op. cit.}, p. 329.

\textsuperscript{60} Fries, \textit{op. cit.}, p. 52.


\textsuperscript{62} Rehatsek, \textit{op. cit.}, p. 248.

\textsuperscript{63} Al Jurnuṣī, \textit{op. cit.}, p. 117.

Late 10th century Syria

Late 11th-early 12th century Fatimid Egypt

Late 12th century Ayyubid Syria

miqra\textsuperscript{a}sh - مقره

"Club or cudgel"\textsuperscript{b} (Arabic قرع to knock upon).

7th century Arabia

miyan - ميyan

"Scabbard" for mace\textsuperscript{c} (Persian).

Late 10th century Khurasan

11th century Persia

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67. Is\textit{id al Din, op. cit., p. 84.}

68. \textit{Wehr, op. cit.}

69. Al \textit{Mas'udI, op. cit., vol. IV, p. 369.}

70. \textit{Steingass, op. cit.}

71. FirdawsI, \textit{op. cit., p. 822.}

72. \textit{Nis\textsuperscript{a}m al Fulk, op. cit., p. 74.}
Mustaufiyah - مستوفية

"Long mace" with a rectangular head (Arabic to pay a debt).

Late 11th-early 12th century Fatimid Egypt

Late 10th century Khurasan

"Staff" sometimes of steel (Persian).

Axes

War-axes are generally agreed to have been of the single-bladed variety throughout Classical Islam, and with the exception of one somewhat unclear reference to double-edged Saracenic weapons in the late 12th century Itinerarium Peregrinorum, the written evidence would support this view.

There is, however, pictorial evidence to the contrary. This could indicate that double-edged, symmetrical war-axes, some with such narrow heads that they might better be regarded as armoured-breaking war-hammers, were used in the troubled border regions of

74. Ibn al Tuwyry, op. cit., p. 446.
76. Firdawsi, op. cit., p. 1222.
78. Anon., Itinerarium Peregrinorum, p. 64.
eastern Byzantium and Armenia from the 9th to 11th centuries (Figs. 205, 207, 216, 224 and 245). A possible Armenian origin, or at least connection, could explain the appearance of comparable weapons in 10th century Egypt (Fig. 145) at a time when Muslim Armenians were certainly serving in that country as mercenaries. \textsuperscript{79}

Perhaps these distinctive weapons were variations of the 

\textit{sinbihn}, a war-axe made by, and named after, Armenianized Magyar Sivordiens in the mid-10th century. \textsuperscript{80}

In fact, the war-axe had a long pedigree in the medieval Middle East. It may have been used by Sassanian heavy cavalry, \textsuperscript{81} although pictorial sources show such weapons to have been more common in eastern Iran and Turkistan (Figs. 62, 442 and 452).

Similarly, it was used by the early Byzantines, though the latter's cavalry appear largely to have abandoned war-axes in favour of maces by the mid-10th century. \textsuperscript{82} Single-bladed axes continued to be used by warriors of distant Slav extraction in the Taurus Mountains in the 11th century. \textsuperscript{83} The weapon's prestige was, of course, revived in Byzantium from the 11th century onwards with a large-scale recruitment of Scandinavian, Varangian, mercenaries


\textsuperscript{81} Lombard, \textit{Les Métaux dans l'ancien Monde du Ve au Xie Siècle}, pp. 33-34.

\textsuperscript{82} Howard-Johnston, \textit{op. cit.}, p. 209.

\textsuperscript{83} Paellus, \textit{op. cit.}, p. 209.
as infantry guard troops. Their weapons, however, stemmed from the traditional north European Danish axe.

Throughout most of this period various forms of war-axe were being used by Muslim troops in the central and eastern regions. Although any apparent mention of the weapon in the 7th century may be an anachronistic insertion by a later抄写者, there can be little doubt that axes had been widely adopted by Abbéed forces by the 9th and 10th centuries. It would, in fact, be particularly interesting to be able to date one Omani petroglyph that clearly shows a broad-bladed, short-hafted axe (Fig. 5), but although some work has been done on these sources no dating has yet been attempted. One of its nearest equivalents is to be seen in strongly Muslim influenced late 12th or early 13th century Sicily (Fig. 610C). Yet such axes are likely to have spread from Asia rather than from Byzantium. Two types may appear in 9th century eastern Islam, a narrow-bladed axe with a spike at the back (Fig. 447) which was seen in this area around the time of the Muslim conquest (Fig. 442) and which may also be seen in a multitude of central Asian frescoes, and a broad-bladed weapon (Fig. 487) which may be of Indian origin and probably represents an early nāchakh.


An axe, whose shape has yet to be published, was also recovered from the 11th century Muslim Aegean shipwreck, but whether it was a weapon or primarily a more peaceful tool is unclear. 89

It is worth noting that the axe rose in prestige as a knightly weapon in western Europe during the 12th and 13th centuries. It had been despised as a peasant weapon in most regions, with the perhaps significant exception of 11th century Spain (Figs. 512 and 515), only a century earlier. 90 This change in European fashions is likely to have reflected developments in armour, helmets and shields as much as it did social prejudice. Yet it may also have been stimulated by contact with the Muslim world where war-axes, tabar, tabarzIn, nālijih and nāchekh, were far from despised in the 12th and 13th centuries. Indeed, the nālijih with its large, semi-circular single blade was regarded as an ideal cavalry weapon when used against infantry in late 12th century Egypt. 91 A similar weapon was carried as a symbol of authority before the "Old Man of the Mountain", or Ismā'īl leader of Nasyāf, in the mid-13th century, 92 while a few decades earlier the nāchekh had been described as a noble and ceremonial weapon in Muslim northern India. 93 Some illustrations certainly show long-hafted axes, often in a perhaps ceremonial context, that could well be described as having large "half moon" blades (Figs. 178A, 250, 294, 604F, 605 and 650D).

90. Gakehott, op. cit., p. 257.
91. Al Jarsūsī, op. cit., p. 118.
93. Mubārakshāh, op. cit., p. 760.
The tebar was apparently a simpler weapon, perhaps with a small or less extravagantly curved blade. It seems to have been wielded by infantry in both Muslim India and the Mamlūk Middle East in the 13th and 14th centuries, although there is little reason to suppose that it was not in use many centuries earlier. The presumably smaller and more specialized tebarzin, or saddle-axe, was known in early 9th century Iraq, and was similarly popular with Mamlūk cavalry in the Middle East and in northern India in the 13th and 14th centuries.

There are many illustrations of a great variety of war-axes to be found in Muslim and neighbouring art from this period. Some are almost of the "half moon"  manṣūkh type while others have blades with very narrow cutting edges, perhaps designed to penetrate mail or lamellar. Most have long hafts and there is no very obvious difference between the weapons on infantry and those of cavalry, between tebar and tebarzin if these are indeed the axes in question (Figs. 172, 177G, 247, 249, 250, 289, 294, 305, 394, 604G, 605 and 606).

94. Al Ansārī, op. cit., p. 108; Mayer, Mamluk Costume, loc. cit.; Mubarakshāh, op. cit., p. 262.
95. Al Jahiz, Rasā'il al-Jahiz, loc. cit.
96. Al Ansārī, op. cit., p. 329.
97. Mubarakshāh, op. cit., p. 262.
**Terminology**

nāēchekh – ناچخ

"Battle Axe" (Persian, probably Indian origin). Early 13th century Northern India.

nājīkh – ناجیخ

"Battle Axe" (Arabic, from Persian nāēchekh). Late 12th century Ayyūbid Egypt.

ṭabar – طبر

"Battle Axe" of infantry (Persian, and Arabic from Persian). Late 10th century Khurāṣān.

Early 13th century Northern India.

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100. Ibid., p. 260.
102. Ibid.
"Saddle-axe" of cavalry (Persian, and Arabic from Persian).

- Early 9th century Khurasan

- Mid-9th century Abbasid Iraq

- Early 12th century Persia

- Early 13th century Northern India

- Early 14th century Mamluk Egypt

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CHAPTER 3

STAFF WEAPONS

The realm of staff weapons, or pole-arms, is an aspect of early medieval weaponry that has rarely been discussed in detail, even in an European context. This is particularly true where infantry equipment is concerned, for the often crude staff weapons of unromantic peasant levies have generally failed to grasp the imagination of scholars. The problems of their terminology are also serious as few original written sources give more than a passing mention to such despised corners of the battlefield.

Surprisingly, perhaps, these problems are not quite so serious in the early medieval Muslim world. Here infantry weapons are given almost as much attention by contemporary authors as is cavalry equipment. Hence the staff weapons of both horseman and foot soldier, which were often one and the same, can more easily be compared and contrasted. Recently discovered early spearheads from Rayy, Shir-R and Shamshir Qar are soon to be published and will hopefully do much to fill the present lack of surviving such artifacts. Yet problems of terminology will remain and there is a real blurring of definitions. Add these problems to an overlapping of function between many weapons, and the difficulties inherent in this aspect of Muslim military technology become apparent.

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Spears

Under the heading of spears come all those cavalry and infantry
hafted weapons that were primarily designed for thrusting rather
than lateral cutting, and which were not normally thrown as javelins.

The basic Arab term for a spear or lance, whether used by
cavalry or infantry, was rumb. For horsemen this was traditionally
considered a warrior's most reliable and effective weapon well into
the 14th century.² The rumb could be made of reed or solid wood,³
and by the 12th century might also be held in one or both hands
or be couched under the upper arm.⁴ In earlier periods perhaps
two-handed, but certainly not couched, style of lance-play seems
to have characterized Arab horsemen.⁵ In the 7th century the rumb
may well have normally been ten or twelve cubits long,⁶ approximately
four and a half metres. By the end of the period under review
the rumb seems to have referred to long spears comparable to the
traditionally long amādah.⁷ In general, however, the length of
cavalry lances had by then been reduced, perhaps as a result of
a partial adoption of the couched lance technique in some parts
of the Muslim world.⁸

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² Al Aqqārūī, op. cit., pp. 316, 325, 335, 337 and 339.
³ Ibid., p. 328; al Ballūdhī, op. cit., vol. I, p. 135; v. n. Krmer,
Culturgeschichte des Orienta unter den Chalifen, (Vienna 1975),
pp. 78-79.
⁴ Usāmah ibn Munqidh, op. cit., p. 42.
⁵ Al Jāhiz, edit. H. al Sundūbī, Al Rāyān wa'l Tabyīn, (Cairo
1947); p. 14.
⁶ Von Krmer, op. cit., p. 78; al Cindī, op. cit., p. 151.
⁸ Ibid., pp. 246-250.
Some authorities suggest that the Arabic *rumh* might have been synonymous with the Persian *nīzah*, but at least in the far west in the 14th century this was clearly not the case. Although in some poetical contexts the two terms may be used interchangeably, even here a *rumh* is generally associated with Arab warriors who were, of course, renowned for the length of their cavalry spears, whatever term was being used.

Although these *rumh* spears could be made of reed or of solid woods, the longest would probably have been of the former, as bamboo, reed or cane clearly provided the lengthiest available hafts in the Middle East. Certainly there are many technical terms describing the various parts of bamboo spears (see *Parts of Staff Weapons*) and plenty of illustrations from many places and periods (Figs. 15, 75, 149, 213b, 262, 292, 303, 322, 3240, 495, 497 and 641). These, of course, only include those pictures that were detailed enough to show the knots of such a weapon's haft. Similarly, there are sufficient references in Muslim, "enemy" and pre-Islamic sources to show that bamboo spears, imported from the southern coast of the Arabian Gulf, the lower Euphrates and the north-western coasts of India, were widespread and, in general, highly regarded.

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11. Ayyūqī, op. cit., passim.
An exception is to be found in late 13th or early 14th century Saljūq Rûm where the bamboo lance was described as the weapon of inferior warriors. Earlier in the 10th century, however, solid spear shafts of murrân wood were regarded as inferior and perhaps even primitive.

The Persian nizah seems to have been a smaller weapon than the Arab rûsh, certainly by the 14th century. At this date it had been adopted even in al-Andalus where it was described as a slender-bladed cavalry javelin. Earlier sources seem to suggest that the spears of Turkish and Persian horsemen were generally shorter than those of Arabs. One, perhaps unreliable, poetic description states that an infantry nizah could be nine cubits long. Other sources describe these weapons being used both as cavalry spears for cut and thrust and as cavalry javelins. In the latter instance they would surely have been relatively short. The 10th century nizah might, in fact, have had features in common with the Byzantine kontariyen, and thus by implication with the Arab quntâriyah. It was described in one source as having a leather thong or band around it, and though this could have been a binding

to keep the blade firm, it could also have corresponded to the leather thong of the Byzantine kontarion. 22 Traditionally this had been copied by the Byzantines from the Avars. 23 As such it may have been an essentially Central Asian feature, perhaps adopted by Khurasan warriors in the 10th century. A similar weapon also seems to have been known in Dark Age Europe, where it was known as the skenti fretta or cord-shaft spear. 24

The kontarion was believed by 12th century authors to have a Byzantine, or Banu al Asfar, origin. 25 This was almost certainly correct, although the Greek kontarion itself probably developed from the late Roman kontos. 26 An early Byzantine cavalry kontarion may have been three and a half or four metres long. 27 Meanwhile a short spear of a little over three metres length was used in 7th century Arabia. 28 It was still referred to as a rumh but may in reality have been an early reflection of Byzantine influence.

By the 12th century the Muslim kontarion was clearly regarded as a relatively short and heavy cavalry weapon made of beech, fir or other woods, though not of bamboo. It was used by both Saracens and Franks in the Middle East. 29 Its blade, zarad, was broad and

23. Ibid.
acorn-shaped\textsuperscript{30} and may have been designed for both thrusting and lateral cutting strokes. Such blades were occasionally very large indeed. Here it might be worth noting that four lance blades, recovered from the 11th century Islamic shipwreck in the Aegean, were also quite large, being some thirty centimetres in length, excluding their sockets.\textsuperscript{31} These and smaller versions appear in many pictorial sources (Figs. 3, 15, 26, 130, 156, 185, 243, 267, 268, 287, 290, 292, 300, 303, 323, 336, 385, 392, 394, 429, 447, 497, 498, 504, 507, 510, 514, 418, 521, 531, 540, 542-544, 545H, 547 and 609).

The longest of Muslim spears in general use was normally referred to as the \textit{anfīn}. At first it appears to have been an infantry weapon, perhaps being used as a pike, but by the 12th century it was also recorded in the hands of horsemen.\textsuperscript{32} The \textit{anfīn} could clearly be made either of hollow bamboo \textsuperscript{33} or of solid wood,\textsuperscript{34} perhaps for infantry and cavalry respectively.\textsuperscript{35} A lance of excessive length, apparently carried by some warriors for moral effect rather than practical use, was called \textit{khatīl} in 10th century Iraq.\textsuperscript{36} This sounds strangely similar to the practice of some

\begin{itemize}
\item \textsuperscript{30} Al \textit{Tafsîr}, loc. cit.
\item \textsuperscript{31} Bass, "A Medieval Islamic Merchant Venture," p. 92.
\item \textsuperscript{32} Al \textit{Jahiz}, \textit{Rasâ'il al-Jahiz}, pp. 27 and 52-53; al Jurlushî, \textit{op. cit.}, pp. 308-309; Ibn Hudhayl, \textit{op. cit.}, pp. 242-243.
\item \textsuperscript{33} Al \textit{Mas'udî}, \textit{op. cit.}, vol. I, p. 239; Schwarzlose, \textit{op. cit.}, p. 217.
\item \textsuperscript{34} Al \textit{Jahiz}, \textit{Al Bayân wa'l Tabyîn}, p. 14.
\item \textsuperscript{35} Ibid.
\item \textsuperscript{36} Ibid., p. 22.
\end{itemize}
mounted Germanic tribesmen of the pre-migration era. Perhaps this was also the purpose of the notably unsuccessful oversize compound lance recorded by Usāmah ibn Munqidh in the mid-12th century.

The last and by far the most uncertain of these thrusting staff weapons might have been a trident. This unlikely weapon appears surprisingly often in both Islamic and neighbouring art (Figs. 133, 249, 250, 294, 295, 305, 422 and 518). Though some stem from the 12th century, most are clearly 13th century and post-Mongol. The trident was, in fact, a Central Asian tribal emblem much favoured by the Mongols though they do not seem to have employed it as a genuine weapon. The great antiquity of the trident as an emblem of authority amongst Central Asian peoples was clearly indicated at the recent The Great Bronze Age of China exhibition in Boston. Here a huge bronze trident-head, some one and a half metres high, was on display. It dated from the late 4th century BC and came from a tomb at Pingshan Xian. The trident was made in the non-Chinese, originally nomad-dominated, Zhongshan state and it was described as evidence of lingering nomadic influence in that state. Numbers of such tridents were, apparently, often placed around a nomad tribal chieftain's tent. This particular example is now housed in the Hebei Provincial Museum.

Perhaps the early Ayyūbid, or perhaps more accurately late Fatimid, furūyatīyah could also have been a form of trident. The

origins of its name could suggest such a meaning or equally suggest that it had a particularly barbed blade. Meanwhile, al Tarsūsī's description of this blade as resembling a mizrān javelin might indicate an angled, spiked outline, and the individual points of such tridents in some of the previously listed pictorial sources do have angled outlines comparable to those of some Muslim javelins. Interestingly enough an infantry trident, probably for use against horsemen, was soon to appear in Italy where it would be known as the corseca. There is also evidence that the trisula, three pronged sula spear or javelin of the Hindu god Parvati, was more than merely a religious symbol in the subcontinent.

**Terminology**

bīl kash - بیل كش (or pīl kash بیل کش)

"Loin breaker" (or "Elephant smasher") short infantry spear (Persian).

Early 13th century Northern India

42. Holstein, *op. cit.*, p. 3.
"spears," collective 46 (Arabic  ذيل to become dry).

Late 12th century Ayyûbid Syria

furayjIyâh —  فرجية

"Trident" 48 (Arabic  فرج to open,  a comb).

Late 12th century Ayyûbid Egypt

khatîl —  خطل

"Extra long spear" 50 (Arabic  تخطل to strut proudly).

Early 9th century Iraq

khîrâ —  خرص

"Sort spear" 52 (Arabic  خرص to barter).

Mid-13th century al Andalus

47. ʿImâd al-Dîn, op. cit., p. 21.
49. Al Tarsûsî, op. cit., p. 113.
50. Al Ṣâbiḥ, Al Bayân wa-l Tabyîn, p. 21.
51. Ibid.
makḥūs - "Spear, five cubits long" ⁵⁴ (Arabic  ❮Arabic❯ to quintuple).

Early 9th century Iraq ⁵⁵

"Short spear" for infantry ⁵⁶ (Persian).

Early 13th century Northern India ⁵⁷

marbūṭa - "Medium length spear" ⁵⁸ (Arabic  ❮Arabic❯ one quarter).

Early 9th century Iraq ⁵⁹

mitrād - "Short spear for cavalry" that can also be thrown ⁶⁰ (Arabic  ❮Arabic❯ to drive back).

7th century Arabia ⁶¹

Early 9th century ⁶² (Abbasid Caliphate)

54. Al Ḫāţīb, Al Runnī wa‘l Tabyīn, p. 22.
55. Ibid.
57. Ibid.
58. Al Ḫāţīb, Al Runnī wa‘l Tabyīn, p. 22.
59. Ibid.
62. Al Ḫāţīb, Rasā’il al Ḫāţīb, p. 27.
Early 13th century Northern India

"Spear" of hard, plant wood (Arabic to be flexible).

Early 9th century Iraq

Late 10th century Ethiopia

nIm nizzah -

"Half spear" or infantry spear (Persian).

Early 13th century Northern India

nIm nizzah -

"Spear" (Persian).

Late 10th century Khurasan

11th century Afghanistan

References:

70. Firdowsi, op. cit., p. 27.
Late 11th century Persia

Early 12th century Persia

Early 13th century Northern India

Late 12th century Persia

Early 13th century Northern India

"Long spear" or pike (Arabic 

7th century Arabia

"Long spear" or pike (Arabic 

Early 8th century Umayyad Caliphate

Early 9th century Abbāsid Caliphate

Mid-10th century Sind

Mid-10th century al Andalús

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78. Al Jāḥīz, *Rasā'il al Jāḥīz*, p. 27.
79. Al Mas'ūdī, *on cit.*, vol. I, p. 239.
Late 11th century al Andalus
نظم المكسي في القنا ووالاء
Late 11th century al Andalus
ولم تردوا ووانا
Early 12th century al Andalus
ولم تردوا ووانا
Mid-12th century Egypt
بالواضاء والقواشق ونقط
Mid-12th century Zengid Syria
قنانية وقبقى غير موترة
14th century al Andalus
والوالاء لم تنجل خسرون من القنا قنطارية

quntariyah —
"Cavalry spear" (Arabic, from Greek kontariion).

Mid-12th century Crusader Syria
ومعدهم من النبيل المنتحبة والقواشق والقنطاريات
Mid-12th century Syria
وقب فصانة على قنطارية

Late 12th century Ayyubid Egypt
ويسمونا القنطاريات ليست بالطويلة

83. Talafi', ibn Ruzzik, in Ghaith, op. cit., p. 92.
84. Ubayd Allah ibn As' al Mawardi, in Ghaith, op. cit., p. 125.
86. Mayer, Mamluk Costume, p. 46; Rehatschek, "Notes on Some Old Arms and Instruments of War, chiefly among the Arabs," describes the quntariyah as the shaft of a lance, pp. 245-246.
89. Al Taruguji, op. cit., p. 113.
rumḥ - (Arabic)

Generic term for spears (Arabic).

rumḥ mufallifah - (Arabic)

"Compound lance" (Arabic)

Mid-12th century Syria

saḏah - (Arabic)

"Straight lance" (Arabic)

7th century Arabia

Early 10th century al Andalus

tamām - (Arabic)

"Standard length spear" (Arabic)

Early 9th century Iraq


92. Ibid.

93. Monroe, op. cit., pp. 94-95; Schwarzlose regards the saḏah as a javelin, op. cit., p. 213.

94. Schwarzlose, op. cit., p. 213.

95. Ibn ʿAbd Rabbiḥ, in Monroe, op. cit., pp. 94-95.

96. Al Jāḥiz, Al Dayyān waʾl Tabyīn, p. 21.

97. Ibid.
"Spears," poetical usage⁹⁸ (Arabic زان beech trees).

Late 12th century Ayyūbid Syria⁹⁹ وزانات وزانات

Pole-Arms for cut and thrust

Most medieval infantry pole-arms, such as the bill, glaive, halberd and pole-axe, probably grew out of those modified agricultural tools that peasant levies originally took to war.¹⁰⁰ Certainly there appear to have been few comparable weapons in the pre-medieval world from which these pole-arms could have developed. In some cases such a development from agricultural tools would also seem to have occurred both in the Middle East and in the wider Muslim world. Among other tools listed in the Ādab al Harb as being used by shepherds, farm hands, merchants and religious devotees as weapons, was the das or bill which may have been a militarized reaping hook.¹⁰¹ Some authorities suggest that the medieval bill of France and Italy may itself have been developed from the pruning hook or sickle,¹⁰² just as the glaive may have sprung from the scythe.¹⁰³ Pictorial material from various oriental Christian sources certainly shows curved blades mounted vertically on hafts, like the first war-scythes or proto-glaives of Europe. Others are still mounted laterally. Similar weapons in Byzantine Anatolia (Figs. 200 and 237) were, however, probably descended from the late

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⁹⁹. Sīâd al-Dīn, op. cit., p. 68.
¹⁰⁰. Oakeshott, op. cit., p. 259; Puricelli-Guerra, op. cit., passim.
¹⁰¹. Mubarakahān, op. cit., p. 262.
¹⁰³. Ibid.
Roman falx (fig. 94), which in turn also survived in Italy as a specialized glaive called the falco. 104 The remainder of such weapons (Figs. 120, 224, 244, 245, 250, 305, 531, 592, 605 and 609A) seem to have come from those areas that retained large and predominantly Christian agricultural populations, and as such were distinct from those regions where nomadic peoples dominated economically as well as politically.

This is not, however, to suggest that specialized infantry staff weapons were not found in Muslim armies from other regions. Even in 7th century Arabia the Canazah would, for example, appear to have been such a specialized infantry staff weapon, or at least was more than a simple short spear. With its blunt metal foot or zuil 105 and large, sword-like blade above a short haft, this Canazah may have been a type of bill. On the other hand, its Arabian and hence probably bedouin character could make an agricultural origin rather unlikely. It would be interesting to find out whether or not this weapon was more common in southern, and more fertile, southern Arabia than in the overwhelming desert north in the earliest centuries. Weapons that roughly fit the written descriptions of the Canazah appear in only a few early Middle Eastern sources (Figs. 23 and 185).

The differences between the Canazah and other presumed pole-arms such as the Sababarah are not entirely clear. The latter may have had a North African, perhaps Berber, origin. It was widely used by Fatimid infantry from the late 10th to

104. Ibid., pp. 6-8.

105. Schwarzlose, op. cit., p. 212.

Certainly this ṣabbarbarah had a longer shaft, some five cubits in length, which was similar to the haft of the ṭunṭūṭyah. Above this were a further three cubits of blade which might have been barbed, while an iron foot or ḥagbaḥān was fixed at the other end. Some decades later al Tarqūṣī agreed that the ṣabbarbarah had a haft five cubits long, but stated that the blade was only one cubit in length, though also being one fīṭr or just over fifteen centimetres in width. Both descriptions surely refer to a gñivo, and as such this weapon may well have had a central Mediterranean rather than specifically Berber origin. Various illustrations from Fatimid Egypt and post-Fatimid Syria show infantry carrying weapons that have some or all of these characteristics (Figs. 120, 153, 156 and 161).

**Terminology**

**Bili** or sickle (Persian).

Early 13th century Northern India

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108. Ibid.


111. Mubarakshāh, op. cit., p. 262.
Javelins

Javelins were in widespread use throughout the Middle East, including Arabia, before the coming of Islam. This was particularly true in those areas under Byzantine influence. In this field Byzantine military tradition was itself essentially a continuation of Roman practice. What may, however, seem more surprising is the persistence of javelins in their various forms well into the Middle Ages, long after this weapon had been abandoned throughout most of Europe. Such a situation may reflect a limited development of infantry archery in many parts of the Muslim world. Equally it might indicate the continuing importance of large and disciplined infantry forces who used such weapons against both cavalry and other infantry at a time when the armies of Europe were little more than a rabble of individual warriors. If this was the case, then the Roman legion, modified almost out of recognition, lived on in the world of classical Islam much as it did in the armies of Byzantium.

That Arab horsemen also continued to use javelins, and indeed to throw the lighter forms of spear, many centuries after the coming of Islam is clearly demonstrated in numerous sources, most clearly perhaps in the work of al-Jahiz. Heavy javelins, rather than

113. Al Targuṣī, loc. cit.
bows, also seem to have been the main missile weapon on board the 11th century Muslim shipwreck mentioned earlier. At least two dozen such javelins were found aboard her, their blades averaging 23 centimetres in length excluding their sockets, while no arrowheads have so far been recovered. 115

The probable Byzantine background of the bulk of Muslim javelins is well documented and has already been well analyzed. 116 In Byzantium javelins were divided into lighter versions, such as the ripterion or skontion, a heavier berutus, and really heavy weapons that corresponded to the original legionary pilum. The latter javelins included the menaulion, neiletto and perhaps also nanzoubarboulon. 117 Some such weapons may also have been used as infantry spears or pole-arms, even if they were not primarily designed as such. There is even the confusing possibility of a phonetic connection between the Greek nanzoubarboulon and the Arabic a barbarb. Yet where one is obliged to rely solely on such tenuous linguistic evidence the scope for error is immense. Such problems were recognized even in the mid-10th century.

Al Tanūkhī, for example, recorded an argument over the name ḥabarāʾīth which was given to certain broad-headed spears used by bedouin

117. Ibid.
warriors. On that particular occasion the scholars involved decided that a Syriac root lay behind the term. Might, however, the Byzantine light javelin known as a rintarion have been connected in some way? These two terms are phonetically close. One heavy and possibly barbed javelin that certainly was in widespread use among the pre- and early Islamic Arabs was the harbah. It seems to have remained in favour among the bedouin at least until the 12th century.

Having been used by the Prophet's Companions, a form of harbah referred to as an ānaziṣah also acquired a symbolic function as a standard or emblem of authority under the Caliphate. Such an ānaziṣah may appear on a unique Umayyad coin (Fig. 1169). In this case it is very similar to a javelin on an Umayyad fresco from Caṣr al Hayr al Qharbī (Fig. 120).

Heavier armour and more effective shields probably account for the greater variety of armour-piercing javelins that were recorded in the 12th and 13th centuries. These include the dānnirān, where the blade formed one third of the entire weapon, and which probably relied on its weight to achieve a result. The mizrān and nayzak were both fundamentally different. These two weapons seem to have been lighter, the nayzak having long been recognized as the shortest of Arab staff weapons, while both had long slender blades of square

118. Al Tanūkhī, op. cit., p. 58.
120. Usamah ibn Mūnīdī, op. cit., pp. 51-52.
section. While the nayzak may have been solely an infantry weapon, the mizrāq was used by both foot soldiers and horsemen. Its popularity in al-Andalus may, perhaps, be confirmed by its appearance in the anonymous early 12th century Chanson de Roland where it is referred to in Old French as the mūsarrāt (pl. mūsarrāz). In many respects comparable to the mizrāq and nayzak was a short spear called a mitrād or mitrād which could as easily be thrown as thrust. This weapon was also specifically designed to penetrate armour and shields.

All these light Arab javelins may correspond to the Persian khisht which was similarly used by cavalry and infantry. An amalgamation of Persian-cum-Kurdish and Arab military traditions, both of which clearly included the javelin, characterized Ayyūbid armies. Thus it is not surprising that a widespread use of such weapons by many of Salāḥ al Dīn's warriors, horsemen and infantry, was recorded by their foes.

128. Ibid.
Light javelins to be used from horseback, or indeed from elephant-back, were also characteristic of northern India. Here such weapons, up to ten of which could be carried by one man, were known as shīl. These generally seem to have been barbed. Many names from neighbouring areas and cultures could compete as possible origins or derivations of this term. They include the Hindu sula spear, which may itself be related to the late Roman colliferrum barbed javelin, and the shīh barbed and shu serrated spears of China. All these similarly named staff weapons may, in fact, have been somehow related, albeit distantly. Even the well-documented sūnīn of northern Iran has a name not totally dissimilar to those of Chinese origin.

In the Ādab al Harb the sūnīn was considered similar to the shīl. It was likewise barbed or had a sharply angled blade and was normally mentioned in the hands of foot soldiers. Like many other javelins, however, the sūnīn, or in this particular case zhūbīn, is also mentioned as a horseman’s weapon, light enough to be played with as part of a fantasia. Many illustrations...

134. Ibid., p. 9.
135. Šubārakshān, op. cit., p. 260.
of infantry weapons show such multi-angled blades (see Types J and O under Typological Forms, Fig. 674). Most stem from areas in which Daylamî mercenaries served, or which may have shared a common military heritage with the Daylamî heartland (Figs. 45, 75, 157, 158, 196, 209, 297, 304 and 306). The zîpîn, as the national weapon of the Elburz Mountains, also had a ceremonial function among the Daylamî inhabitants of this region, and so such was comparable to the Arab harbah and ʃenazeh in the capitals of the Caliphate.

Terminology

Allah - أللٍّ

"Long bright spear" (Arabic ٍلٍّ to be bright).

7th century Arabia

ضيّوّار - ضيّوّار

"Heavy javelin" (Arabic ضيّار to harm something).

Late 12th century Ayyûbid Egypt

وردٍضايّوّاري واستنعّ نكون الثالث من جهةٍ دوريّاً

دورباش harbah - دورباش harbah

"Heavy javelin" or pole-ear (Persian, lit. "stand back javelin").

140. Schwarzlose, op. cit., p. 213.
141. Al Târûṣî, op. cit., p. 113.
142. Ibid.
Early 13th century Northern India

"Javelin" (Persian).

Late 10th century Khorasan

halbun

"Javelin" (Arabic to plunder).

Late 7th century Umayyad Caliphate

Mid-8th century Umayyad Caliphate

Late 10th century Sudan and Ethiopia

Early 12th century Syria

References:

145. Steningass, op. cit.
146. Firdawsī, op. cit., p. 1156.
Early 13th century Northern India

بدرکن ارزش عمل بیادگان بالالحم و سپررن فرج و مربی

"Javelin" (Persian).

Late 10th century Khurasan

بک داشت زد بر سرین نهاد

Early 12th century Syria

نواه داشت فضوره نق دانوست

Early 13th century Northern India

فیشت-کسانی که نگاه می‌پاشان

Nayzak

"Javelin" which is also used as a short spear (Arabic to spear something).

Early 9th century Iraq

غمیا النیزان

Early 10th century al Andalus

من بعد بحر قبليالنیزان

Late 12th century Ayyubid Syria

ورازی و نیزان

154. Firdausi, op. cit., p. 255.
158. Al Jaziz, Al Dayan wa'il Inbyin, p. 21.
160. Ined al Din, op. cit., p. 60.
tlīl (or šēl – شیل) 
"Sharped Javelin"161 (Origin unknown).

Early 13th century Northern India162

šēl (also mizrāq – مزرق or arrow)

Probably a small javelin (Persian, lit. "throwing arrow").

Early 13th century Northern India163

zērān – زراغ (also mizrāq – مزرق)

"Javelin"164 (Arabic to dart forth).

Early 10th century Ābbāsid Caliphate165

Early 12th century al-Andalus166

Late 12th century Ayyūbid Egypt167

Early 14th century Mamlūk Egypt168

References:


163. Ibid., p. 339.


166. Al Turtūshī, op. cit., pp. 308-309.

167. Al Tarsūshī, op. cit., p. 113.

züpIn - (also ziûpIn - زوپین (also زوپين and zûpIn - زوپين)
"Barbed javelin" 169 (Persian, from Sanskrit kṣipini).

Late 10th century Khorasan 170

Late 10th century Syria 171

11th century Azərbayjan 172

Early 13th century Northern India 173

Parts of Staff Weapons

In general the many technical and descriptive terms relating to the various parts of a spear, pole-arm or javelin are common to all three types of weapon. Some tend to be linked with one more than another, but this seems to reflect the basic structure of the weapon in question rather than any special relationship between the term and the weapon.

172. Ayyûqi, op. cit., verse 328.
**Terminology**

**Talliyah** — عالَٰیٰ

"Upper third of a lance haft" (Arabic عَلَّلٌ to rise).

7th century Arabia

**Carab** — خَرَابُ

"Blade" of spear or pole-arms (Arabic عَرَضٌ to happen).

Late 12th century Ayyūbīd Egypt

**Apil** — أَپِلٌ

"Shaft" of a lance (Arabic أَيْنَدلٌ to be firmly rooted).

Early 9th century Iraq

**Khira** — خِرَاءٍ

"Spear-head" or "short spear" (Arabic فَارِضٌ to barter).

7th century Arabia

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175. Ibid.
177. Ibid.
179. Ibid.
182. Ibid.
Mid-13th century al-Andalus

mikhsarah - خصرة

"Haft" of short spear (Arabic خاصرة to walk hand in hand).

7th century Arabia

mirzabah - مزبة

"Shoe" of spear haft (Arabic رزب to stick to a place).

7th century Arabia

nawuk - نوك

"Tip" of spear-blade (Persian).

Late 10th century Khurasan

11th century Azarbajjan

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185. Ibid.
187. Ibid.
188. Wolff, op. cit.
190. Ayyuḥ, op. cit., verse 544.
"Thick haft" of spear 191 (Origin obscure).

7th century Arabia 192

"Upper third of spear haft" 193 (Arabic 'امCOVID to walk ahead).

7th century Arabia 194

Mid-11th century al Andalus 195

Generic term for spear-blade 196 (Arabic, and Persian from Arabic 'سن to sharpen).

"Point" of a spear-blade 197 (Arabic 'ت to twinkle).

Early 9th century Abbasid Caliphate 198

191. Schwarzlose, op. cit., p. 211.
192. Ibid.
194. Schwarzlose, op. cit., p. 228.
197. Uehr, op. cit.
"Part of spear-haft entering socket of blade"\textsuperscript{199} (Arabic تعلب to elude cunningly or fox-like).

Late 12th century \textit{Nyyūbid} Syria\textsuperscript{200}

\textit{Zuğj} -

"Shoe" of spear\textsuperscript{201} (Arabic زح to strike with the base of).

7th century Arabia\textsuperscript{202}

Early 9th century Iraq\textsuperscript{203}

\begin{flushright}
\end{flushright}
Muslim archery is the only aspect of medieval Middle Eastern military technology that can compete with Muslim swords in the interest it has aroused among scholars. This clearly reflects the importance of archery in the military history of early Islam, although such importance may, in certain respects, have been exaggerated.

**Bows**

The composite bow dominated early medieval Middle Eastern archery, both Muslim, Byzantine, Mongol and west-Mediterranean. In its simplest version this weapon had probably been known in all these areas long before the coming of Islam. The archers of the later Roman Empire, many but not all of Middle Eastern origin, seem to have adopted such weapons after meeting composite bows on the bloody battlefield of Carrhae.  


later, Hunnish, style were standard among Byzantine archers until
the 12th century.3 Nor is there any reason to suppose that composite
bows, if not of the Hunnish variety then at least of the late-Roman
type, disappeared from the western Mediterranean area in the so-
called Dark Ages.4

The only major difference between the eastern and western
Mediterranean was, perhaps, that the former was in closer contact
with central Asia. It was, of course, from there that almost all
new developments in techniques of composite bow construction and
use were to come. How far and how fast such changes spread westwards,
both within the Muslim zone and along the Christian northern shore,
is, however, unclear. To chart the development of the composite
bow within its Asian homeland seems to be easier. Mr. E. McEwen
has summarized this process as follows:5 One may start with the
Sythian bow (Typological forms, Type D, Fig. 666) which, though
useful for a horse-archer, probably had limited armour or shield
piercing capability. The next vital improvement is generally
associated with the Huns. Such Hunnish bows had long "ears",
often partially of bone (Types A and E0, although it is important
to note that here the bow-string did not rest against the base of
such "ears". One may have to await the arrival of the Mongols
before finding the "ears" of such angled composite bows set forward

3. Haldon, "Some Aspects of Byzantine Military Technology from the
6th to the 10th centuries," p. 39.

4. A. O. Haffmeyer, Arms and Armour in Spain - a short survey,

5. E. McEwen, "Nomad Archery," PDF Colloquy no7, The Arts of the
so that their bow-strings rested on a bridge where the "ears" met the "arms" of the weapon. In all probability the form of composite, partly wood partly goat horn, bow known in early Islamic Arabia was of the Hunnish "eared" form rather than the earlier Scythian style, since the Arabs were considered noted and effective archers even by their Byzantine foes. 

There were, of course, many less pictorially obvious improvements in composite bows between the Hunnish and Mongol invasions. Similarly, other types of bow continued to be made and used in various Muslim and neighbouring regions. Unfortunately, pictorial sources are rarely detailed enough to show such minor aspects of construction. Nor may it be correct to assume that simpler bows (Types D and G) must necessarily have been as simple in construction as they were in shape. The very fact that these weapons appear in situations where one might otherwise expect to find composite bows seems to deny any such assumptions (Figs. 206, 215, 256, 404, 502, 504, 528 and 506). Equally, this is not to suggest that all bows must, under such circumstances, have been of composite construction.

The only reliable limitations one could impose on the spread of the composite bow are those of climate, and thus of geography. These weapons apparently lost their effectiveness and may indeed have become dangerous to their users in extremes of heat, cold or humidity. This would seem to be indicated in a detailed list of bows given by the early 13th century Ḥādī al Ḥarb. 

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typos were stated to have been made in Khwarazm and Shâsh, plus Parvân and Ghazna in Afghanistan, Kerûr in Balûchistân and in Lahore. Similarly, this source mentions simple bows of horn that came from the present North-West Frontier region of Pakistan and others of bamboo that came from India.\(^9\)

Another region of somewhat extreme climate, and perhaps backward technology, included Nubia, the Sudan and Ethiopia. Once again simple wooden bows were characteristic of this region from the 9th to 14th centuries,\(^10\) as they were said to be of the pre- and early Islamic Hijâz.\(^11\) If this were the case, then the noted archers among the Arab tribes are likely to have come from the Fertile Crescent rather than the Arabian peninsula at this time. The African simple wooden bow was, incidentally, notably long and may even have approximated to the later European longbow.\(^12\) Comparable longbows were recorded in the mid-13th century among the Khâlîj Turks of western Tibet,\(^13\) where they were made of bamboo, and among the European Crusaders outside Akkeh in the late 12th century.\(^14\) In the latter case, they may well have been bows of the type soon to become famous in the hands of a later generation of English archers. Longbows do, in fact, appear in a variety of sources, most of which come from or near the frontiers of Islam (Figs. 70, 200, 302, 405 and 610).

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9. Ibid.


12. Al Mas'ûdî, \textit{loc. cit.}; al 'Umarî, \textit{loc. cit.}


One feature of the Central Asian style of archery was the thumb-draw as opposed to the normal European finger-draw. While this draw was not necessarily limited to those archers using composite bows it is, in fact, generally associated with this form of bow. The differing thumb and fingers draws are normally quite obvious in the more detailed forms of pictorial representation. Only rarely, however, does the tiny thumb-ring that is almost invariably linked with the thumb-draw appear in such sources. Its purpose was to protect the inside of the thumb. Most surviving such thumb-rings also have a small decorative stud on the opposite side to their extended thumb-protecting lips. Mr. W. Reid of the Royal Army Museum, London, who is a noted collector of and expert on oriental archers' thumb-rings, believes that such studs, known as dinak, could have acted as a sort of back-sight when pressed against a particular spot on the archer's face as he drew back the cord of his bow.  

Terminology

catalah - "Persian style bow"\(^{16}\) (Arabic عتلت to pull).

\(^{17}\) 7th century Arabia

haniyah - "Bow," poetic usage\(^{18}\) (Arabic منا to bend).

\(^{19}\) Late 12th century Ayyubid Syria

komān - Generic term for bow\(^{20}\) (Persian).

qaws - Generic term for bow\(^{21}\) (Arabic قوس to be curved).

ṣībīz - "Indian infantry wooden bow"\(^{22}\) (Persian شير on Indian wood).

\(^{16}\) Schwarzlose, op. cit., pp. 250-251.

\(^{17}\) Ibid.


\(^{19}\) ʿIsād al Dīn, op. cit., p. 19.


\(^{21}\) Rehatoek, op. cit., p. 246.

Late 10th century Khurasan

PARTS OF BOW AND CROSSBOW

gūšār - گوشه

"Tip" of composite bow (Persian).

Early 13th century Northern India

kabīd - کبید

"Grip or centre of bow" (Arabic کبید to wound).

Late 7th century Umayyad Caliphate

sīyāh - سیاه

"Curved arm" of bow (Arabic سواتو to be alike or equal).

7th century Arabia

water - وتر

"Bow-string" (Arabic وتر to brace a bow).

Early 9th century Abbāsid Caliphate

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23. Firdawsī, op. cit., p. 810.
27. Al Ḥanāfi, op. cit., p. 335.
"Bow-string" (Persian).

Late 10th century Khurasan

Early 13th century Northern India

ARCHERY EQUIPMENT

anguštwanah - انگشتوانه

"Thumb-ring" (Persian).

Early 13th century Northern India

burjās - برباس

"Target" for archery practice (Persian).

Late 6th century Abbasid Caliphate

Early 9th century Abbasid Caliphate

Early 13th century Northern India

32. Wolff, loc. cit.
33. Firdawaiš, op. cit., p. 810.
34. Nubārakshāh, op. cit., p. 245.
"Circular archery target"⁴¹ (Arabic هدف to come to).
Late 12th century Ayyūbid Egypt⁴²
وسار لسرا الهدف هداه
Early 13th century Northern India⁴³
بريدنی و هدف و برخاس
Ja'fah - جعفا
"Quiver"⁴⁴ of large leather type (Arabic جعفة to fell something).
Early 8th century Umayyad Caliphate⁴⁵
جعفة و ترسا و أمطر ريا
Early 9th century Ābbāsid Caliphate⁴⁶
ماليات السم والجعفة
Late 12th century Ayyūbid Syria⁴⁷
وسامية غير جعفة
Early 14th century Mamlūk Egypt⁴⁸
وانسماء إذا كانت في الجعفة

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⁴¹ McEwen, loc. cit.
⁴² Īmād al-Dīn, op. cit., p. 351.
⁴³ Mubārakshāh, op. cit., p. 97.
⁴⁴ Rihattaek, "Notes on Some Old Arms and Instruments of War, chiefly among the Arabs," p. 226.
⁴⁵ Al Ṣabīrī, op. cit., p. 1550.
⁴⁶ Al Ǧāhiz, Rasm'īl al-Ǧāhiz, p. 71.
⁴⁷ Īmād al-Dīn, op. cit., p. 20.
⁴⁸ Al Aqṣārā'ī, op. cit., p. 318.
"Quiver" of wood or leather (Arabic جَفْرَة to be wide).
7th century Arabia

"Quiver" of leather (Arabic كَانَة to conceal).
7th century Arabia

Late 7th century Umayyad Caliphate

Late 12th century Ayyūbid Syria

"Quiver" (Persian).
10th century Khurasan

54. ʿImād al-Dīn, op. cit., p. 381.
qaran - فکنیم "Quiver" of two pieces of wood or leather\(^{57}\) (Arabic "قرن" to join together).

7th century Arabia\(^{58}\)

qirbān - "Box-case"\(^{59}\) (Persian).

10th century Khurāsān\(^{60}\)

shast - "Thumb-ring"\(^{62}\) (Persian).

Late 10th century Khurāsān\(^{63}\)

Early 13th century Northern India\(^{64}\)


58. Ibid.

59. Wolff, loc. cit.

60. Nizām al Mulk, op. cit., p. 74.

61. Firdawsi, op. cit., p. 809.


63. Firdawsi, op. cit., p. 815.

64. Mubārakshāhn, op. cit., p. 240.
An arrow might seem to be a small and relatively simple object, but there are more terms relating to this one piece of equipment than to any other single item in the Muslim arsenal. Most terms are, of course, descriptive, while a great many refer to a multitude of specialized arrowheads used by Muslim archers, particularly in the latter part of the period under review.

One particularly interesting form which is also well represented in nomad grave-sites from Mongolia to Hungary, is the two-pronged or forked arrowhead. While it has appeared in Islamic archaeological context, such arrowheads were, almost entirely, reserved for hunting since they would have been largely ineffective against any but a naked foe.

As far as the shaft of the arrow was concerned, this was either of wood, reed, or a combination of both materials. Such variations reflected the different tasks arrows were expected to perform, just as much as they reflected available local materials.

65. Wolff, loc. cit.
Both types of arrows were clearly used in many areas before the coming of Islam, although the limited archaeological evidence seems to suggest that shafts of reed or cane were more popular. Such arrows alone were found in 3rd century Dura Europos. In the 8th century Transoxanian castle of Mug, by contrast, arrows both of reed and of mixed construction, in which reeds formed the forward part of the shaft and solid wood the rear, were found.

An apparent increase in the weight of arrows might indicate an increasing need to penetrate armour. Certainly Transoxanians were making and exporting both wooden khalan and lighter ushti "flight" arrows of reed in the 10th century. In the early 13th century, however, biḍ willow and khadana poplar arrows were being made in this area, while kılk reed arrows were now described as only suitable for long-range "flight" archery as they were otherwise inaccurate. In Saljuq Rum a short while later, arrows were only described as being of hornbeam or of beech.

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72. Mubārakah, op. cit., p. 244.
73. Ibid.
74. Anon., The Book of Dede Korkut, pp. 56 and 143.
Terminology

aftek - افتک

"Faller" arrow75 (Persian).

Early 13th century Northern India76

أ庄村 - أستاج

"Target arrows" for practice77 (Arabic ٍماج ماج to swerve from).

Early 13th century Northern India78

عَلْبَر - عَلْبَر

"Centre" of arrow-head79 (Arabic َو َوُعُد a leaf or the pupil of the eye).

7th century Arabia80

barg-i bid - بْرّگ بید

"Willow leaf shaped arrow-head"81 to pierce quilted armour (Persian).

Early 13th century Northern India82

77. McEwen, loc. cit.
78. Fubārakshāh, op. cit., p. 245.
80. Ibid.
82. Fubārakshāh, op. cit., p. 242.
bunduq - "lead bullet" used with pellet-bow (Arabic - 'as-siraq').

Early 13th century al Andalus.

Mid-5th century Caliphate of al-Andalus.

83. Ewen, op. cit., p. 84.
84. ibid. (op. cit.) vol. VIII, p. 17.
"Duck's foot" broad arrow-head to pierce quilted armour (Persian).
Early 13th century Northern India.

schubah tir - "Poplar wood arrow" (Persian).
Early 12th century Persia.

daŋ seng - "Grain weight" bullet used with pellet-bow (Persian).
Early 13th century Northern India.

fauq - "Nock" of arrow (Arabic to overcome).
Late 7th century Umayyad Caliphate.

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90. McEwen, op. cit., p. 83.
95. Mubarakshah, op. cit., p. 424.
zezel - گری
"Ferrule" strengthening around arrow-head\footnote{98} (Persian).

Early 13th century Northern India\footnote{99}

ghalūlah - غلوله
"Oval-shaped arrow-head" to penetrate mail, lamellar and shields\footnote{100} (Persian).

Early 13th century Northern India\footnote{101}

jawālduz - جوالدوز
"Needle-shaped arrow-head" of short arrow shot with an arrow-guide\footnote{102} (Persian).

Early 13th century Northern India\footnote{103}

khadang - خندان
"Poplar wood arrow"\footnote{104} (Persian).

Late 10th century Khorasan\footnote{105}

\begin{itemize}
\item \textit{Ferrule} strengthening around arrow-head\footnote{98} (Persian).
\item Early 13th century Northern India\footnote{99}
\item ghalūlah - غلوله
\item "Oval-shaped arrow-head" to penetrate mail, lamellar and shields\footnote{100} (Persian).
\item Early 13th century Northern India\footnote{101}
\item jawālduz - جوالدوز
\item "Needle-shaped arrow-head" of short arrow shot with an arrow-guide\footnote{102} (Persian).
\item Early 13th century Northern India\footnote{103}
\item khadang - خندان
\item "Poplar wood arrow"\footnote{104} (Persian).
\item Late 10th century Khorasan\footnote{105}
\end{itemize}
11th century Azerbaycan

Early 13th century Northern India

kilk = "Reed arrow" (Persian).

Late 10th century Khurasan

mahī pusht = "Fish-back-shaped arrow-head" to pierce mail, lamellar and shields (Persian).

malakhaq = "Short arrow" shot with arrow-guide (Persian).

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106. Ayyûqî, op. cit., verse 331.
107. Mubârakshâh, op. cit., p. 244.
111. McEwen, loc. cit.
marīshā - مرشة

"Flights" of arrow¹¹⁵ (Arabic راش to collect together).

Late 12th century Ayyūbid Syria¹¹⁶

mawḍūdī - موددى

"Arrow-head used with flight arrows"¹¹⁷ (Persian).

Early 13th century Northern India¹¹⁸

nabl - نبل

Generic term for wooden arrow¹¹⁹ (Arabic نبل to shoot at).

nāshīb - ناشب (also nuchchābāh - نجاب)

Generic term for reed arrow¹²⁰

nasāl - نصل

Generic term for arrow-head¹²¹ (Arabic نصل to stick to).

nīm - نيم

"Arrow of nīm wood"¹²² (Persian).

Early 9th century ʿAbbāsid Caliphate¹²³

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¹¹⁵. Massé, op. cit., p. 22.
¹¹⁹. Rehatsek considers nabl to be a wooden arrow, "Notes on Some Old Arms and Instruments of War, chiefly among the Arabs," pp. 227 and 259-260.
¹²⁰. Rehatsek considers nāshīb to be a wooden arrow, ibid.
¹²¹. Fries, op. cit., p. 54.
¹²³. Al Jahiz, Rasāʾīl al Jahiz, p. 15.
"Flights" of arrow\textsuperscript{124} (Persian).
Early 13th century Northern India\textsuperscript{125}

"Flights" of arrow\textsuperscript{126} (Persian).
Late 10th century Khurasan\textsuperscript{127}

"Flight-arrow"\textsuperscript{128} (Persian).
Early 13th century Northern India\textsuperscript{129}

"Arrow-head"\textsuperscript{130} (Persian).
Late 10th century Khurasan\textsuperscript{131}

\textsuperscript{124} Mcewen, \textit{op. cit.}, pp. 79-83.
\textsuperscript{125} Mubārakshāh, \textit{op. cit.}, p. 240.
\textsuperscript{127} Firdawṣī, \textit{op. cit.}, p. 950.
\textsuperscript{128} Mcewen, \textit{loc. cit.}.
\textsuperscript{129} Mubārakshāh, \textit{op. cit.}, p. 242.
\textsuperscript{130} Mcewen, \textit{loc. cit.}.
\textsuperscript{131} Firdawṣī, \textit{op. cit.}, p. 490.
\textsuperscript{132} Mubārakshāh, \textit{loc. cit.}. 
"Steel arrow-head" to pierce iron armour\textsuperscript{133} (Persian, lit. "watered steel").

Early 13th century Northern India\textsuperscript{134}

"Flights" of arrow\textsuperscript{135} (Arabic راش to collect together).

Early 8th century Umayyad Caliphate\textsuperscript{136}

"Gerh" of arrow\textsuperscript{138} (Persian).

Early 13th century Northern India\textsuperscript{139}

"Spinach-leaf-shaped arrow-head" to pierce quilted armour\textsuperscript{140} (Persian).

Early 13th century Northern India\textsuperscript{141}

\begin{thebibliography}{1}
\bibitem{133} McEwen, \textit{op. cit.}, p. 83.
\bibitem{134} Mubarakshah, \textit{loc. cit.}
\bibitem{135} Fries, \textit{op. cit.}, p. 54.
\bibitem{136} Al TabarT, \textit{op. cit.}, p. 1437.
\bibitem{137} Reinaud, \textit{op. cit.}, p. 210; Rehatsek, \textit{op. cit.}, pp. 259-260.
\bibitem{138} McEwen, \textit{op. cit.}, pp. 97-99.
\bibitem{139} Mubarakshah, \textit{op. cit.}, p. 243.
\bibitem{140} McEwen, \textit{op. cit.}, p. 83.
\bibitem{141} Mubarakshah, \textit{op. cit.}, p. 242.
\end{thebibliography}
surākh - سراح
   "Tang" of arrow-head\textsuperscript{142} (Persian).

   Early 13th century Northern India\textsuperscript{143}

   وسراح دانام گرد

\textit{tīr} - نیر
   Generic term for arrow\textsuperscript{144} (Persian).

\textit{tīr-i partābī} - تیر برتابی
   "Flight arrow"\textsuperscript{145} (Persian).

   Early 13th century Northern India\textsuperscript{146}

   بیکان مودودی باد و تیر برتابی

\textit{tutmājī} - توتمنی
   "Noodle-shaped arrow-head" to pierce quilted armour\textsuperscript{147} (Persian).

   Early 13th century Northern India\textsuperscript{148}

   وبرک بید و تتمانی وبطبای

\textbf{Arrow-guides, Pallet-bows and Crossbows}

In the early Middle Ages the Muslim world seems to have made almost as much use of various mechanical and pellet-bows as did Europe. Many seem to have had eastern origins, but there is, nevertheless, little evidence to suggest that they came to Europe.

\textsuperscript{142} McEwen, \textit{op. cit.}, p. 95.
\textsuperscript{143} Mubārakshāh, \textit{op. cit.}, p. 245.
\textsuperscript{144} Wolff, \textit{loc. cit.}
\textsuperscript{145} McEwen, \textit{op. cit.}, p. 83.
\textsuperscript{146} Mubārakshāh, \textit{op. cit.}, p. 242.
\textsuperscript{147} McEwen, \textit{loc. cit.}
\textsuperscript{148} Mubārakshāh, \textit{loc. cit.}
via Islam. Indeed, in many cases the Europeans seem, perhaps only marginally, to have made the first widespread use of such weapons.

An exception to this general oriental origin for unorthodox bows may be the pellet-bow. Naturally, such a weapon is generally only recognizable in illustrated sources by the fact that its users carry bags for pellets rather than quivers for arrows (Fig. 177H) or, in much later sources, by the very detailed nature of the art (Fig. 646). The pellet-bow shot small stones or lead pellets and was primarily a hunting weapon. It was, in fact, employed by Muslim warriors from al-Andalus for just this purpose while raiding Sardinia in the 8th century. Only later do the pellet-bow appear in some boisterous horse-play in mid-9th century Iraq, and for hunting in the Hamdanid JazIr. Meanwhile the pellet-bows remained popular in al-Andalus at least until the 11th century.

If the pellet-bow was a hunting weapon of perhaps origin, the arrow-guide was definitely a war-weapon of eastern invention. It may, perhaps, have first been mentioned in the hands of those Sassanian troops who faced the Muslims in Iraq in the mid-7th century. Known as the tawak in Persian and the huban in Arabic, the arrow-guide perhaps had an Iranian origin. Traditionally, this weapon

was believed to have been invented on the Transoxanian frontier, though by Muslims, for use against Turkish raiders who would otherwise pick up their foes' arrows and shoot them back.\footnote{Faris and Elmer, op. cit., pp. 124-126.}

Certainly, the arrow-guide could only have originated in an area where the thumb-draw was normally used, for in this style of archery an arrow passed to the right of the bow, rather than the left as in the European finger-draw. Thus an archer's left hand could hold both his bow and his arrow-guide.\footnote{McEwen, op. cit., p. 76.}

The ṇāwaq or ḥusba'ān continued to be used in eastern Islam and was, by the late 12th century, certainly employed by horsemen among whom it was considered by one author to be too common to warrant a detailed description.\footnote{Al Tarsuwī, op. cit., pp. 110-111; al Tarsuwī, in Boudat-Lematté, op. cit., p. 144.}

Such weapons may, of course, have been used in this manner for centuries.

The true hand-held crossbow poses a more difficult question. It was almost certainly invented in Asia, perhaps by the aborigines of southern China\footnote{B. Loutf, Chinese Clay Figures, part 1, Prononcements on the History of Defensive Armor, (Chicago 1914), p. 215.} many centuries before the period under review. Crossbows were being used as infantry weapons on China's Central Asian frontier in the 8th century,\footnote{Cohen, "Les Changements techniques militaires dans le Proche Orient médiéval et leur importance historique," p. 118.} and may even have been known in the Abbasid Caliphate and Ṣaḥmīd Khurāṣān a century or so later.\footnote{Cohen, "Djayab," pp. 504-509; al Ḫaṭīb al Baghdādī, in Vasiliev, op. cit., vol. II, p. 78; Firdawsī, op. cit., pp. 1280 and 1327-1328.}

Thereafter the weapon was recorded, under its various
names, in most parts of Islam, and by the 12th century even in Byzantium. Nevertheless, there are problems stemming not only from terminology but also from the obvious fact that a form of heavy, mounted crossbow for use in siege warfare had been known in the Hellenistic and Roman worlds. Various forms of large, frame-mounted siege crossbows were subsequently used in Islam, such as the nawa al-lawlab, zanbūrak, ziyar and perhaps also the nīm charkh kushkhanjīr, although the earliest Muslim references to such weapons that I can find date from the late 12th century. These mention the zanbūrak and ziyar (Figs. 167A to 167C).

Were the first hand-held infantry crossbows of western Europe, and most importantly of Iberia, developed from Romano-Hellenistic heavy types, or did they spring from lighter crossbows of more immediate Asian origin that were already in use in Islam? This is a question that has yet to be adequately answered. Similarly, the available pictorial evidence does little to clarify this issue, either in an Islamic or a Mediterranean context (Figs. 83, 131, 167C-D, 207, 513, 531, 544, 545, 572, 610 and 661). That Islam was fully capable of improving upon the basic crossbow concept seems to be demonstrated by the above-mentioned ziyar siege-bow. Here the arms of the bow, made in two separate parts, are reinforced by "skeins" of silk and horsehair which are themselves mounted across a large oaken frame. 164


It would, in fact, seem likely that lighter crossbows were favoured by Muslim warriors as they were more suited to their open and manoeuvrable style of warfare. Certainly this would account for the appearance of crossbows in the hands of specifically Muslim shock-cavalry in the mid-14th end perhaps also 13th centuries. Such a tactical development may have been made easier by an already well-established use of the arrow-guide by Muslim horsemen.

**Terminology**

CAQGAR — عفار

"Light crossbow" (Arabic عفار to wound, Possibly related to the Latin arcuballista).

Late 12th century Ayyubid Egypt

CHARKH — چرخ

"Crossbow" (Persian).

Late 10th century Khurasan

GIRUNAH — گروده

"Pallet-bow or pellet-crossbow" (Persian).


168. Wolff considers charkh to be a curved bow, loc. cit.

169. Firdawsi, op. cit., p. 1280.

Early 13th century Northern India

"Arrow-guide bow" and "short arrow" (Arabic reckoning, settlement, locust).

Mid-8th century Umayyad Caliphate

Late 12th century Ayyubid Egypt

Jerkh - (also jarh - جرح)

"Crossbow" (Arabic, from Persian charkh).

Mid-12th century Syria

Mid-12th century Crusader Syria

Late 12th century Ayyubid Syria

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175. Rehatsek, "Notes on Some Old Arms and Instruments of War, Chiefly among the Arabs," pp. 226 and 239.

7th century Sasanian Iraq [180]

Late 10th century Khurasan [181]

11th century Azerbeyjan [182]

Early 13th century Northern India [183]

Probably a large "pellet-bow" (Persian).

Early 13th century Northern India [184]

Late 12th century Ayyubid Egypt [185]
"Pellet-bow" (Arabic بندقية, nut).

Early 8th century al Andalus

"Mounted crossbow" used in siege warfare (Persian).

Late 12th century Ayyūbid Syria

Early 13th century Northern India

"Mounted crossbow" used in siege warfare (Arabic زبان, highest string of a stringed musical instrument).

Late 12th century Ayyūbid Syria

References:
193. Rehatsk, op. cit., p. 239.
194. Inād al-Dīn, op. cit., p. 68.
CHAPTER 5

MISCELLANEOUS WEAPONS

Personal Weapons

Many of the warriors of the early Muslim world used weapons unknown, or at best rare, in medieval Europe. Some of these, like the lasso, were of central Asian origin and only later became widespread (Figs. 275, 436 and 640). Others, like the Indian throwing disc, remained limited to their place of origin and were perhaps only ever used by non-Muslim mercenaries (Fig. 488).

Other primitive weapons such as the sling retained their popularity in Islam while disappearing from most parts of Europe. The sling (Fig. 241) was, perhaps surprisingly, even used in some Saljuq1 armies, though not necessarily by Turks. This weapon was already traditional among Azerbaycan2 peasants. Highly decorated slings, perhaps of the staff-mounted variety known in Byzantium as the sphendobona,3 were clearly still used by shepherds and other humble warriors in eastern Anatolia at least as late as the 14th century.4 Staff-slings were probably the weapons so widely used by Andalusian infantry in the 10th century,5 since

they appear in slightly later pictorial material from the Iberian peninsula (Figs. 515 and 551A). Slings of both types may also have been employed by the mixed Muslim and Greek warriors who defended the walls of Messina in Norman Sicily in 1190 (Figs. 610C and 610I). In general the sling would seem to have been a weapon for siege warfare in both eastern Islam and the Mediterranean world during the early Middle Ages, although it was also used by some light infantry in open battle.

**Terminology**

falākhān - فلکان

"Sling" for use in siege warfare (Persian).

Early 13th century Northern India

hājārah al yad - حجارة اليد

"Stone thrown by hand," probably shaped, for use in siege warfare (Arabic).

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Possibly late 12th century Ayyūbid Syria

Early 14th century Mamlūk Egypt

kamand — كمند

"Lessoo"13 (Persian).

Late 10th century Khurāsān14

بَلْسَةَ الدُّروَّنِ شَمْسِ شَبَازِي كَمْنَد

Early 13th century Northern India15

وَكِمْنَدَ اِنْدِازَازُ نَزْدِيَكَ يَزَنَد

mīlāq — مَلِئَع

"Sling"16 (Arabic قَلَعُ to drive away).

Early 14th century Mamlūk Egypt17

وَالْمَلِئَعُ وَما أَشْهٔ ذَلِلَ

wāḍaf — وَضَفَّ

"Sling"18 (Origin unclear).

Mid-13th century Maghrib19

وَرَمَابُ الوُضَافَ

Siège Engines including Fire Weapons

From the 7th to 13th centuries, the Middle East saw a gradual move away from siege engines based upon the torsion principles of the Hellenistic and Roman tradition, towards counterpoise weapons of probable Chinese origin. The former do not, however, seem to have been entirely abandoned. There was also a general rise in the importance of petroleum-based fire-weapons in the Muslim world, although in this field of chemical warfare the Byzantines are generally allowed a leading position, at least until the 11th century.

The borders of Islam had largely become static by the end of the 8th century. Thereafter siege warfare came increasingly to dominate conflicts along the fortified frontiers of Anatolia,

20. Wehrs, op. cit.
al Andalus, the Caucasus, and perhaps even in Afghanistan and Turkistan. A similar situation soon developed along the more exposed coasts of the Maghrib.

It is generally impossible to state what culture invented which particular item of siege equipment seen in the early Middle Ages. It has, however, been suggested that in the specific context of Crusading warfare, the Europeans reintroduced mobile siege-towers to the Muslim world, but that these were soon abandoned by the Muslims when Islam went onto the offensive. If this were the case, then the towers used by these first Crusaders were occasionally surprisingly sophisticated constructions. One, which was built to attack Fatimid Sidon in 1109, was covered with brushwood, matting and fresh ox-hides to repulse both stones and Greek Fire. It was mounted upon wheels and had its own supplies of water and vinegar to put out fires. Others were described as being forty and fifty cubits high, or having battering rams mounted within them. Some of the kabsh battering rams used at this time were almost as impressive, having iron heads weighing over twenty pounds and being swung from the beams of a protective shed by means of ropes. Not that the defending Muslim forces lacked inventiveness. A Fatimid naval officer in Tyre during the Crusader siege of 1111-1112 developed a system

27. Ibid., p. 179.
28. Ibid.
of iron hooks, *kulâh*ī, that were lowered over the city walls to ensnare and then overturn the Frankish rams. This same man also built an apparently complicated wooden chute on a large T-shaped wooden and iron structure which, by means of winches and pulleys, could be used both to drop obnoxious substances on the enemies' heads or drop large flaming objects into their siege-towers. A machine distinctly similar to this Muslim device appears a century later in a French illuminated manuscript where it is being used as a gibbet (Fig. 596), although it does not seem to be illustrated in any Muslim source.

The question of who precisely invented the true counter-weight mangonel is still undecided. Their use clearly increased steadily in the Middle East from the 12th and 13th centuries, and they do seem to have been of eastern Mediterranean origin, either Byzantine or Islamic. The indispensable treatise written by al Tarsusī late in the 12th century seems to deal with a period of transition between the old man-powered mangonels and the new counter-weight versions. Earlier texts merely mention such weapons, generally referred to as *mānāfīn*, but do not describe them in detail. Al Tarsusī does so, and in so doing gives a very

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30. Ibid., p. 179.
clear indication of the inventive spirit of his day.

Al Tarsüš states that the range of most mangonels was from forty to sixty fathoms, eighty to one hundred and twenty metres. He goes into some detail, describing the appearance, construction, materials, advantages and disadvantages of the four main varieties of man-powered mangonels known in the late 12th century Middle East. These were the Arab, Turco-Persian and Byzantino-Frankish mangonels, and the much smaller luḥbal mangonel. Of these the Arab mangonel (Fig. 167G) was the most reliable, although it was complicated to erect and maintain. It also incorporated some degree of protection for the team of men who gave it its power. The Turco-Persian mangonel was altogether simpler (Fig. 167H) and since it consisted essentially of a single stake or post, supported by a form of plinth, it clearly corresponded to a number of illustrations of simple mangonels from further east and further west (Figs. 402, 609B, 609C and 610A). This form of mangonel was almost certainly the earliest, having been the type that was invented in China. The Byzantino-Frankish mangonel is given rather short shrift by al Tarsüš (Fig. 167E), but it does seem to be essentially the same as the machine shown in an early 13th century southern French carving (Fig. 593). Such a mangonel appears twice rather later in the famous mid-13th century northern French Maciejowski Bible (Pierpont Morgan Lib., New York) although it seems to have been misinterpreted by most

35. Al Tarsüš, op. cit., pp. 118 and 141.
36. Ibid., pp. 119 and 141.
37. Ibid., pp. 119 and 141-142.
38. Ibid., pp. 119 and 142.
scholars as a counter-weight mangonel. Neither the Turco-Persian nor the Byzantine-Frankish mangonels offered any protection to their operators. Only the Arab form did this.

Before looking at al TarsusT’s references to counter-weight mangonels, it may be worth noting that the next earliest Islamic representation of such a counter-weight mangonel that I have been able to find (Fig. 642A), dating from 1306 and originating in western Iran, is built upon a frame or support that has more in common with the Arab mangonel as described by al TarsusT than with his Turco-Persian weapon. None the less, when this author does go into detailed description of an apparently somewhat experimental counter-weight mangonel, invented by al TarsusT’s predecessor Shaykh Abū’l Hasan ibn al AbraqI al IskandaranI, he states that it is essentially a modification of the Turco-Persian mangonel. This splendidly complicated weapon (Fig. 167H) could be operated by one man and it incorporated a crossbow both as a trigger mechanism and as a device to increase the power of the shot.

The last of al TarsusT’s mangonels, the luCbah, was both small and unfortunately so common as to need neither description nor illustration. Apart from its size and consequently limited power, its most obvious feature was that it could be turned and aimed since the axle and throwing arm were clearly pivoted on top of their single pole. Some of the illustrations (Figs. 482, 609A, 609C and 610A), referred to above as possible Turco-Persian forms of mangonel, may, in reality portray the luCbah.

39. Ibid., pp. 119-120 and 142-143.
40. Ibid., pp. 120 and 143.
It has been suggested that the Carradah, a form of siege-engine mentioned more frequently in earlier Islamic sources, might be synonymous with the luqbah. I, however, prefer to see the Carradah as being a torsion-powered weapon directly descended from the onager-type ballistas of earlier civilizations. As such it might appear in a somewhat confused form on an early 13th century Persian bowl (Fig. 392).

Taking all this evidence into consideration, it seems likely to me that the true counter-weight mangonel was probably invented in Islam, possibly in Egypt or the Fertile Crescent, probably under some wealthy and highly centralized administration such as that of the Fatimids.

Other siege-devices described by al Tarsusi give equal evidence of inventiveness. The shhakah, for example, was a mobile frame-mounted and cunningly sprung mantlet (Fig. 1671) to protect such troops as mangonel operators. Muthallathah (Fig. 1673) were, on the other hand, quite simple and were later known in Europe as Crow’s Feet. These were scattered in front of an army to impede an enemy cavalry charge.

Terminology

FIRE WEAPONS

ātish kash āhanīn - آتش کش آهین

"Iron fire-shovel," presumably a siege-weapon (Persian).

Early 13th century Northern India


42. Mubarakshah, op. cit., p. 423.
miscar - مسعار
"Fire-tongs," unclear siege-weapon\(^{43}\) (Arabic سر to kindle).
Late 12th century Ayyūbid Syria\(^{44}\)

muhariqah - معرقة
Probably "Fire grenades,"\(^{45}\) (Arabic درق to scorch).
Late 12th century Ayyūbid Syria\(^{46}\)

naffāṭah - نافطة
"Flame-thrower" to project naft\(^{47}\) (Arabic نفط to blister or boil).
Late 12th century Ayyūbid Syria\(^{48}\)

naft - نفط
"Greek Fire"\(^{49}\) (Arabic نفط to blister or boil).
Early 9th century Iraq\(^{50}\)

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45. Massé, loc. cit.
47. Rehatsek, "Notes on Some Old Arms and Instruments of War, chiefly among the Arabs," p. 261.
50. Al Jāhiz, Al Bayān wa’ll Tabyīn, p. 16.
Late 12th century Ayyûbid Egypt 51

*nafṭ abyad* - نفط أبيض
"white naft" of extra power 52 (Arabic نفط أبيض white).

Late 12th century Ayyûbid Syria 53

سيّر اهال النفط الإبيض مع عزة نفططيّار

*nafṭ tiyâr* - نفططيّار
"Flashing naft" 54 (Arabic نافط لطّيّار to fly).

Late 12th century Ayyûbid Syria 55

ووصل معه ملان من النفط الطبار

*nār* - النار
"Flame-thrower" 56 (Arabic نار to shine).

Late 8th century *Abbasid Caliphate* 57

بالتابرة والنار والسماوم

Early 10th century *Abbasid Caliphate* 58

مزارع النفط والنيران

Late 12th century Ayyûbid Egypt 59

وزراعي النار

قارورة - qarūrah

"Fire-pot" or "grenade" (Arabic glass bottle).

Mid-10th century Oman

"Grenade" (Origin unclear).

Late 12th century Ayyūbid Syria

قنباله - qunbalah

"Grenade" (Origin unclear).

Late 12th century Ayyūbid Syria

أستون - ustūn

Probably "mangonel to project naft" (Persian).

Early 13th century Northern India

60. Massé, op. cit., p. 41.
63. ʿImād al Dīn, op. cit., p. 39.
64. Massé, op. cit., p. 58.
65. ʿImād al Dīn, op. cit., p. 68.
zarrāq - زَّرَاقٌ
"Flame-thrower" or "short spear with naft attached"68
(Arabic زِرْقَةٌ to dart forth).
Late 12th century Ayyūbid Syria69
وُزْرَاقٌ النَّارِ

SIEGE ENGINES AND EQUIPMENT

carrādah - صَرَادَة
"Onager-type ballista"70 (Arabic عَرْدَةٌ to throw far away).
Late 7th century Syria71
وُصِبْوُا العَرْدَاتِ عَلَيْهَا

Mid-8th century Umayyad Caliphate72

فنصِب عُرْدَاتَهُنَّ تَلْقَابَنُهُمُّ مُكَرَّمًا
Early 9th century Iraq73
الرَّتِيلَةِ وَلا العَرْدَةِ وَلا المُكَرَّمٌ
Late 10th century Khūraṣṭân74
والرَّمَيْ في العَرْدَاتِ

Late 12th century Ayyūbid Syria75
والرَّمَيْ في العَرْدَاتِ

69. Īmād al Dīn, op. cit., p. 68.
73. Al Ḫāṭīb, Al Bayān wa’l Tabī‘īn, p. 15.
75. Īmād al Dīn, op. cit., pp. 227-228.
Early 13th century Northern India

Caraus - (J / عرس)

Probably "Crossbow-ballista" (Arabic عرس bride or groom).

Early 9th century Umayyad Caliphate

Early 13th century Northern India

burj - (Arabic برج tower).

Early 12th century Crusader Syria

Late 12th century Ayyubid Syria

dabbabah - (Arabic دب to crawl slowly).

"Mobile shed or mantlet" to protect battering-ram or miners (Arabic دب to crawl slowly).

76. Mubarakshah, op. cit., p. 331.
77. Rehatssek describes the Carus as a larger version of the later Sarsaik, "Notes on Some Old Arms," p. 244; Cahen suggests that it is a large rotating mangonel, "Un Traité d'Armurerie composé pour Saladin," p. 59.
80. Rehatssek, "Notes on Some Old Arms and Instruments of War, chiefly among the Arabs," p. 223.
82. Imad al Din, op. cit., pp. 77-78.
83. Reinaud, "De l'Art Militaire Chez les Arabes au Moyen Âge," pp. 224-225; Rehatssek, "Notes on Some Old Arms," considers the dabbabah to be a siege-tower, p. 232.
7th century Arabia

وكان مع المسلمين دبابة من بلود

Early 9th century Iraq

ولا الجبانق ولا الدبابة

Late 12th century Ayyûbid Syria

وتركيب الإبراج والدبابة

darrājah — دراعية

Probably a form of moveable "mantlet" (Origin unclear).

Early 8th century Umāyyid Caliphate

وهو يضع الدراعية في موضعًا

Early 9th century Iraq

ولا الدراجة

dīwārkan — دیوارکن

"Wall-breaker" specialized pick or crowbar (Persian).

Early 13th century Northern India

دیوارکن سلاح درودگران

84. Al Qalaǧhurî, op. cit., vol. 1, p. 74.
85. Al Jâhîz, Al Bayân wa'll Tabyîn, p. 15.
86. Ťimâd al Dîn, op. cit., pp. 77-78.
87. Al Jâhîz, Al Bayân wa'll Tabyîn, p. 15 note 2.
88. Al Tâburî, op. cit., p. 1547.
89. Al Jâhîz, Al Bayân wa'll Tabyîn, p. 15.
91. Mubârakshâh, op. cit., p. 263.
"Crow's feet" (Arabic "خَسَل") to be filled.  
Early 9th century Iraq.

جفت - جفت "Cramps" to hold palisades (Arabic from Persian لفت).  
Late 12th century Ayyūbid Syria.

كبش - كبش "Battering-ram" (Arabic كبش to take a handful).  
Early 12th century Crusader Syria.

خشفش - خشفش Probably bundles of sticks to pad walls against rams (lit. "flogging sticks", Persian).  
Early 13th century Northern India.

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92. Al Ḥāfīz, Al Bāyān wa-l Tabyīn, p. 15 note 8; Scanlon translates ḥasak as a grappling iron, op. cit., p. 124.
93. Al Ḥāfīz, Al Bāyān wa-l Tabyīn, P. 15.
95. Cīmād al Dīn, op. cit., p. 68.
96. Rehatsek, "Notes on Some Old Arms and Instruments of War, chiefly among the Arabs," pp. 245-247.
kharak - خرن

"Small ram" used in mining operations (Persian).

Early 13th century Northern India

khashabah - خشب

"Planks" used for palisades, trenches, etc. (Arabic wood).

Late 12th century Ayyubid Syria

lu'bah - لعبه

"Small man-powered mangonel" mounted on a swivel (Arabic puppet).

Late 12th century Ayyubid Egypt

manjanIQ - مجنق

"Mangonel" of various types (from Greek mananon or mannikon).

7th century Arabia

100. Mubarakshah, op. cit., p. 421.
102. "Imad al Din, op. cit., p. 77.
103. Al TarsusI, op. cit., p. 120.
104. Ibid.
Early 8th century Umayyad Caliphate 107

و وضع مجنَّيقا كان بسمّيّا لله

Mid-8th century Umayyad Syria 108

وتمانياً مجنَّيقا فطرح عليه

Early 9th century Ḥabbāsid Iraq 109

ونصب على بغداد المجنَّيق

Late 10th century Khurasan 110

نترسد زراعة ومجنيق

Early 12th century Syria 111

ومدفوب كسر كهيرة المثنابيق

Mid-12th century Ifriqiyyah 112

فادها بعد السحر والحانيق

Late 12th century Ayyūbid Syria 113

والمجنَّيقات لا ينثبط

Early 13th century Northern India 114

وفتح داران ومجنيق داران

نترس مترس

"Palisade" 115 (Persian, from Arabic مترَّس).

Early 13th century Northern India 116

وكتب سرينغل ونمر وفرل وترس

112. Al Baidhaqī, op. cit., p. 120.
113. ʿImād al Dīn, op. cit., p. 6.
mush dunb - موس دنب

Probably a form of padded defence for walls against rams
Early 13th century Northern India

muthalathah - مثالثة

"Crow's feet" (Arabic تراثة three).
Late 12th century Ayyubid Egypt

nardubän - نربان

"Scaling ladders" (Persian).
Early 13th century Northern India

panjah - پنجا

"Grapnel on hafts" (Persian).
Late 10th century Khurasan

118. Ibid.
120. Mubarakshah, op. cit., p. 423.
121. Ibid.
122. Wolff, loc. cit.
123. Firdawsi, op. cit., pp. 1327-1328.
"Stone-breaker" implement to demolish walls\textsuperscript{124} (Arabic قطع to cut).

Late 12th century Ayyūbid Syria\textsuperscript{125}

Possibly a sling-like machine to throw small stones\textsuperscript{126} (Arabic رئيلة, daddy-long-legs).

Early 9th century Iraq\textsuperscript{127}

"Mobile and padded mantlet"\textsuperscript{128} (Arabic شبكة to interweave).

Late 12th century Ayyūbid Egypt\textsuperscript{129}

"Palisade"\textsuperscript{130} (Arabic ستار to conceal).

Late 12th century Ayyūbid Syria\textsuperscript{131}

\begin{itemize}
  \item \textsuperscript{124} Masse, op. cit., pp. 58 and 202.
  \item \textsuperscript{125} Imad al Din, op. cit., p. 60.
  \item \textsuperscript{126} Al Jahiz, Al Bayān wa'l Tabyīn, p. 15 note 3.
  \item \textsuperscript{127} Ibid., p. 15.
  \item \textsuperscript{128} Al Tarsusī, op. cit., p. 121.
  \item \textsuperscript{129} Ibid.
  \item \textsuperscript{130} Rehatsék, "Notes on Some Old Arms and Instrumenta of War, chiefly among the Arabs," pp. 239-240.
  \item \textsuperscript{131} Imad al Din, op. cit., p. 135.
\end{itemize}
CHAPTER 6

BODY ARMOUR

The Structure of Armour

The exact meaning of terms relating to armour seems to have changed slightly during the period under study. Sometimes these changes followed minor developments within one type of armour. More often, however, there was an apparent tendency for a word that originally had one specific meaning to be used more loosely as the centuries passed. This might have led scholars to assume that these terms always described a wide range of armours, whereas in reality they probably had limited definitions before becoming generalized through widespread use in poetry and elaborate prose. ¹

From the 7th to the 13th centuries, seven basic types of body-armour were, or came to be, in common use in many parts of the Muslim world. These were quilted armours, armours solely of leather or felt, scale armours on a similar or fabric base, linked-scale armours in which such a base was not structurally necessary, lamellar armours in which a flexible base was not used, simple mail armours and mail armours covered, padded or backed with cloth. With one possible, though far from certain, exception plate armour of metal or stiffened leather was apparently unknown. Such armours similarly disappeared from late-Roman and Dark Age Europe. As this process did not reflect any obvious technological decline, one may assume that it resulted from changing military needs. ²

¹. Schwerzlroo, op. cit., passim.
The only possible plate armour of early Islam was the tannūr which was apparently descended from the Sassanian heavy cavalry tanūrīg. By the late 10th century it was traditionally regarded as a more primitive form of defence than the dir or scale hauberk. This tannūr seems only to have been used at the time of the Prophet and occasionally later, during the Umayyad era. Such an almost certainly inflexible armour for the chest and abdomen need not, of course, have been of plate. The tannūr could well have been of Roman-style linked scales. Here the scales, generally of bronze, were stapled directly to one another both horizontally and vertically. Although in many ways comparable to lamellar, such a system was far less flexible than true scale, lamellar or mail.

The question of how many such armours might still have been manufactured from bronze during the early Islamic era is a highly contentious one. Suffice to say, at this point, that such bronze armours had predominated in Romano-Syrian Dura-Europos, that lamellar armour of mixed iron and bronze construction has been excavated in a 7th century south-western Iranian site (Fig. 332), a possible bronze armour scale has been found in Oman (Fig. 7) and armour production was recorded on a reasonably large scale.

3. Lombard, Les Métaux dans l'Ancien Monde au Ve au XIIe Siècle, pp. 33-34.
in copper-rich but iron-poor 10th century Oman. I have tentatively argued this possibility elsewhere. The previously unrealized importance of copper production in Oman during Abbasid and Buyid times has already been emphatically brought to light.

Flexible armours were clearly regarded as the best protection in the military circumstances of the Muslim world from the 7th to 13th centuries, just as they were in Europe and the Far East at this time. This does not, however, mean that such protection was necessarily light in weight.

Of course, lighter non-metallic armours were worn and the more limited protection that they gave was either accepted or improved by the wearing of additional defences. Quilted armour, for example, gave protection against the impact of a blow, but helped little against penetration by a sharp object (Figs. 44, 610, 67, 72, 74, 75, 185, 187, 194, 207, 233, 249, 271, 292, 320, 350, 392, 445, 447, 450, 453, 499, 517, 575, 580C-0, 587 and 596). Hence one tended to find quilted armours, such as the bunhutūn and khn'htūn, being used in conjunction with scale, mail or lamellar in Islam, Byzantium and western Europe.

Quilted armours may, however, have been widely worn by poorer men, in Islam as in Christendom, and in regions either of extreme heat or primitive technology. They also seem to have persisted in Ifriqiyyah at least until the late 14th century.

Felt and certain leather armours, such as those of buff leather, may have had the same absorbent function as quilted armours, though they would also have provided some protection against cuts and thrusts. There may be problems in interpreting certain documentary sources, however, as these do not always make it clear whether the leather armour in question is a coat cut from sheets of flexible leather, or consists of scales or lamellas made of hardened leather.

Protective felt and leather garments were used in China, Iran and Byzantium in the immediate pre-Islamic era (Figs. 10, 43, 45, 46, 95, 102, 197 and 473). They continued to be worn in later centuries, particularly in Muslim Khurazm and the rest of eastern Islam (Figs. 127, 195, 209, 341, 410, 6091, 625 and 642C). The well-documented popularity of felt and leather in the Muslim and Christian regions of the Iberian peninsula.

12. Ibn Hawqal, Kitab Sifrat al-'And, p. 58; Robinson, Oriental Armour, pp. 86 and 89.
is likely to reflect Muslim influence from the Middle East or even beyond (figs. 495, 497, 506, 511, 517, 521, 529 and 591). Armours of leather or felt are also recorded among non-Spanish European warriors during the 11th and 12th centuries. These may, however, refer either to men of the Languedoc or those influenced by southern French military styles which were themselves closely related to those of Christian Spain (Fig. 575).

Scale was a far more widespread protection and may well have been the most common form of armour in the Muslim world until the 11th or 12th centuries. This would certainly be the case if one accepts that the basic dirṭ was a hauberk of scales fastened to a coat of leather or other flexible material. There is, in fact, a great deal of evidence to suggest that the original dirṭ was of scale rather than mail. The term may, however, have come to embrace mail hauberks in some regions at a later date. To begin with, the metaphorical terminology used for those pieces that made up the dirṭ, such as ḍalma'y, marrish, muṣrūḏah and nārd (see Terminology), and the similiies by which these elements were described, such as ḥarsaf, "the hump-backed skins of broadbees" - ḏl janna min ḏblam, or "shaped like the Arabic letter min" (see Terminology), strongly suggests scales rather than mail.

Even ḥalnāb might not originally have meant a "ring" of mail.

The majority of such dirṭ armours also seem to have either had an obvious leather base or, have included such a large amount of

of leather in their construction that a leather foundation is the
most obvious interpretation. 20 Elsewhere, such armours are stated
to have been cleaned on the outside with dust and oil and on the
inside with camel dung, 21 for metal and leather respectively,
while being preserved in a mixture of these three ingredients. 22
It seems hardly surprising, therefore, that armours were often
remarkably evil-smelling in the 12th century. 23

Other evidence indicates that scale haubersks were widely
used in the so-called Dark Ages, both within the world of Islam
(Figs. 115, 122, 123, 169, 210, 258, 292, 305, 340, 384, 395,
416, 490, 515, 545, 548, 576, 577, 560, 581, 597, 603, 604C, 606,
609 and 659) and beyond (Figs. 196, 213, 229, 239, 241, 413, 417,
418, 446, 557, 586, 587, 6090 and 634). Such armours were clearly
more plentiful than horses in the first Muslim armies in Arabia. 24
They may even have predominated in Europe until the 8th century. 25
Though later becoming rarer in the west, scale armour was known,
particularly in southern Europe 26 and in Spain, 27 where it seems

23. Imad el Din,  op. cit., p. 376.
25. Norman,  op. cit., p. 35; Salin and France-Longard,  op. cit.,
pp. 95 and 127; Arwidsson, "Armour of the Vendel Period," p. 31.
26. Clair,  op. cit., pp. 23-24; Norman,  op. cit., p. 216; M. Terenzi,
"Armour on a Fresco at Spoleto," Journal of the Arms and Armour
to have been used largely in siege warfare.

Probable scale armour, of pierced-iron  
was used for

sieges in Hamdanid Syria28 where other comparable Byzantino military

traditions were also known to have been strong. Certainly scale

armours of various types were very popular in Byzantium from the

6th and 7th centuries onwards.29 Surprisingly, perhaps, scale

was rare in early medieval Russia,30 but this area was probably

under greater Central Asian than Byzantine influence in military

matters. In yet another direction, scale armours are known to

have been manufactured in large numbers in pre-Islamic Yemen,31

and also in 10th to 12th century India.32

Now for the influence of scale armour, from whichever source,

lay behind the development of the late 13th century European

coat-of-plates is as yet far from clear (Figs. 213A, 271, 275

and 65G). It is not even certain whether such coats-of-plates

first appeared in northern or Mediterranean Europe,33 or whether

they were related to various yet more mysterious and perhaps solid

28. Conard, "Quelques Observations sur l'introduction géographiques

de la Dughyat at'T'alab," p. 46.

29. Haldon, "Some Aspects of Byzantine Military Technology from

the 6th to the 10th centuries," pp. 19-20, 26-27, 33-35 and 46.


33. Blair, op. cit., pp. 30-40 and 269; Haldon, "Some Aspects of

Byzantine Military Technology from the 6th to the 10th centuries," p. 29;

Norman, op. cit., pp. 219-224; Thordemann, Armour from

the Battle of Wisby, 1361, p. 269.
pieces of armour worn beneath other garments in 12th century Europe.34

The spread of lamellar armour from Central Asia across the Muslim world is altogether easier to chart. Its terminology is generally less contentious and the illustrated material is simpler to interpret. As discussed earlier, such a form of defence may have originated in the ancient Middle East but by the immediate pre-Islamic centuries lamellar armours of iron or a mixture of iron and bronze were far more characteristic of Central Asia and eastern Iran than the Fertile Crescent 35 (Figs. 61, 67, 62, 428, 435, 437, 440, 443, 451, 453-455, 462-464, 471, 472, 474, 478, 480 and 481). There is, however, some evidence to suggest that they were known in 7th century Arabia, although they are likely to have been rare.36 Indeed, lamellar would seem to have been highly prized and expensive even in those Transoxanian regions where it was most common, and remained so well into the Muslim era.37

The increased importance of lamellar in eastern Islam and in the partially subdued Christian regions of the Caucasus is clearly documented, as is its spread westward into Muslim Anatolia towards the end of the period under review39 (Figs. 2203, 306, 309, 316,

34. Oakeshott, op. cit., pp. 269-270.
References could be multiplied ten- or twenty-fold if one included all those concerning armours known to be of lamellar, such as the *jauhen* and *kamarband*, rather than simply those that described lamellar, its appearance, construction or fastenings.

Lamellar armour may also have been used in Byzantium in the pre-Islamic era\(^39\) (Figs. 90, 91 and 556) but its more widespread adoption after the 7th century clearly reflected Muslim military pressure\(^40\) (Figs. 212, 220A, 314, 630 and 637). A smaller but equally common *kabadion* lamellar cuirass was seen in Byzantium from the 10th century\(^41\) (Figs. 227, 242, 249, 314, 414 and 600). This could reflect the changing fashions of eastern Islam, where the lamellar *kamarband* may have been developed in the 10th century, or it could have been the Byzantine original that stimulated the adoption of this latter Iranian form of armour (Figs. 209, 241, 292, 294, 306, 347, 354, 376, 377, 385, 390, 392, 422, 446, 447 and 641).

Although lamellar was clearly known in central and western Islam, it does not seem to have been widely adopted in these areas. Here European and Muslim warriors could easily be mistaken for one another, even in the 13th century.\(^42\) Nevertheless, the lamellar *jauhen* had been growing in popularity in Syria and Egypt for at

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40. Ibid., pp. 25-26, 29 and 46.

41. Ibid., p. 36.

least a century (see Terminology) and even reached al-Andalus (Figs. 142, 146, 175, 177-8, 178, 180, 267, 300, 548, 580c-d, 581 and 647).

A certain amount of confusion could surround mail. Its rings were widely referred to in Arabic as zard, zared or zird, which is a term very close to the zard scales of the dir. There does, however, seem to have been a clear distinction between the two terms from the 10th to 14th centuries (see Terminology). The situation in Persian-speaking areas was simpler, for here the term zirh quite clearly referred to mail. The pictorial evidence, some of it very stylized and having to be interpreted with caution, shows that mail hauberks of various shapes, long (Figs. 330, 333, 335, 447, 501, 520, 537, 543, 600 and 639) or short (Figs. 134, 196, 246, 267, 292, 294, 305, 392, 515, 522, 541, 598 and 599), with long (Figs. 161, 174, 241, 250, 270, 298, 305, 345-340, 350, 375, 420, 435, 439, 442, 494, 503, 519, 535, 539, 540, 543, 545A-F and H, and 5510) or short sleeves (Figs. 262, 286, 292, 299, 339, 444, 446, 499, 521, 546A, 551, 601, 606 and 661), some opening down the front (Figs. 324F and 641) and others put on over the head (Figs. 157, 316, 377, 422, 517, 523 and 549), were all used in most regions of Islam in most periods.

Many of these illustrations also confirm the written evidence that mail was worn beneath other armours, a feature that was to remain rare in most of Europe until the 14th century. Such habits


44. Fries, op. cit., pp. 62-63; Anon., The Song of Roland, verse 79; Ibn Ishaq, op. cit., p. 107; Mutanabbi, in Vormhoudt, op. cit., p. 84; Norris, op. cit., pp. 95-96.
must have contributed not only to the weight of Muslim armour, which could apparently cause problems, but also to the all-enveloping character of many such protections. These frequently seem to have covered all the wearer’s face except his eyes.

**Terminology**

**PARTS OF ARMOUR AND DESCRIPTIVE TERMS**

**Calqah** — عُقَق

"Vertical connections" of lamellar *jausher* (Arabic عَصَيرة) to hang or be suspended.

*Early 14th century Mamluk Egypt*

**Gyynah** — عينَة

"Lamelles" (Arabic عين eye).

*Early 14th century Mamluk Egypt*

**Daman** — دامَن

"Skirts or hem" of hauberk or cuirass

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48. Ibid.
49. Ibid.
50. Ibid.
Late 10th century Khurasan

\textit{dzhayl} -

"Hem" of long mail hauberk\textsuperscript{53} (Arabic \textit{dāl} to drag a garment).

Late 12th century Ayyūbid Syria\textsuperscript{54}

\textit{dilās} -

"Shining" dir\textit{r} hauberk\textsuperscript{55} (Arabic \textit{dils} to glisten).

Late 12th century Ayyūbid Syria\textsuperscript{54}

\textit{fadjādah} (or mufādah - مناطبة)

"Broad" hauberk\textsuperscript{56} (Arabic \textit{fuswās} to be ample).

7th century Arabia\textsuperscript{56}

\textit{falāṣ} -

"Flattened" hauberk\textsuperscript{57} (Arabic \textit{fakād} to be flat).

Late 10th century Fatimids\textsuperscript{57}

\textit{fīlaṣh} -

"Wide" hauberk\textsuperscript{58} (Arabic \textit{fuswās} to be ample).

12th century Ifriqiya\textsuperscript{59}

\textit{fīlaṣh}

\[\text{Late 10th century Khurasan}^{52}\]

\[\text{"Hem" of long mail hauberk}^{53} \text{ (Arabic \textit{dāl} to drag a garment).}\]

\[\text{Late 12th century Ayyūbid Syria}^{54}\]

\[\text{"Shining" dir\textit{r} hauberk}^{55} \text{ (Arabic \textit{dils} to glisten).}\]

\[\text{7th century Arabia}^{56}\]

\[\text{"Flattened" hauberk}^{57} \text{ (Arabic \textit{fakād} to be flat).}\]

\[\text{Late 10th century Fatimids}^{57}\]

\[\text{"Wide" hauberk}^{58} \text{ (Arabic \textit{fuswās} to be ample).}\]

\[\text{12th century Ifriqiya}^{59}\]

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\textsuperscript{52} Firdawsī, \textit{op. cit.}, p. 1221.

\textsuperscript{53} Massé, \textit{op. cit.}, p. 150.

\textsuperscript{54} Imād al Dīn, \textit{op. cit.}, p. 150.

\textsuperscript{55} Schwarzlose, \textit{op. cit.}, p. 327.

\textsuperscript{56} Ibid.

\textsuperscript{57} Ibn Hāni', in A. von Kremer, "Über den Shi'ītischen Dichter abu-1 Kasim Rā'ī. Ibn Hāni'," \textit{Zeitschrift der Deutschen Morgen-

\textsuperscript{58} \textit{Amari, Bibliotheca archæ-Scułæ, vol. II, p. 399 and Appendix, p. 25.}
Late 12th century Ayyubid Syria

fēdī - (or fādleh - )

"Hem or skirt" of long dirāc hauberk 61 (Arabic ُضُلَٰلَص ), to be redundant.

7th century Arabia

�َرَش

"Knots" or fastenings at lamella or mail hauberk 63 (Persian).

Late 10th century Khurasan

رَطْدُ رَدْبَل أَبِسَم بِبِكْر

غَيْبَة

"Lamellae or scales" 65 (Persian).

Late 10th century Khurasan

مَبْسَم بِبِكْر

حَلْقَة

Probably a "Scale" of dirāc hauberk 67 (Arabic جَلْقَة to shave the head).

60. ُنَبَع ُبِن علی, op. cit., p. 339.
61. ُبِن علی, op. cit., vol. V, p. 50; Schwärzle translates fēdī as a long hauberk covering the feet, op. cit., p. 339.
63. ُبِن علی, op. cit.
64. ُبِن علی, op. cit., pp. 368-369.
65. ُبِن علی, op. cit.
66. ُبِن علی, op. cit., p. 1239.
67. Most authorities, including Norris, op. cit., p. 94, and Schwärzle, op. cit., pp. 325 and 339, regard halqah as a ring of a coat of mail.
7th century Arabia

Late 12th century Ayyubid Syria

Late 10th century Khurasan

Early 14th century Mamluk Egypt

Breast or open revers of dira hauberk (Arabic to cut out the collar of).

"Waist fastening or belt" of long mail hauberk (Persian).

"Silk threads" linking lamellar hauberk (Arabic to sew up).

69. ʿImād al-Dīn, op. cit., pp. 292-293.
70. Al Aqṣaraʾī, op. cit., p. 319.
71. Ibid.
73. Firdawṣī, op. cit., p. 427.
75. Ibid.
kullāb -

"Hooks" to fasten side of lamellar jāwaḥān (Arabic to desire vocaciously).

Late 7th century Umayyad Caliphate

12th century Syria

lībās -

General term for clothes or armour, the latter only indicated by context (Arabic to dress).

lībd - (also lābūd -)

"Felt hauberk" or "felt padding of mail khanāhūnd" (Arabic to stick to).

Early 9th century Khurāsān

Late 12th century Ayyūbid Syria

madīyah -

"Smooth" hauberk (Origin unclear).

76. Mayer, Mamluk Costume, p. 38.
78. Usnūsh ibn Munjid, on. cit., p. 52.
79. Mayer, loc. cit.
82. Bahā al Din, op. cit., p. 251.
Mid-10th century al Andalus

"Horizontal lacing" holding lamellae of Iskshān

(Arabic سوس to pass or cross).

Early 14th century Mamluk Egypt

مانابذ - من مأذ

"Scales" of dirh hauberk (Arabic نذ to cast off).

Early 14th century Mamluk Egypt

رجال الدراءة بإ ملابش

مأذ - ملابش (or مأذ - ملابش)

Probably "rows of scales" of dirh hauberk (Arabic شك to pitch tents in a row).

7th century Arabia

و مشك سائحة هبتكت فروجها

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84. Ibn CAbd Rabbihi, in Monroe, op. cit., pp. 122-123.
85. Al AqṣaraʾI, op. cit., p. 322.
86. Ibid.
87. Ibid., p. 321.
88. Ibid.
89. Ibid.
90. Schwarzlose considers ملابش to probably be the supposed joints or connections of a dirh hauberk, op. cit., pp. 344-345.
91. Ibid.
Perhaps a mail or scale hauberk with extra-small rings or scales, or a mail hauberk with two rivets in each link, hence "doubled mail" (Arabic "جُنَّة" to fold or set close together).

Late 12th century Ayyūbid Syria

Possibly "spotted" appearance of rows of scales of dir hauberk (Origin obscure).

Late 10th century Khurasan

91. Schwarzlose suggests the impractical possibility of a mail hauberk with each mail link linked in pairs to their equally paired neighbours, op. cit., p. 339. The problem of "doubled mail", appearing in various early Arabic sources, has yet to be answered. The twinned or paired link theory is also mentioned by Al Jarbu' in his thesis, op. cit., pp. 224-225. Surviving Islamic mail with two rivets per link is referred to by Mayer, Nomilk Costume, p. 37. A third possible solution may be that two hauberks were often worn at once, as indicated in Anon., The Song of Roland, verse 79, and Ibn Ishq, op. cit., p. 107, Wurmhautt, Dhikir Saif al Dawlaah, p. 84, "Imad al Din, op. cit., pp. 307 and 330, and that these might have been laced together in a virtually permanent fashion to make a single garment.


93. Wolff, loc. cit.

94. Firdawsī, op. cit., p. 263.

95. Hamann, in Rehatsch, "Notes on Some Old Arms and Instruments of War, chiefly among the Arabs," p. 234.

qatīr -

"Heads of rivets" of mail or scale hauberk97 (Arabic نتیر heads of nails).

7th century Arabia98

qitṣch -

"Rings" of mail hauberk99 (Arabic تطمح to cut into pieces).

Mid-12th century Syria100

rabṭah -

"Straps" of lamellar or scale hauberk101 (Arabic ریسًا to tie or bind).

Early 14th century Mamlūk Egypt102

sabīriyyah -

"Fine quality mail"103 (Arabic سیر beauty).

Late 12th century Ayyūbid Syria104

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100. Usāmah ibn Mūqdish, op. cit., pp. 48-49.
103. Nasser, op. cit., pp. 15, 17, 95 and 120.
"Lamellae" of Jawshan cuirass 105 (Arabic لثلمات to flatten).
Early 12th century Syria 106

Possibly "leather basis" of dir 5 scale hauberk 108 (Origin unclear).
7th century Arabia 109

"Scales" of dir 5 hauberk 111 (Arabic سرد to stitch leather).
7th century Arabia 112

Ibn UmadTs, op. cit., p. 404.
Belt over hauberk or "straps" joining lamellae of

Ibn al-Munir

Arabic: سير to travel.

7th century Arabia

Early 14th century Mamluk Egypt

Tassets" of ibn al-Munir lamellar cuirass (Arabic: علق to hang).

Early 14th century Mamluk Egypt

"Armour" in general (Arabic: منع to defend).

Late 12th century Ayyubid Syria

"Armour" in general (Arabic: واقية to preserve).

114. Schwarzlose, op. cit., p. 327.
115. Ibid.
117. Ibid., p. 322.
118. Ibid.
120. Imād al-Dīn, op. cit., p. 6.
121. Massé, op. cit., p. 58.
Late 12th century Ayyubid Syria

zeqf (or zeqfah) ـْغْفـ
"Abundant, all-covering hauberk" (Arabic زغف to be plentiful).

Late 12th century Ayyubid Syria

zenjir ژَنِیژِر
"Links" forming kambar band placket (Persian).

Late 10th century Khurasan

zard (or zarad ژَرَدَ or zird ژِرِدَ) ـَرَدـَ
"Mail hauberk" (Arabic زَرَدَ to strangle with a noose).

7th century Arabia

Mid-10th century Yemen

Early 12th century al-Andalus

122. Imād al-Dīn, op. cit., p. 68.
123. Norris, op. cit., p. 94.
125. Wolff, loc. cit.
126. Firdawsī, op. cit., p. 270.
129. Al Hamdānī, Al Ikīlī, p. 228.
As discussed above, the original 7th century dirā'ābka hauberk was probably an armour of metal, and perhaps also cuir-bouilli and horn, scales. In later centuries other features of this essentially Arab scale hauberk became clear. The dirā'ābka would normally have been put on over the head, just like a medieval European mail hauberk, and thus was habitually a wide garment. It was described as being shaped like that typically Arab, rather than Turkish, garment known as a ḥurrāsh.

The dirā'ābka could be worn beneath a belt and may have had other laces, perhaps to tighten its otherwise open neck.

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134. El Gindi, op. cit., p. 149A.
136. Ibid., pp. 319 and 332.
137. Ibid., p. 332; Firdawṣī, op. cit., pp. 368-369.
Its scales tended to rattle\textsuperscript{139} and the \textit{dir\textsuperscript{c}} was altogether heavy and cumbersome.\textsuperscript{140} Nevertheless, it could be folded into a convenient bundle.\textsuperscript{141} Such flexibility must, however, have been as limited as that of all scale armours. Hence the \textit{dir\textsuperscript{c}} normally seems only to have had elbow-length sleeves.\textsuperscript{142} This form of armour also suffered from the inevitable drawback of lacking scales beneath the arm-pits. Here the \textit{dir\textsuperscript{c}}'s leather base\textsuperscript{143} was apparently exposed and may well have left a vulnerable opening.\textsuperscript{144} Certainly if any scales were knocked off or damaged, such a leather or linen foundation of the \textit{dir\textsuperscript{c}} could be ripped by hand, thus leaving its wearer unprotected at that point.\textsuperscript{145}

All these limitations may account for the frequency with which the \textit{dir\textsuperscript{c}} is mentioned as being worn under or over one or more other armours, of quilted material, lamellar, mail, or again of scale.\textsuperscript{146}

\begin{itemize}
\item \textsuperscript{139} C\textsuperscript{1} Im\textsuperscript{2} ad al D\textsuperscript{3} in, op. cit., p. 355.
\item \textsuperscript{140} Al Hamd\textsuperscript{1} an, Al Ikl\textsuperscript{1} l, pp. 255-257; al Bal\textsuperscript{1} ar\textsuperscript{1} u\textsuperscript{1} I, op. cit., vol. I, pp. 392-393 and 426; Fries, op. cit., pp. 60-61; al F\textsuperscript{1} a\textsuperscript{1} b\textsuperscript{1} r\textsuperscript{1} a\textsuperscript{1} r\textsuperscript{1} I, op. cit., vol. II, pp. 1107 and 1428; al Aj\textsuperscript{1} s\textsuperscript{1} a\textsuperscript{1} r\textsuperscript{1} a\textsuperscript{1} r\textsuperscript{1} I, op. cit., pp. 317 and 332.
\item \textsuperscript{141} M\textsuperscript{1} is\textsuperscript{1} k\textsuperscript{1} w\textsuperscript{1} a\textsuperscript{1} h\textsuperscript{1} i, op. cit., vol. II, pp. 152-153.
\item \textsuperscript{142} Al F\textsuperscript{1} a\textsuperscript{1} b\textsuperscript{1} r\textsuperscript{1} a\textsuperscript{1} r\textsuperscript{1} a\textsuperscript{1} r\textsuperscript{1} I, op. cit., vol. II, p. 1354.
\item \textsuperscript{144} Fries, op. cit., pp. 60-61; al F\textsuperscript{1} a\textsuperscript{1} b\textsuperscript{1} r\textsuperscript{1} a\textsuperscript{1} r\textsuperscript{1} a\textsuperscript{1} r\textsuperscript{1} I, op. cit., vol. II, p. 164; al Mas\textsuperscript{1} u\textsuperscript{1} d\textsuperscript{1} I, op. cit., vol. II, pp. 345-349.
\item \textsuperscript{145} Al Mas\textsuperscript{1} u\textsuperscript{1} d\textsuperscript{1} I, op. cit., vol. V, p. 50.
\item \textsuperscript{146} Schwarzlose, op. cit., p. 330; Fries, op. cit., p. 62; Fird\textsuperscript{1} a\textsuperscript{1} u\textsuperscript{1} I, op. cit., p. 1177; al Mas\textsuperscript{1} u\textsuperscript{1} d\textsuperscript{1} I, op. cit., vol. VI, p. 453; al F\textsuperscript{1} a\textsuperscript{1} b\textsuperscript{1} r\textsuperscript{1} a\textsuperscript{1} r\textsuperscript{1} a\textsuperscript{1} r\textsuperscript{1} I, op. cit., vol. II, pp. 1154, 1443 and 2014.
\end{itemize}
The _jubbah_

This form of armour is rarely mentioned in the early Islamic era, perhaps because it was probably a Turkish term from the original _dašlubba_. The Turks had, as yet, had little impact on the vocabulary of Islamic military technology. The _jubbah_ perhaps consisted of fabric-covered mail and was clearly heavy. It may also have been synonymous with the 13th century _keburah_ which itself could have been one and the same as the Persian _nabir_.

The _kanarband_

In 10th century Khurāsān this term clearly referred to an important piece of armour protecting the abdomen, groin and chest. The _kanarband_ is likely to have been of lameller, and was worn over other armours. In fact, such limited pieces of armour, which might otherwise have formed the central part of a larger lameller _jawrāh_ cuirass, may be the same as those defences seen in many illustrations from 12th century Persia and its neighbours (Gigs. 236, 376, 377, 421 and 422). This latter style was almost

149. Al Aṣārī, op. cit., p. 331.
150. Al Ḥarawi, op. cit., pp. 205-266.
151. _Firdausī_, op. cit., pp. 263, 270 and 1181.
152. Ibid., p. 430.
153. Ibid., pp. 369-369, 430 and 1177.
certainly introduced from the east by the Saljuqs.

The *Jawshan*

Lamellar armours, particularly the larger types, were normally referred to as *jawshans*. This was clearly a very valuable piece of equipment in the first decades of Islam.\(^{154}\) Like the *dir\(^c\)*, the *jawshan* could be very heavy\(^{155}\) though such references probably refer to large *jawshans* covering torso, thighs and arms. Most early mentions of the *jawshan* stem from the east of Islam, as do most mentions of *jawshan* makers.\(^{156}\) Even in the late 12th century this form of iron, horn or hardened leather lamellar armour was still regarded as characteristically Persian.\(^{157}\)

The *jawshan* consisted of a separate sheet of laced lamellar for the body with other smaller sheets to protect the arms, hips or thighs.\(^{158}\) The torso-piece could be worn on its own\(^{159}\) when it may have corresponded to the 10th century *kemarbān*. In fact, the term *jawshan* may well have originally meant a protection for the breast or trunk.\(^{160}\) In al Andalus the *jawshan* was probably rare, despite its clear representation on a 12th century stained.


156. *Allen*, *op. cit.*, p. 66.


glass window at Chartres illustrating the Song of Roland (Fig. 581).
It was, however, certainly known, as indicated by Ibn Hudhayl
in the 14th century who described it as an armour with no backing, indicating that it was clearly not of scales.

Some jāwshan would seem to have been fastened or tightened by hooks, while others also employed straps. These, or perhaps other styles, opened down the front and were said to be shaped like the ḥabī'a, a tight-fitting and characteristic costume of Persia. The individual lamellae were most commonly of iron and were, at least in the early 14th century, laced together with silken threads. These made the jāwshan vulnerable if it were turned inside out, as was sometimes done by Mamlūk archers to avoid snagging their bows. The straps that joined the arm-pieces and tassels to the torso-part may also have been those that could fasten a jāwshan to a dirā worn beneath.

The kazīghand

The main feature of the kazīghand was its inconspicuous

162. Usūnah, ibn Ḥunaidi, op. cit., p. 52.
163. Firdawsī, op. cit., p. 296.
164. Ibid., p. 504.
166. Firdawsī, op. cit., p. 23.
168. Ibid., p. 322.
169. Ibid., pp. 318-319.
character and the ease with which it could be worn. It generally consisted of one or two mail hauberks or shorter haubergeons, covered in often richly decorated cloth. It could also be padded with felt, fur or other absorbent materials. Apparently regarded as "light equipment" when worn on its own, the kamik hand was often placed beneath other sorts of armour. Its shape and size could vary, although a relatively broad neck opening may have been normal, as in so many other respects this form of armour was made to look like civilian costume. Its origins are still unclear. Al Tarsüṣī, in the late 12th century, considered it to have been made by "those who become Arabs," that is the indigenous inhabitants of much of the present Arab world and perhaps even beyond.

Whether this term referred to a specific and separate type of armour is uncertain. It could have been a rigid or semi-rigid

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170. Sahā al Din, op. cit., pp. 245 and 329.


173. Usūmah ibn Mūqīdha, on. cit., p. 66.


175. Ibid., pp. 97-98.

176. Usūmah ibn Mūqīdha, on. cit., p. 46.


cuirass made from cuir-bouilli or, more probably, linked scales of a late-Roman type. Its construction was reputedly "perfected" by the Umayyads in the early 8th century. The Ṭāmat al ḫurṣ was also heavy and was worn by certain Crusaders under their mail hauberks. This could suggest a similarity with the equally mysterious 12th century European cuiries, cuirace or quiret, or the similarly troublesome early 13th century pocerian and the 13th century Kievan Russian pentair. Such an interpretation would certainly suit a later reference to the Ṭāmat al ḫurṣ, in which it was described as consisting of two pieces of armour, presumably for belly and back.

The Ṣābīnah

How the scale-covered Ṣābīnah differed from the dir is not entirely clear. Its name indicates its length. As it was on one occasion in the 7th century specifically described as covering the backs of the wearer's hands, the length in question

182. Oakeshott, op. cit., p. 270; Blair, op. cit., p. 38.
185. Al Aqārūī, op. cit., p. 83.
might refer to long sleeves. As such the ṣebeṣih may have corresponded to the 6th to 9th century. Byzantine ṣebeṣ, a knee or ankle length coat, with or without hood or coif, that could be made of leather or cloth or be covered with scales of cuir-bouilli or horn. The ṣebeṣih was also worn by some Crusaders, particularly by infantry.189

The zardIyān

ZardIyān appears to have been the normal term for a mail hauberk in the 12th century. It was clearly distinguished from the dir.190 It did not entirely fall apart when burned,191 formed the interior defensive element of a kazānhand,192 could be worn in two layers,193 and was clearly the most common form of armour among European Crusaders.194

The zirih

Most evidence points to the zirih being the Persian equivalent of the Arabic zardIyān mail hauberk and that the chief centres of zirih manufacture lay in the north-east and east of Iran.195

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191. Ibid., p. 243.
192. Usāmeh ibn Munqidh, op. cit., p. 100; Norris, op. cit., p. 97.
193. Usāmeh ibn Munqidh, op. cit., pp. 41-42 and 74-75.
194. Ibid., pp. 41-42, 74-75, 144 and 149; Bahā al Dīn, op. cit., pp. 106, 251 and 278; Ibn al Qalānī, op. cit., p. 342.
195. Allen, op. cit., p. 68.
It was of iron, was distinguished from the dir\textsuperscript{197} and could be worn under or over other forms of armour. The only major difference that may have set ziriha apart from their Arab zar\textsuperscript{198} or European mail hauberk counterparts was that some clearly opened down the front, this opening being fastened by straps and knots.\textsuperscript{199}

**Terminology**

badan - (or badanah - بدنة) "Haubergeon” or short hauberk,\textsuperscript{200} probably sleeveless (Arabic بدنة to become stout).

Mid-13th century Abbasid Caliphate\textsuperscript{201} وتناوله الناحي والبدنة

bughtaq - بغلتاق

Probably "quilted hauberk”,\textsuperscript{202} (Persian).

Early 13th century Northern India\textsuperscript{203} مختان و بغلتاق و برکستون

dir\textsuperscript{c} - درع

Generic term for scale hauberk\textsuperscript{204} (Arabic درع to skin a sheep).

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197. Ibid., pp. 23 and 1177.
198. Ibid., pp. 485, 953 and 1177.
199. Ibid., pp. 568-569 and 828.
201. Al Mas\textsuperscript{üd}i, op. cit., vol. II, p. 191.
203. Nub\textsuperscript{ar}akah\textsuperscript{n}, op. cit., p. 242.
gebar - کر

Probably "mail hauberk"205 (Persian, probably from Turkish
dühübe)

Late 10th century Khorasan206

jewab - برک

Generic term for lamellar cuisses207 (Persian)

jIwar - جبا

Unclear form of Indian armour208 (Persian, from Hindi जिखरा, life).

Early 13th century Northern India209

Jubbah - جبة

"Mail hauberk," probably fabric-covered210 (Arabic, from
Turkish دُحَبَة).

Mid-10th century Ābāsid Caliphate211

Late 13th-early 14th century Mamlūk Egypt212

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205. Wolff, loc. cit.
207. Fries, op. cit., p. 62; Biver, "Cavalry Equipment and Tactics on
the Euphrates Frontier," p. 275; Norris, op. cit., pp. 95-97;
Mayer regards the Jewab as being of mail reinforced with small
plates, Mamlūk Costume, pp. 37-38; Scanlon regards it as an
armour of mail, leather, iron or "hair," A Muslim Manual of
War, p. 125; and Wolff as a mail armour, op. cit.
208. McEwen, loc. cit.
210. Arcndt, "Sirgeron-Kubetschi," p. 188.
212. Al Aqqārī, op. cit., p. 331.
kamarband — کمربند

"plackart," probably lamellar\(^{213}\) (Persian).

Late 10th century Khurasan\(^{214}\)

kazənhand — کژن‌نده

(or qazəkəndəh — قزاق‌نده or kədənəhənd — کژن‌نده)

"Fabric-covered mail haubergeon,"\(^{215}\) (origin obscure).

Late 10th century Syria\(^{216}\)

Mid-12th century Syria\(^{217}\)

Late 12th century Ayyubid Syria\(^{218}\)

khaftan — کفتان

"Quilted coat," perhaps of leather\(^{219}\) (Persian).

Late 10th century Khurasan\(^{220}\)

Early 13th century Northern India\(^{221}\)

213. Wolff translates kamarband simply as a girdle or belt, loc. cit.


215. Mayer regards the kazənhand as a brigandine, Mamluk Costume, pp. 39-40. The most detailed discussion of this armour is by H. T. Norris, "The Hauberk, the Kazənhand and the Antar Rorpncc... a Journal of the Arms and Armour Society, IX (1978).


217. Usūmah ibn Munqidh, op. cit., p. 36.

218. Dāhā al Dīn, op. cit., p. 239.


220. Firdawsī, op. cit., p. 23.

*Ìmat al ĥarb - لَاءُة الْحَرْب*

Probably "coat-of-plates"\(^{222}\) (Arabic لَاءُة to close up a hole or tear).

7th century Umayyad Caliphate\(^{223}\)

*Early 8th century Caliphate*\(^{224}\)

and the ĥarb and *gargal* - قرظل

"sleeveless brigandino"\(^{220}\) (origin obscure).

*Late 10th century al Andalus*\(^{225}\)

*Mid-12th century Syria*\(^{226}\)

*Late 12th century Ayyûbid Syria*\(^{227}\)


"Long hauberk,\textsuperscript{230}" probably with long sleeves normally of scales (Arabic سبع to be abundant or long).

7th century Arabia\textsuperscript{231} على كل سابقة دراص

12th century Sicily\textsuperscript{232} وشياباغي كر سابقة كر

Late 12th century Ayyūbid Syria\textsuperscript{233} والزربديات السابقة الحكيمة

silāh - 
Generic term for armour\textsuperscript{234} (Arabic سلٍ to arm).

sirbāl - 
"Scale hauberk with raised collar\textsuperscript{235}" (Arabic سرنل to clothe).

Early 14th century Mamlūk Syria\textsuperscript{236} متي بدروم من صنعة سرابيل البدري

ṭalā - 
"Fire-proofed coat" for naft warriors\textsuperscript{237} (Arabic طالٍ to coat or varnish).

\textsuperscript{230} Rehatsek, "Notes on Some Old Arms and Instruments of War, chiefly among the Arabs," p. 233.
\textsuperscript{231} "Amr al Qays, Mu\'alaqah," in Rehatsek, loc. cit.
\textsuperscript{232} Amari, Biblioteca Arabo-Sicula, vol. II, p. 390.
\textsuperscript{233} Behā al Dīn, pp. cit., p. 251.
\textsuperscript{234} Wolff, loc. cit.
\textsuperscript{235} Al Aqbarā'ī, in, cit., pp. 327-328.
\textsuperscript{236} Ibid.
\textsuperscript{237} Ibid.
Early 14th century Mamluk Egypt

"Rigid or semi-rigid iron cuirass" (Persian).

7th-8th century Umayyad Caliphate

Late 10th century Abāsīd Caliphate

الشمال تنائي بين هذين

The following Crusader Syria

"Mail hauberk" (Arabic: زرد to strangle with a noose).

Mid-12th century Crusader Syria

والا مال كل واحد منهم على نفس رغبة الزردية

Mid 12th century Crusader Syria

والية زردية

Late 12th century Ayyūbid Syria

والزرديات السامية

238. Ibid.
241. Al ThaCalībI, loc. cit.
244. Usūmah ibn Mūqīḥī, op. cit., p. 36.
245. Bahā al Dīn, op. cit., p. 106.
zirih — زر

"Mail hauberk"246 (Persian).

Late 10th century Khurasan247

246. Rehatsek, "Notes on Some Old Arms and Instruments of War,

CHAPTER 7

LIMB DEFENCES

Armour for the limbs was an aspect of military equipment where the Muslim world was most obviously in advance of western Europe during the early medieval period. In this field Islam was at the same technological level as Byzantium. It may even have had the advantage, as Islam drew more closely on the traditions of Iranian and Turkish Central Asia where sophisticated limb protections had been known for a long time, as well as those of Romano-Hellenistic civilization.

Armour for the Arms

Arm protections were not universally worn by Muslim warriors. In fact, such pieces of armour were probably reserved for an elite of close-combat heavy cavalry. 1 Much the same was true of Byzantium and western Europe.

Two basic forms of arm protection were known, the ambrace or vombrace, and the kaff which seems to have been a type of pauldron or epaullette. While the former was probably of Transoxianian origin (Figs. 618, 428, 430, 440, 445 and 446), the latter may have corresponded to those flexible upper-arm defences, of leather with or without scale reinforcement, that remained characteristic of Byzantine armour from the 5th to 14th centuries (Figs. 95, 655 and 656). No true rerebraces seem to be mentioned in Islamic sources at this time, nor do they appear in any illustrated material from the Middle East until much later.

The ṣād would naturally be worn with full body-armour, such as the diq scale hauberk and mīnhār coif\(^2\) in the late 7th century, or ḫawṣān cuirass and diq hauberk in the 8th century.\(^3\) Such arm defences were of iron\(^4\) and may have been extended to give some protection to the back of the hand.\(^5\) By the early 14th century the ṣād was clearly strong enough to parry a sword cut\(^6\) and may thus have acted like the heavy bridle-gauntlets of 17th century Europe. It was held in place by laces, in the same way as a helmet.\(^7\) As such, these rigid Muslim vambraces (fīgs. 300, 430, 440, 443, 445–447, 631, 641 and 651) were quite different from a type of flexible lower arm defence that may have been used in western Europe from the late 11th century.\(^8\) The arm defences recorded in al-Andalus in the 10th century\(^9\) could, however, have been of these latter European flexible types as there is no evidence of rigid vambraces in Spanish pictorial sources.

The kaff was clearly not the same as the ṣād in the 10th century\(^10\) and, as stated above, it may have corresponded to arm

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5. Leo, op. cit., Inst. XVIII.
defences widely worn by Byzantine troops. Probably rarer in Islam than in its Christian rival, this *kaff* could be made of iron but may not generally have been so. The one reference that specifies a *kaff* of iron states that it was worn by an 8th century Muslim warrior from Syria, a region still under strong Byzantine influence. In fact, this particular *kaff* could be—and indeed was—cut off by a sword-blow. Evidence from 12th or 13th century Georgia, where the *kaff* was known as the *kap'hi*, suggests that such Middle Eastern pauldrons were of lamellar. As such they would surely correspond to those epaulette-style defences that appear so frequently in Islamic and non-Islamic illustrated sources from the Muslim world (Figs. 122, 134, 141-143, 175, 213A, 241A-C, 242, 246, 248, 249, 267, 294, 305, 414, 421, 447, 606, 608 and 641). Specimens from the 7th to 12th centuries would mostly seem to be of Byzantine inspiration, although those from the extreme east of Islam and from the later 12th and 13th centuries probably represent parts of a lamellar *jawshan* cuirass.

13. Ibid.
kaff - كف

"Pauldron or epaulette"\textsuperscript{15} (Arabic كف to hem or overfill).

Early 8th century Umayyad Caliphate\textsuperscript{16}

وعلى كف كف من هديد

al-druug al-sawalqah al-mafadiwc al-thah minha sawadha wa alkia كمغشا

kumh ghishant -

"Decorative sleeve" of silk brocade or leather to stop bowstring snagging on armour\textsuperscript{18} (Arabic غنّ to repair clothes).

Early 14th century Mamlük Egypt\textsuperscript{19}

أوّبتنن لكّته غنّان من ديباج

saad - ساعد

"Vanbrace"\textsuperscript{20} (Arabic ساعد to help).

Late 7th century Umayyad Caliphate\textsuperscript{21}

عليه الدروع و هفظ و الساعدان

Early 9th century Iraq\textsuperscript{22}

ولالثوذ ولا السواعد

\textsuperscript{15} Al Karmallı al Baghdädı considers the kaff to be a gauntlet, Al Ikilî, pp. 255-257; M.S. Wardrop translates the comparable Georgian keph'hi as shoulder or upper-arm defences, The Man in the Panther's Skin, (London 1912), verses 426, 998 and 1392.

\textsuperscript{16} Al Tabari, op. cit., vol.II, 1402.

\textsuperscript{17} Al Hamdanlı, Al Ikilî, p. 255.

\textsuperscript{18} Al Aqqaşā'I, op. cit., p. 322.

\textsuperscript{19} Ibid.

\textsuperscript{20} Wolff, loc. cit.; Fries, op. cit., p. 63.

\textsuperscript{21} Al Tabari, op. cit., vol.II, p. 998.

\textsuperscript{22} Al Jāhiz, Al Bayān wa'l Tabyīn, p. 15.
Early 9th century Khurasan

Mid-10th century Yemen

Late 10th century Khurasan

Early 14th century Mamluk Egypt

Armour for the Legs

This aspect of armour should, strictly speaking, exclude tassots which hang from a cuirass and which would normally have been of lamellar in the Muslim world. Unfortunately, it is not always clear whether a term refers to a tasset or a thigh-covering cuish. Protections that certainly were attached directly to the legs would, in European terminology, been known as chausses, greaves or cuishes. Poleyns and sabatons do not seem to have existed in the Muslim arsenal at this time.

A form of leg protection known as the san seems to have been used throughout the period under review in many parts of the eastern Islamic world, though perhaps remaining rare. Some, or perhaps all, were fastened to a belt by iron hooks. Although

25. Firdawsi, op. cit., p. 301.
those referred to by al Ḥababī were of mail, their shape may have corresponded to leggings which, drawn up over the wearer's knees and presumably fastened to a belt, feature in many illustrated sources from the east (Figs. 18, 126, 233, 237, 300, 307, 313, 331, 334, 341, 342, 356, 359, 365, 400, 422, 469, 477 and 623).

Quite where this specific form of protective legging originated is not clear. The pictorial evidence would suggest Central Asia, but defensive leggings were also common in T'ang China. Mail chausses are shown in Central Asian art (Figs. 428 and 438) but also appear in Iran, Byzantium and both Christian and Muslim western Europa (Figs. 213A, 257, 275, 342, 354, 517, 542, 543, 549 and 551G). Leg defences of various sorts were standard equipment for many Byzantine cavalry, and similar armours were certainly used by the Muslims in the 9th and 10th centuries. Mail chausses were probably also those that were reported in al Andalus in the same period.

In the 12th century, in Syria, a particular style of mail chausses seems to have been used. But the fact that they were

28. Ibid.
31. Leo, op. cit., Inst. XVIII; Abū Firās, in Wormhoudt, op. cit., p. 32.
associated with the Crusaders, and the fact that the root that lay behind their Arabic name could mean to "apply plaster to something" suggests that these kalaät zarad wore mail chausses laced only over the front of a warrior's legs. Such styles were used in 12th and 13th century Europe (figs. 590 and 594), but in Islam they may have been limited to Syria where arms and armour frequently changed hands as booty between Franks and Saracens.33 A possibly important illustration of 12th century mail chausses in use, probably from Egypt, has recently been published (fig. 679). This ceramic fragment is, however, open to a variety of interpretations.

Boots, or perhaps shin-covering horsemen's gaiters, known as khuff, could have had some protective function (figs. 157, 178A, 204, 320, 321, 346, 347, 349–351, 419 and 651). They were certainly wide and probably ended at the knees so that some weapons such as daggers and battle-axes could be held in them.34 Similarly the khuff was occasionally worn over anqa leggings.35

33. Usamah ibn Munqidh, op. cit., p. 149.
35. Usamah ibn Munqidh, loc. cit.
Terminology

kalaet zarad - كلازت زرد

"Mail Chaussees,"\textsuperscript{36} probably for shins only (Arabic كلاز to plaster a house).

Mid-12th century Syria\textsuperscript{37}

khirāmkash - خرامکش

Possibly "Infantry armour for groin and thighs"\textsuperscript{38} (Persian).

Early 13th century Northern India\textsuperscript{39}

khuff - خف

"Riding boots"\textsuperscript{40} (Arabic خف to be brisk).

Early 6th century Umayyad Caliphate\textsuperscript{41}

Mid-12th century Syria\textsuperscript{42}

Early 14th century Mamlûk Egypt\textsuperscript{43}

\begin{itemize}
  \item \textsuperscript{36} Mayer, \textit{Mamlûk Costume}, p. 37.
  \item \textsuperscript{37} Usāmah ibn Munqidh, \textit{op. cit.}, p. 149.
  \item \textsuperscript{38} Khwandarī, \textit{op. cit.}, p. 339.
  \item \textsuperscript{39} Mubarakshāh, \textit{op. cit.}, p. 339.
  \item \textsuperscript{40} Mayer, \textit{Inc. cit.}.
  \item \textsuperscript{41} Al Ṭāhārī, \textit{op. cit.}, vol. II, p. 1093.
  \item \textsuperscript{42} Usāmah ibn Munqidh, \textit{op. cit.}, pp. 51-52.
  \item \textsuperscript{43} Al Aṣḥāb, \textit{op. cit.}, p. 319.
\end{itemize}
"Chausse without feet" (Persian, possibly from Indian) 44
Late 12th century Ayyübid Syria 46
وژرات مدیت
Early 14th century Mamlük Egypt 47
اين بکون السراح والبهامنه والرانت
ساق -
"Chaussea" (Arabic to have a stem, of a plant).
Late 7th century Umeyyad Caliphate 49
وسوق س زرد
Mid-12th century Syria 50
وضرب مزة امره بنشابة في ساقه
Early 14th century Mamlük Egypt 51
ابسه مثل بئضه و ساقين

44. Massé, op. cit., Glossary.
46. Imäd al Din, op. cit., p. 68.
47. Al AqārātI, op. cit., p. 319.
50. Usāmah ibn Munqidh, op. cit., p. 52.
CHAPTER 8

HELMETS

The helmet may have increased in importance in the Middle East following the first wave of Arab conquests. Certainly this item of equipment was more noticeable in Byzantine armies of the 9th and 10th centuries than it had been previously, probably as a result of Muslim military pressure. Given Byzantium's poverty in metal resources, one may assume that a similar importance was given to helmets in the relatively iron-rich world of Islam. Various forms of head protection are frequently mentioned in Muslim sources throughout the period under review, while a variety of terms were used to describe a comparably varied collection of helmets. Add to this the fact that a helmet was on one occasion listed as worth only slightly more than a hauberk, and it might appear that helmets were about as common as these other forms of armour.

While there is plenty of evidence to show that many Muslim helmets were gilded, just as they had been in Rome, and still


were in Russia, or could be covered in a shagreen leather decoration, there is less information concerning their precise construction or shape. Such details may, however, in part be deduced and in part guessed.

The baydah

This "egg-like" helmet was probably round rather than pointed. It may, of course, have had an oval or domed shape but is unlikely to have been of a segmented, spangenhelm, construction. The latter system generally produced a more pointed outline than the two-piece helmet of late-Roman or Persian "Parthian Cap" type. These latter two fashions (Figs. 9, 40, 56, 85, 94 and 610) are likely to have corresponded to the original Arab baydah, though there is little reason to suppose that this term was not used more broadly in later centuries. A surviving helmet of very uncertain date from Tunisia could show that this form of construction, in which the constituent parts were joined fore-and-aft, persisted well into the Middle Ages (Fig. 191). An extension to protect the wearer's neck on this particular North African helmet might, perhaps, be the debirah or rear of a baydah helmet which itself could be fastened to a hauberk. A very similar neck extension is illustrated in an astrological manuscript from Morocco, dated 1224 AD (Book of Fixed Stars, by al-Safar, Vatican Lib., Ms. Ross 1033, f.6), although here it is fastened to a spangenhelm. Nor would references to the baydah being festooned with rivets necessarily contradict the above interpretation.

Rivets were, of course, used in large numbers to construct many "Parthian Cap" helmets, though less so in late-Roman styles.

A wider use of the name baydah, or perhaps a later fashion of adding decorative spikes or plumes, could account for the fact that in the early 14th century a warrior was advised to remove his baydah helmet before trying to take off or put on a headdress.

The baydah was also large enough to be worn over a sash or coif. It could be held in place by straps or laces, though whether these went under the chin or were drawn around the temples and tied at the back is not clear. Both systems were known in Byzantium and western Europe, but the latter seems to have been more popular in the Middle East, perhaps being comfortable in hot weather (Figs. 119, 216, 330, 331, 337, 340, 348 and 445).

Round helmets, with or without fixed or removable neck-guards, brims or other extra features, are very common in the 7th to 13th century art of the area under study, even if one excludes those of apparent segmented construction (Figs. 13, 132, 134, 176b, 190a, 196, 201, 207, 211, 220, 235, 251, 256, 291, 292, 300, 316, 331, 337-339, 367, 378, 392, 401, 410, 419, 422, 447, 494, 515, 520, 524-526, 545, 560, 597, 604M and 610).

10. Ibn Hudhayl, _loc. cit._
13. Qasárir, _op. cit._, pp. 67-70; al Asqarî, _op. cit._, p. 320; Anon., _The Song of Roland_, verses 55 and 79.
The tork

This form of helmet has a variety of similar names, such as a tork, torkt, torkih and torg. Unlike the bnydah, it was probably a true spangenhelm or may have been built up of directly riveted segments. This latter system was known in early medieval Europe and tended to rise to a very sharp point (figs. 100, 101, 614 and 617). The framed spangenhelm, which was better known in a European context, was, however, likely to have been included under the title of tork. Specimens of iron or bronze spangenhelm frames and iron, bronze or horn segments have been discovered in various parts of the world. Archeological evidence and that of illustrated sources do, however, show that this style of helmet probably had an eastern Mediterranean or Central Asian origin.

It has, in fact, recently been suggested that the very similar name Turk, referring to a specific Central Asian linguistic group of peoples, could have sprung from an Old Turkish term for a helmet of unspecified type. On the other hand, the particular style worn by many late Sassanian warriors could have been of 6th century Byzantine inspiration (figs. 16, 41, 55, 93, 101 and 330) which would not, of course, contradict an ultimate Turkish origin.

16. Ibid.
Documentary evidence suggesting that the tarīkah was a segmented helmet includes descriptions that refer to its "stripes", torrīqīn,20 or hubuk,21 and its "onion-like" appearance.22 The latter feature could refer both to an overall shape of a helmet that rose to a point and to its closely spaced vertical segments. Although Ibn Hudhayl is uncharacteristically unspecific about the helmets of 14th century al-Andalus, he does suggest that all these various forms of tarīk were similar to a rabi'īnākh,23 which was almost certainly a four-segment spongeshelm.

Other sources of information state that the 10th century ḵurāsānī tarīq or tarīk was heavy and could gall its wearer's head,24 and that it could be made of steel.25 Although there are exceptions, most of the available pictorial evidence for segmented helmets tends to be rather unclear (Figs. 119, 124, 127, 132, 140, 155, 173, 185, 209, 218, 219, 250, 266, 282, 347, 355, 420-431, 439, 444-446, 454, 463, 464, 478, 479, 490, 506, 517, 536, 540, 577, 581, 567, 606 and 641).

The Minḥfar

The minḥfar was a separate coif. It may not necessarily have always covered the chin or the front of the neck, as would

22. Schwarzlose, loc. cit.
25. Ibid., p. 956.
be normal in later medieval Europe, nor must it necessarily have been of mail. Some of the earliest types were probably of leather. 26 Such a reasonably sturdy leather head-covering has, in fact, been excavated in an 8th century Alano-Saltov site in the northern Caucasus 27 (Fig. 4110). Although this lay outside the frontiers of Islam, it was within the wider Iranian cultural world and may well have had parallels within Islamicized Iranian provinces to the south.

Some minifera might, even in the early days, have been covered with scales, being structurally similar to the dir hauberk. Such coifs may, in addition, have still been used in 14th century al Andalus. 28 Various other types of minifar were, of course, known, including those of mail 29 and those covered in decorative silk. 30

All these coifs seen to appear in the art of the area and the period, although many such representations are exceptionally difficult to interpret (Figs. 175, 1788, 214, 257, 250, 208, 300, 306, 336, 439, 451, 580 and 597). Fighfara drawn across a warrior's face were also characteristic of many regions in a variety of centuries.


30. Ibid.
in the Muslim world,\(^{31}\) as they were of Byzantium in the 10th century.\(^ {32}\) Such a fashion is confirmed by surviving pictorial sources (Figs. 1788, 259, 300, 422, 429, 431, 433, 440, 462, 515, 519, 521, 523, 525, 537, 540, 545, 548 and 641). Unfortunately it is not always possible to state with certainty that any particular illustration shows a coif rather than a face-covering aventail\(^{33}\) of a type that would appear on many of the earliest surviving Muslim helmets (Fig. 266). \textit{Mihfara} could also be laced to a hauberk,\(^ {34}\) just as later aventails seem to have been. Coifs of mail would, however, have been more suitable in such a situation as their greater flexibility would not have hindered the wearer from turning his head as a leather-based coif might do.

Mail defences, \textit{mihfara} or \textit{zardiyeh} coifs, \textit{chehshak} or \textit{airsh} aventails,\(^ {35}\) or \textit{airran} throat-covering gorgets,\(^ {36}\) all appear in the pictorial sources and seem to have been quite widespread (Figs. 122, 146, 220B, 292, 422, 428, 430, 435, 445, 446, 447 and 507).

But which of the various forms of \textit{mihfara} corresponded most


\(^{35}\) Furbankshâh, \textit{op. cit.}, p. 252; Firdawsī, \textit{op. cit.}, pp. 59 and 725; Ayvâl, \textit{op. cit.}, verse 710.

\(^{36}\) Firdawsī, \textit{op. cit.}, p. 818.
closely to the contemporary Byzantine skêplion is difficult to say, although one may assume that the ndhfar and skêplion did fulfill the same function. They may even have had similar origins and probably embraced the same variety of structural materials (Figs. 201, 220A, 228, 236, 251, 625 and 636).

What is almost certain, however, is that while both Muslim and Byzantine warriors made extensive use of such detachable coifs, their contemporaries in western Europe did not adopt this item of equipment until the late 11th century. The separate coif was not, in fact, to become widely popular in the West until the late 13th century although it might have been adopted somewhat earlier in Italy and Spain. Any such trend strongly suggests that the separate mail coif, primarily a defense against arrows, was introduced into Europe either from Byzantium or from the Muslim world or perhaps from both (Figs. 551 and 590).

The khûd

The khûd, khûsh or khûdah was probably of Persian origin. Some authorities consider it to have been synonymous with the Arabic ndhfar, and as such to have been a coif. Elsewhere it is made clear that these helmets were worn with coifs or aventails, siragh, chashmah or lithâm, but were not synonymous with any of

38. Blair, op. cit., p. 27.
39. Ibid.
40. Terenzi, op. cit., p. 96.
them. One such source states that a khūdhah islāmiyah had a solid tariq or nasal that could be bent but not broken by a javelin. This strongly suggests an iron helmet. Elsewhere, however, the khūdh is specifically described as being made of cuir-bouilli hardened leather. A third source could suggest that the helmet's construction included leather as it needed to be dried out rapidly if ever dropped in water.

Al Tarqūšī's instructions for making a khūdh of cuir-bouilli show that its pieces were moulded, just as were the individual lamellae of a cuir-bouilli jawshan. He does not, unfortunately, indicate the precise shape and size of these pieces. Perhaps they were scales, for such helmets seem to have existed in medieval Islam, although some of the illustrated material could indicate mail (Figs. 65, 241, 420, 432, 447, 455, 578, 581, 629 and 651). On the other hand, segments of cuir-bouilli may have been riveted to an iron frame, thus forming a spangenhelm. Thirdly, a cuir-bouilli khūdh may have been moulded almost in one piece with, perhaps, a separate neck-guard. Elsewhere the khūdh and presumed spangenhelm t'rk are, however, clearly distinguished. Nevertheless, a Saracenic warrior in a khūdhah helmet could be mistaken for a Crusader.

45. Firdawsī, op. cit., p. 344.
46. Mayer, Mamluk Costume, pp. 36-48; Robinson, Oriental Armour, p. 131.
47. Firdawsī, op. cit., pp. 369-370 and 431.
among whose comrades spangenhelms were clearly popular. 49

Taken altogether, this evidence need not contradict the
suggestion that the khūd was essentially comparable to those
generally low-domed, rounded or slightly pointed helmets with
large neck-guards that appear in Persian and other pictorial sources.
Their Sassanian origins are almost certain, and their gradual
spread westwards corresponds quite closely to the spread of the
khūd as indicated in the literary sources (Figs. 40, 50, 51, 53,
153, 175, 180, 196, 209, 210, 220, 222, 224, 230, 241, 249, 256,
276, 292-294, 305, 306, 316, 335, 378, 392, 410, 416, 419, 421,
422, 447, 471, 474, 480, 484, 534, 571, 580, 597, 603, 606, 608,
6090, 634, 642, 645 and 651).

Their shape could equally suggest, though by no means confirm,
a cuir-bouilli construction. At this time inadequate metallurgical
technology would surely have limited the large-scale production
of helmets beaten from a single sheet of iron although, of course,
such helmets were known to exist in various parts of the world.
The fact that such presumed khūd helmets were often painted blue
in various manuscript illuminations similarly need not prove that
most were of iron. They also appear in a variety of colours and
occasionally have fanciful shapes that make a metal construction
most unlikely.

Parts of a helmet

The 'innf or nasal is mentioned rarely, although it did form
an integral part of some Muslim helmets, including a haydak 50

and khūdāh inšāniyāh. Other, less specific, references also hint at its wider existence. Similarly, it is rarely illustrated in Islamic and neighbouring art. Al Andalus from the 11th century onwards is a clear exception, as here the nasal was as common as in the rest of western Europe. Even when it does appear in pictorial sources, the nasal often seems to be a very rudimentary form of protection (Figs. 105, 202, 211, 250, 258, 276, 355, 420, 429, 446, 447, 462, 463, 497, 597, 604N and 604O).

Cheek-pieces may have been referred to as ṭabād in 7th century Arabia where they might still have been used, as they apparently were in Visigothic Spain. Soon, however, cheek-pieces were largely abandoned, judging by the pictorial evidence, and in fact their continued portrayal in a few later sources may be little more than an artistic convention. By the early 14th century, however, an entirely new form of protection for the side of the head seems to have appeared (Figs. 13, 45, 67, 90, 91, 190A, 354, 360, 410, 423, 429, 431, 433, 439, 440, 447, 448, 553 and 643).

Various forms of helmet crest and plumes are more obvious, in both the written and illustrated material. The term ḥammūs could, perhaps, refer to the crown or comb of a ḥawdāh, tārīk or tārīkāh helmet, or may indicate a decorative spike or crest. The word itself probably stems from the Greek charnus or point, although

55. Fries, op. cit., p. 59.
such an origin would bear little relevance to those decorative plates for the fronts of helmets that became fashionable in 13th and early 14th century al-Andalus.\(^56\) (Figs. 545, 547, 659 and 661). It would, however, more suitably apply to decorations resembling the ears and mane of a horse that seem sometimes to have been worn in the Umayyad east.\(^57\) Various forms of point or crest were apparently popular in the Middle East and Central Asia in these early centuries (Figs. 122, 211, 340, 360, 420, 447 and 462). The term "mawas" may indeed have come to refer to all such items.\(^58\)

Plumes are easier to pin down. In 10th century Khurasan they were known as "par mantiz.\(^59\) They are also very common in the pictorial sources. This is particularly true of the eastern regions, both Islamic and non-Islamic, from where the tall helmet plume or feather may have spread west as part of a general adoption of Persian or Central Asian military fashions (Figs. 610, 67, 90, 91, 196, 330, 422, 439, 455, 464, 574 and 651).

How far contact with the Muslim world encouraged the readoption of various forms of helmet decoration in late 12th century Europe is unknown, but it may have had some influence.

Terminology

HELMETS AND COIF'S

baydah - بيدار

"Egg-shaped helmet"\(^\text{61}\) (Arabic بيدار, egg).

7th century Arabia\(^\text{62}\)

Late 7th century Umayyad Caliphate\(^\text{63}\)

Early 8th century Umayyad Caliphate\(^\text{64}\)

Early 9th century Abbásid Khurasan\(^\text{65}\)

Late 11th century Sicily\(^\text{66}\)

Late 12th century Ayyūbid Syria\(^\text{67}\)

Early 14th century Mamluk Egypt\(^\text{68}\)

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67. ʿImād al ʿDīn, op. cit., p. 23.

68. Al Aqqārī, op. cit., p. 319.
chashmak

Probably "Aventail"69 (Persian).

Early 13th century Northern India

khūd - (or khūdh - ḥūd - or khūdāh -ūdā) "Helmet"71 (Persian).

Early 9th century Abbāsid Iraq72

Mid-10th century Khazar73

Late 10th century Khūrasān74

Mid-12th century Crusader Syria75

Mid-12th century Syria76

Late 12th century Ayyūbid Syria77

69. McEwen regards the chashmak as probably a visor, op. cit., p. 67.
70. Nubārakshāh, op. cit., p. 252.
71. Mayer, Kus'uwuk Costume, p. 37.
73. Ibid., vol. II, p. 10.
74. Firdausī, op. cit., p. 23.
75. Ibn al Qalūnisī, op. cit., p. 342.
77. Bahā al Dīn, op. cit., p. 106.
Early 13th century Northern India

kūlāh - کُلَح

"Highly decorated helmet" (Persian).

Late 10th century Khurasan

minhāf - مِخْنَف

Generic term for coif (Arabic غرف to hide something).

terk - تُرْكَ (or tarīk - تَرْيَكَ or tarīkah - تَرْيَكَه or târīk)

Probably "Spengenholm" (Possibly from Old Turkish ṭukūs, helmet).

Late 10th century Khurasan

مَزْدِ بر سِرْش تِرکا كَرِد فَرِد

Mid-12th century Zangid Syria

References:

78. Mubārakshāh, op. cit., p. 265.
79. Wolff, loc. cit.
81. Schwarzlose considers the minhāf to be a helmet, originally of leather, op. cit., pp. 341-342 and 350; Rehatsak agrees, "Notes on Some Old Arms and Instruments of War, chiefly among the Arabs," p. 253.
84. Firdausī, op. cit., p. 59.
85. Al Ṭārābūsī, in Ghaith, op. cit., p. 89.
Late 12th century Ayyūbid Syria

PARTS OF A HELMET

 إنف – انف 

 "Nasal" (Arabic انف to hit on the nose).

 Early 8th century Umayyad Caliphate

 بالسيف فقط انف البيضية

 Early 12th century Syria

 فرَغَت الزيادة في انف النوخذ فأانقوى

 أطواق -

 Probably "Aventail" (Arabic طوق necklace or collar).

 Early 14th century Mamlûk Egypt

 سرابيل الحديد وأطواقها

 أقباس -

 "Helmet covered in shagreen leather" (Arabic دبس to conceal).

 Late 11th or early 12th century Fatimid Egypt

 والدبابيس الكبيرة الأثير

87. Frias, op. cit., p. 59.
91. Ibid.
dabrīrah - "Dārīrah" (Arabic, to turn back).
7th century Arabia

gīrabān - "Gīrābān" (Persian, probably from gīrīmān).
Late 10th century Khurasan

litham - "Litham" (Arabic, to muffle the voice).
Mid-12th century Syria

par satīz - "Par satīz" (Persian).
Late 10th century Khurasan

94. Schwarzlose, op. cit., p. 349.
95. Ibid.
96. Wolff, loc. cit.
98. Firdawsi, op. cit., p. 818.
100. Usāmah ibn Munqidh, op. cit., p. 46.
cawnas - قوَّنِس
"Crest, crown or comb" of helmet103 (Arabic, from Greek chonos).
7th century Arabia104
ودنى رونق عصب يقدّ القدنسا
Early 8th century Umayyad Caliphate105
ببيضة ذات قوَّنس
Late 12th century Ayyūbīd Syria106
وربقة قوانس قوامسه
sar - سَر
"Comb or crown of helmet"107 (Persian).
Late 10th century Khurasan108
بكي تبغ رد بصرتراك اوف
siresh - شَرَش
"Coif or aventail"109 (Persian).
Late 10th century Khurasan110
بزدرك سرش ترکرا كر فرد
11th century Azarbayjan111
بيل طلمه باگند نوز از سرش

103. Fries, op. cit., p. 59.
104. Schwarczlose, op. cit., p. 351.
106. ʿImād al Dīn, op. cit., p. 106.
111. Ayyūqī, op. cit., verse 710.
SHIELDS

Shields were more varied in the world of Islam than in early medieval Europe. Some were made of laminated wood, or of wood covered in leather, or of hardened leather alone. A few seem to have been partly of metal. Finally there were a variety of shields made from reeds or cane.

Large Round Shields

The turn seems, strictly speaking, to have been a large round shield of wood.

It almost certainly stems from the Byzantine thureos shield which, in the 9th and 10th centuries, appears to have had a diameter of approximately 75 centimetres for infantry, 65 centimetres for cavalry, plus a large central boss. The turn itself may generally have been made of laminated wood, sometimes reinforced with cotton thread, with a simple horizontal grip. It is likely to have been at least as large as the Byzantine thureos, since infantry could "cover" themselves with it in siege warfare in the 7th century. It was also convex enough to carry water from a stream, though in this latter case its large metal

boss over the hand-grip may have provided a more effective container\(^5\) (Figs. 12, 31 and 39). Such a pronounced metallic boss is probably referred to in a late 10th century poetic metaphor which compared a tūrā tābātīyah to a tall palace set in gardens.\(^6\)

Large round tūrā shields seem to have been employed by the renowned infantry of Daylam before they adopted longer, kite-shaped shields or mantlets\(^7\) and, like these later styles, the Daylamī tūrā was even then carried into battle by a younger shield-bearer.\(^8\) Perhaps these were the large shields of Gilān, a province neighbouring Daylam, that were mentioned in the early 11th century Shāhānshāh.\(^9\)

Plane-wood and, above all, poplar had long been used for the manufacture of shields in the Middle East and Central Asia. A laminated construction seems to have been preferred\(^10\) and, as in early medieval Europe, such shields were often covered in leather. This was probably a protection against the weather and also provided a better surface for subsequent decoration. Whether or not the various forms of wooden jinnah shield,\(^11\) also known as jinnīn,

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who normally so covered is impossible to say. One example, carried by an Ayyûbid infantryman in the late 12th century, does, however, seem to have been protected by a layer of ostrich skin. Similarly, it is far from clear how one distinguished between the versions of Junnah and the basic turjm. Illustrated sources can, of course, rarely indicate the precise structure of a large round shield. They do, however, show that a great many designs were used. Some had a single central boss, others four smaller bosses that clearly held interior straps or grips. Yet others had no visible bosses at all. A few even seem to have been given decoratively scalloped edges, although shields such as these may have been of cane or reeds (Figs. 19, 20, 76, 127, 146, 163, 165, 196, 198, 210, 220, 221, 230, 243, 257, 262, 269, 330, 387, 390, 392, 412, 420-422, 425, 454, 502, 515, 518, 531, 536, 537, 543, 580, 581, 598, 606 and 623). An oval style of shield also seems to have persisted in some areas. Perhaps it was directly related to a similar late-Roman form, while it might also have been the style from which the later kite-shaped shield developed (Figs. 123, 190A, 196, 212, 220A, 257, 354, 504, 509, 531, 543 and 564).

There is no written evidence to indicate that these large round shields were hung from a guige by many Muslim cavalry, except in 13th and 14th century al Andalus. This additional strap was, however, only essential when a warrior used the couched lance style of combat. Although, as mentioned earlier, this European fashion of fighting was occasionally adopted in the Middle East during the 12th and 13th centuries, it never achieved widespread

favour in any Muslim region except al Andalus (Figs. 199, 243, 267, 330, 422, 530, 531, 534, 537, 543, 545 and 606).

**Small Round Shields**

Small hand-held shields, generally referred to as *darnah*, seem to have become increasingly popular in the early medieval Middle East. They were of a type later known in Europe as bucklers and were primarily the defence of a swordsman. As such, their increasing importance is likely to have reflected a more widespread use of swords by all ranks, from the cavalry elite to the humble foot-soldier, in the period under review. It is also interesting to note that while the Arabic term *turn* probably stemmed from the Greek *thureos*, the 9th century Byzantine *dorka* naval shield was almost certainly adapted from the Arabic *darnah*.

Like so many other Muslim terms, *darnah* came to be used in a very general sense, but does originally seem to have referred to a small, distinctly convex, hand-held and normally leather buckler.\(^{15}\) It was generally held by a swordsman, either on foot or on horseback,\(^ {16}\) though it was also recorded in the hands of lancers.\(^ {17}\)

\(^{14}\) Haldon, "Some Aspects of Byzantine Military Technology from the 6th to the 10th centuries," p. 34.


In addition, there were other leather shields in use in various areas of Islam from the 7th to 13th centuries. The differences between these and the daranah are, unfortunately, not always very apparent. They include the nbaar, which may have been a peculiarly Andalusi type, the lnmh which seems to have included various shapes and sizes of shield, all made in the Manhrib, the muhdanib which might have been even more convex than the standard daranah, and the niin-i karh which was supposedly of rhinoceros hide and probably came from India (see Terminology). Elsewhere, the term tura was also used to include shields of leather, at least by the early 14th century.\textsuperscript{18} It is worth noting that those highly characteristic "kidney-shaped" shields of 13th century and later Spain and Morocco still seem to have been referred to as daranah, their Spanish name of adaro clearly stemming from this same root.\textsuperscript{19} The origin of this singular style is, however, unknown. It might have developed from earlier, roughly kite-shaped, leather shields with slightly indented top edges that were seen further east (Figs. 72, 73, 269, 526, 532, 545, 606, 659 and 661).

The daranah could also be of metal,\textsuperscript{20} though in early centuries it is likely to have been a metal-covered shield, as were in all probability the fire-proofed tura shields of Mamluk

\textsuperscript{18} Al Aqbarī, op. cit., pp. 326-327.


Early references to metal shields may, in fact, relate to wooden shields with extensive metal frames, reinforcements or oversized bosses, as were known in late Roman and Sassanian times. It was most unlikely that steel shields were produced until much later, although the existence, from the 11th century onwards, of a form of bronze buckler in eastern Islam has recently been convincingly argued by Dr. Melikian-Chirvani. Nevertheless, the fact that these objects (Figs. 308C to 308G) might have been oversized shield-bosses rather than merely having a wooden, leather or bound cane backing does not seem to have been given adequate consideration in his argument. This possibility surely demands greater attention as Dr. Chirvani has already suggested the same where a smaller group of similar, though far more flimsy, brass objects is concerned.

Pictorial sources for small, hand-held shields, some almost flat while others are extremely convex, are to be found in almost all those regions and periods under consideration. Such were clearly the most popular type of shield available.

Shields of Reed and Cane

Shields made of reed or cane had been used in the Middle East since pre-historic times. A magnificently preserved rectangular Sassanian example was excavated at Dura Europos (Fig. 38). Comparable shields may well have been used in Persia and Iraq until the time of the Muslim conquest, but whether the reed shields of pre-Islamic Arabia were of this rectangular type, or were of the probably round pre-Islamic Turkish Central Asian variety, is not known. A rectangular version did, however, almost certainly survive among the poorer people of Iraq who reportedly made shields of rushes reinforced with pitch and sand in the 9th century. Whether or not the bamboo shields of the Khulj Turks of western Tibet, four centuries later, were of a crude rectangular type or were of the finer circular variety used by their Mongol contemporaries is equally unknown. These latter circular shields were light, strong and were bound with silk threads to make beautiful patterns. They were particularly suitable for horse-archers by whom they were, of course, used throughout much of the Ottoman Empire in a later age. Many such Ottoman shields survive to this day in the museums of both eastern

27. Kalus, loc. cit.
30. Minhāj al Din, op. cit., p. 566.
Europe and the Middle East.

Mantlets

Large rectangular shields of cane or reed should, perhaps, be regarded as mantlets. This type of shield was tall and was used by infantry who would normally rest it on the ground. Of course, larger types of turak could, and indeed were, used in this fashion and were even lashed together to form a temporary breastwork. In al Andalus a presumably tall, man-covering daranah kanmilin (Fig. 545) was used in a comparable manner by infantry, in which each man's protection overlaps that of his neighbour, drawn up in ranks, probably to form a shield-wall. From Iran and India came a series of barely distinguishable shields that were probably either true mantlets or large infantry shields, since all were to be used in siege and counter-siege. These included the chakh or sipir-i chakh, the qardah and the sipir-i farakh.

One form of large infantry shield that was clearly designed for use as a mantlet was the late 12th and 13th century jamuu in. Al Tarsus described it as basically similar to the kite-shaped tarinah, though having a flattened base so that it could be placed on the ground to make a shield-wall. Fortunately, we have

34. Al Turtushi, op. cit., pp. 308-309.
38. Ibid.
illustrations of such shields from just the correct time and place. Other pictures could indicate that this type of specialized infantry shield was of Persian, Doylas or Armenian origin. The latter possibility might explain the known popularity in Egypt and Sicily shortly after the fall of the Fāṭimid Caliphate that had for long relied on large numbers of Armenian mercenaries (Figs. 166, 246, 372, 582 and 604).}

**Kite-shaped Shields**

The highly specialized and its contemporary, the ūru, lead one to the much-debated problem of just where such kite-shaped shields originated. It is widely believed that these shields were one of the earliest original developments in western European arms and armour, and that they were copied by the Byzantines in the late 10th, 11th or even 12th centuries. Elsewhere, it has been pointed out that this kite-shaped shield appeared in 11th century Russia and Spain, though not necessarily independently, but may have first been seen in Mediterranean Europe. Most sources note that oval shields had long been known in the Byzantine world, but apparently see little or no link between these and the


41. Hoffmeyer, *Arms and Armour in Spain, A Short Survey*, pp. 139-140.

larger kite-shaped, so-called "Norman," shield.

What are not mentioned are a whole series of smaller, often hand-rather than arm-held, kite-shaped shields, many of which have rounded rather than pointed bases, which could provide a logical link between the ancient oval shield and the heavy European kite-shaped cavalry shield of the 11th and 12th centuries (figs. 149, 154, 159, 161, 204, 2200, 227, 267, 301, 392, 393, 415, 422, 464, 510, 514, 515, 521, 523, 524, 527, 530, 531, 533, 536, 540, 543, 545, 549, 552, 575, 577, 586, 597, 604, 606, 610, 625 and 630).

The long "Norman" shield existed for only a relatively short period and was replaced in most of western Europe by a small kite-shaped protection reminiscent, at least in shape, of those earlier small kite-shaped Byzantine shields. These smaller types gave their users a certain amount of extra protection for the abdomen and groin without adding the redundant weight that would result from shields whose dimensions were increased both laterally and longitudinally.

Unfortunately, the term tārinah appeared at about the same time as the European kite-shaped shield, and while some authorities consider the French term tarcen to be a corruption of tārinah, others believe exactly the reverse. On the other hand, it is reasonably certain that the tārinah shield of Fatimid Egypt was an infantry protection, to be used by Daylamī infantry and younger warriors as shield-bearers. Equally clearly the tārinah generally

44. White, op. cit., pp. 99-100.
remained an infantry shield in Ayyūbid Egypt and Syria, despite supposed Crusader influence. Nevertheless, it was associated by Muslim authors more with their various Christian foes than with their own troops.

In the east such kite-shaped shields were probably known as "lute-shaped" aṣl-r-i chūshak shields.

The Cloak as a Shield

Although not strictly a shield, a cloak wound around the arm as a form of ad hoc protection seems to demand some comment. It was widespread in the early medieval Mediterranean world (Figs. 490, 560 and 6043) and had been known in the 4th and 5th century Byzantine Empire (Fig. 95) (also an ivory statuette from Egypt, portraying "Ares", now in the Dumbarton Oaks Coll., Washington). Perhaps it owed its subsequent spread to the fact that such a style of "cloak and dagger" personal combat was adopted by Muslim warriors from their Byzantine light infantry foes. Varangians in Byzantine service certainly used the technique in the mid-11th century, and it persisted well into modern times in Sicily and southern Italy.


Types of Shield

chákhl - 
"Large mantlet" 50 (Persian).

Early 13th century Northern India 51

Daragah -
"Convex hand-held leather shield" 52 (Arabic: دِرَق) to hurry on.

Earily 8th century Umayyad Caliphate 53

Late 8th century Abbāsid Caliphate 54

Earily 9th century Abbāsid Caliphate 55

Early 10th century Manṣūrib 56

Mid-10th century Yemen 57

50. McEwen, op. cit., p. 86.


52. Rainaud, op. cit., p. 223; Rehaviah, "Notes on Some Old Arms and Instruments of War, chiefly among the Arabs," pp. 224-225.


55. Ibid., vol. VI, p. 452.


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Mid-10th century Middle East\textsuperscript{58}

والزمن ركبت من جاوود الفيلة الأذار

Late 10th century Africa\textsuperscript{59}

الراب بغير درق

11th century Azerbaycan\textsuperscript{60}

درامد سرفيزة بدرك برق

12th century Ifriqiyyah\textsuperscript{61}

وانّذا ودرك

12th century Magrib\textsuperscript{62}

darāqah kāmilah - درقة كاملة

'Large convex shield'\textsuperscript{64} (Arabic kāmil to be complete).

Early 12th century al Andalus\textsuperscript{65}

الذراعية بارد قرق كاملة

\textsuperscript{58} Al Mas\c{c}"ud, op. cit., vol. III, p. 18.


\textsuperscript{60} Ayyūb, op. cit., verse 1153.


\textsuperscript{62} Al乾shaq, op. cit., p. 76.

\textsuperscript{63} Kubārakbi, op. cit., p. 330.

\textsuperscript{64} M. Alarcón, Léonora de los Príncipes, (Madrid 1931), pp. 306–309.

\textsuperscript{65} Al Ṣurtūsh, op. cit., pp. 308–309.
gardah – گرده

Probably "Mantlet"\(^{66}\) (Persian).

Early 13th century Northern India\(^{67}\)

hoja\(\text{r} -\) (and hoja\(\text{f} -\) حيفة)

"Leather shield"\(^{68}\) (Arabic چیف to repel).

7th century Arabia\(^{69}\)

Mid-10th century Sudan\(^{70}\)

Late 10th century Nahhrib\(^{71}\)

jann\(\text{w} -\)ی"ی

"Kite-shaped infantry shield with flattened base"\(^{72}\) (origin unclear).

Late 12th century Ayyūbid Egypt\(^{73}\)


67. \textit{Ibid.}


70. Al Mas'ūdī, \textit{op. cit.}, vol. III, p. 34.


72. Rehatsek considers the \textit{jann\(\text{w} -\)ی"ی} to be a form of palisade or hurdle, "Notes on Some Old Arms and Instruments of War, chiefly among the Arabs," p. 227. Massé believes the same origin, \textit{op. cit.}, pp. 58, 67 and 174.

73. Al Targūṣī, \textit{op. cit.}, p. 114.
Possibly large leather and wood mantlet⁷⁴ (Arabic جاب جاب
to cross).

7th century Arabia⁷⁵

بُنَانٌ (and Junan - جن and Junan - جن and mijann - جن )

"Wooden shield"⁷⁶

7th century Arabia⁷⁷

لَمْ يَتَأَتْ بَيْتَة

9th century* Arabia⁷⁸

المفهم جن ؛

Mid-10th century Persia⁷⁹

لنقصان بنان

Late 12th century Ayyūbid Syria⁸⁰

ذِي الجَبَل عِلام

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⁷⁴. Schwarzlose, op. cit., pp. 327 and 351.
⁷⁷. Schwarzlose, op. cit., p. 351.
⁷⁸. Al Nawawi, edit. and trans. Ezzedine Ibrahim and D. Johnson-Davis, An-Nawawi's Forty Hadith, (Damascus 1977), hadith no.29. The dating of these hadith is highly debatable, although the dates of their compilers are often known.
⁸⁰. ʿImād al Dīn, op. cit., p. 191.
"Leather shield"\textsuperscript{81} (origin unclear).

Late 10th century 

"دراق الملكية"

11th-12th century 

Fatimid Egypt\textsuperscript{63}

نكل واحد درقة من دراق الملك وهي واسعة

سوشناق (or سوشك)

"Kite-shaped shield"\textsuperscript{84} (Persian).

Early 13th century 

Northern India\textsuperscript{65}

سيبار و سبيركرگ و سوشقس

سپر

Generic term for shield\textsuperscript{86} (Persian).

سپر-ی فرخ

"Broad shield or mantlet"\textsuperscript{87} (Persian).

Early 13th century 

Northern India\textsuperscript{68}

با سلاح و سپرهاي نیاز و دربه

سپرگیبل

"Infantry shield from Gîlân"\textsuperscript{69} (Persian).

\textsuperscript{81} Buttin, "Les Adargues de Fès," pp. 411-412.
\textsuperscript{83} Ibn al Tuwayr, op. cit., p. 447.
\textsuperscript{84} Mubarakshah, op. cit., p. 424.
\textsuperscript{85} Ibid.
\textsuperscript{86} Ibid.
\textsuperscript{87} Dīvar, "Cavalry Equipment and Tactics on the Euphrates Frontier," p. 291.
\textsuperscript{88} Mubarakshah, loc. cit.
\textsuperscript{89} Ibid.
Late 10th century Khurasan

سپارگ کرگ -

"Large rhinoceros-hide infantry shield," (Persian).

Late 10th century Khurasan

کمانیان پرخ و سپارگ کرگ

Early 13th century Northern India

بسبار و سپارگ کرگ

طارقة -

"Kite-shaped shield" (Origin obscure).

Mid-12th century Crusader Syria

وعدهم من الپول المنسية والطوارق

Late 12th century Ayyubid Egypt

منهم طارقة ولا رما

ترس -

Generic term for large shield, usually of wood (Arabic).

90. Firdawsī, op. cit., p. 1280.
92. Firdawsī, op. cit., p. 1245.
94. Reinaud, op. cit., pp. 242-243; Mayer, Mamluk Costume, p. 40; Scanlon, however, translates طارقة as a form of cuirass, A Muslim Manual of War, pp. 107 and 129.
yalab ـ دبب.

Normally a "leather shield," also an armour of leather\(^98\) (origin obscure).

7th century Arabia\(^99\)

Late 12th century Ayyūbid Syria\(^100\)

PARTS OF SHIELDS

küboj ـ كوبج

"Large iron boss"\(^101\) (origin obscure).

Late 12th century Ayyūbid Egypt\(^102\)

qalb ـ قلب

"Centre of shield"\(^103\) (Arabic قلب heart).

Late 7th century Umayyad Caliphate\(^104\)

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100. Cimād al Din, \textit{op. cit.}, p. 265.


102. \textit{Ibid}.

103. Fries, \textit{op. cit.}, p. 58.

HORSE-ARMOUR AND CAPARISONS

It has been suggested that horse-armour became rare in the
Middle East from the Muslim conquest to the Mongol invasions, 1
but this now seems to be an oversimplification. Such equipment
was clearly widespread in the pre-Islamic era, although there
may have been two contrasting styles in the Byzantine and Sasanian-
dominated areas. Whereas in 6th century Byzantium a lighter
horse-armour of Avar inspiration seems only to have protected
the breast, neck and head of a horse, 2 an older and more extensive
form may have persisted in Iran (Figs. 33, 36, 37, 47, 49 and
50A). Whereas the former might be of iron lamellar, felt or leather,
the latter was probably only of felt with perhaps a few scale
armours. But, paradoxically, our best representation of the
supposed Byzantine-Avar style appears on a Persian rock-cut statue
(Fig. 330), which obviously shows that the limited Avar style
was at least known in the late-Sasanian world.

The earlier, all-covering, Iranian style was probably made
of lighter materials such as felt. It may, in fact, have been
the original that lay behind those widely used tifraf bards of
the Umayyad era. These were first reported in Arabia at the time
of Muhammad, 3 but became more common in the late 7th and 8th

Technology from the 6th to the 10th centuries," pp. 18-20 and 22.
centuries. By this time, of course, the Persian influence on early Muslim cavalry, if not upon infantry, was already pronounced. 4

Early felt bards, which were so vulnerable to arrows, 5 seem to have been widely replaced by more substantial horse-armours in the 10th century. During the 10th and 11th centuries the Byzantines used a variety of such bards. The limited Avar style was still apparent, while others that seem to have covered the entire horse, including its head, were now of metal, horn, cuir-bouilli hardened leather, or at least of doubled or trebled layers of laminated felt. 6 Such armours often reached an animal's knees or even its fetlocks. Many aspects of this heavier style probably came to Byzantium from Central Asia via Byzantine contact with various Turkish nomadic peoples. Of course, the earlier Avar style came from the Eurasian steppes but in the intervening centuries heavier fashions seem to have reasserted themselves from China 7 to the frontiers of Europe 8 (figs. 69 and 471-473).

These heavier fashions seem to have included very pronounced and probably rigid chamfrons to protect a horse's head. This


7. Laufer, op. cit., p. 308.

8. Leo, op. cit., Inst. XVIII.
was clearly a piece of armour primarily designed for use in close combat with maces and swords. It was, perhaps significantly, also the first certain item of horse-armour to be seen in Kievan Russia⁹ (Fig. 632). Similarly, heavy bards were still used by Mongol warriors in the 13th century.¹⁰

Some evidence, unfortunately far from conclusive, does indicate that Muslim horse-armours had also grown heavier by the 10th and 11th centuries. These were, however, still known as ṭifaf in Arabic-speaking areas and barquistuwan in Persian-speaking regions. The bards used by some Turkish ḥulāma in Syria were at least partly of metal,¹¹ being termed ṭifaf min marāya, "bards of mirrors." Most of the many horse-armours mentioned in this context were, however, simply referred to as ṭifaf.¹² Others used in Ṣaḥm-i Ṣaḥm were similar in form, following the adoption of such equipment from these same Turkish ṣanğa, were similarly partly of metal.¹³ Ṫifaf bards were, in fact, manufactured in Tarsus on the Byzantine frontier,¹⁴ which could indicate a Byzantine inspiration for these latter, heavier, horse-armours.

⁹ Kirpitchnikoff, The Equipment of Rider and Horse in Russia from the 9th to 13th Centuries, pp. 138–139.
¹³ Lane-Poole, op. cit., p. 134.
¹⁴ Canard, "Quelques Observations sur l'introduction géographique de la Bushyat et'-T'aleb," p. 49.
Some of the barratuwn bards of Persia, Transoxania and northern India may also have been partially or wholly of metal lamellar, though others would still seem to have been of felt or quilted construction. The fact that such a barratuwn covered all of an animal's head except for its eyes might suggest the use of chamfrons, perhaps of the heavy type noted elsewhere. Certainly the term barqä was known a little later in Mamluk Egypt where it referred to a metal chamfron to be used with a barqän horse-armour.

Pictorial evidence for horse-armour is extremely sparse in the Middle East at this time. The chamfron is, however, the most obvious single item and would sometimes clearly be used on its own without a bard (Figs. 287, 300, 609 I, 627 and 641). The bard does appear more frequently towards the end of the period under review, but even so it is rarely illustrated in sufficient detail to enable one to distinguish it clearly from a purely decorative caparison (Figs. 173, 270, 287, 300, 309, 422, 447, 641 and 678). A recently discovered, and as yet unpublished, petroglyph in Oman quite clearly shows horse-armour (Figs. 6A, 6D and 6E). Despite its crude execution, I would venture to suggest that the vertical lines on these carvings indicate lamellar rather than felt caparisons. Unfortunately, no attempt

17. Firdausī, op. cit., p. 106.
has yet been made to date this petroglyph.

Horse-armours, and indeed caparisons, were certainly known in the Maghrib and in al Andalus in the 13th and 14th centuries. 19 (Fig. 545). These, however, were almost certainly copied from similar styles that were appearing in Europe in the late 12th and 13th centuries 20 (Fig. 595) and which were widely used by Spanish armies against their Muslim foes in the late 13th century. 21

**Terminology**

**bargustuwan** - (Persian).

"Horse-armour" 22 (Persian).

Early 13th century Northern India 23

bargustuwan - (or gustūnān - بُرْسُوَان )

"Barg" 24 (Persian).

Late 10th century Khurasan 25


23. Ibid.

24. Wolff, op. cit.

Early 13th century Northern India

Possibly "Gerd" (Arabic جد to advance slowly).

Mid-7th century Sasanian Iraq

"Crupper" (Persian).

Early 13th century Northern India

"Felt bard" (Arabic 衣 to make dry).

Mid-7th century Arabia

Late 7th century Umayyad Caliphate

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30. Ibid.
Early 8th century Umayyad Caliphate

Mid-8th century Umayyad Caliphate

Early 9th century Abbasid Caliphate

Mid-10th century Persia

Late 10th century Syria

Late 10th century Syria

"Barded in scales or lamellar" (Arabic "a mirror.

34. Ibid., vol.II, p. 1295.
39. Ibid., p. 18.