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CENTRES OF ISLAMIC SWORD MAKING IN MIDDLE AGES (1)

by

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1. ARABS AND IRON INDUSTRY

Information referring to Arab metallurgy and iron working is very scanty. Processes practised by early Moslem craftsmen were traditional and remained secret, but it is certain that the Moslems developped Hindu or Persian methods for forging good steel, and soon they were able to produce steel blades of astounding excellency (2).

Al-Kindi, the Arab philosopher (9th century) mentioned iron in relation to the manufacture of swords, and referred to two different species of iron :

1. Shabarqan or male-iron which is hard and has a darkish colour.

2. Narmahan or female-iron which is soft.

Of these two species, a third is composed, which is named "the compound." Al-Kindi, also mentions steel, which he describes as an alloy, and is not derived directly from the mines. He calls it "the purified" (3).

Ibn Sina (980-1037), in his fifth book, De Anima, according to Roger Bacon. distinguishes three different species of iron :

1st : Iron which is good for striking or bearing heavy strokes, and for being forged by hammer and fire, but not for cutting tools. Of this hammers and anvils are made, and this is what we commonly call iron simply.

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(1) Communication présentée en séance du 5 mars 1956.

(2) Sarton, G. : Introduction to the history of science. Vol. III. Part II. p. 1174 - 1175.

(3) A. Rahman Zaky : Islamic swords in middle - ages. B.I.E. Tome XXXVI. p. 305 - 379. (1953 - 54).

2nd : That which is purer, has more heat in it and is better adapted to take an edge and to form cutting tools, but is not so malleable, viz. steel.

3rd : That which is called "andena." Its special character is that like silver, it is malleable and ductile under a very low degree of heat. In other properties it is intermediate between iron and steel (4).

Ibn el Beitar (died 1248), an Andalusian herbist who wrote an authentic work on botany referred to different species of iron, but he added nothing to previous contribution (5).

When Al Kalkashandi, the Egyptian encyclopedist referred to the Arabic sword, he mentioned that it was made of iron (saif anith) or steel (saif fuladh), or else, adopting a Frankish fashion, of iron with a steel edge (saif mudakkar) (6).

These are the important literary sources of Islamic contribution about iron.

2. IRON MINES

In the lands of the Eastern Caliphate, there were numerous mines of iron and other minerals which were well exploited. These were recorded by Moslem geographers and historians, as well as by European travellers in middle ages.

In Arabia, Bahrein, Oman, and Yemen, there was a very old iron industry working with local iron deposits or steel imported from India, Persia and also China. At Neqem in the neighbourhood of Sana'a in Yemen, there existed gold and iron mines. During the reign of Himiar, in Yemen, excellent yemenite swords were made. The manufacture of weapons also flourished: swords, lances and cuirasses were highly prized (7) and these were much quoted in early Arab poetry.

Persia.

The country of the largest iron output was certainly

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(4) Fr. R. Baconis Opera Inedita, 1859, pp. 382 - 383.
انظر أيضا . ابن سينا : القانون فى الطب . ج ١ ص ١٧٩

(5) ابن البيطار : الجامع لمفردات الأدوية والأغذية . ج ٢ ص ١٣ . القاهرة

(6) Kalkashandi : Sobh el-Aisha. Vol. 2.. p. 132.

(7) Encyc. of Islam. p. 1156.

Persia (8). There were mines and smelting sites near Tabriz. The Elburz mountains have old mines near Rasht, and Massula where the inhabitants are still mainly blacksmiths. West of Tehran and near Kazwin, there is much haematite, to the east near Firuz Kuh and on the foothills of mount Demawend there is haematite and linonite.

According to Ibn Hawkal, there were in Fars iron and quicksilver in the hills of Istakhr (9). In the neighbourhood of Shahiq in Fars, according to Mustawfi, were iron mines, and the "Fars Namah" speaks of the excellent swords made there (10). To the south-east Shahiq, on the borders of Darabjird district, is the town of Kutruh, still a place of some importance, where, according to the "Fars Namah" there were excellent iron mines.

Near both Marashmandah and Minak, there were iron mines, and tools made here were exported to all parts of Khurasan, the steel being of excellent quality ; so that even in Baghdad these were much sought after (11).

In Chorassan there were several deposits near Semendeh and Ilak and in Afghanistan near Juwain and Herat (12).

Marco Polo, the Venitian traveiler, who visited many Asiatic countries (1270-1295), mentioned that in Kerman, there are also plentiful seams of steel (13) and ondanique (14). Very fine large steel mirrors are manufactured there (15). Marco Polo reported that on the borders of the Province of Ghinghintalas towards the north is a mountain with an excellent vein of steel and ondanique (16).

Chevalier Chardin (1643-1713), the French traveller in Persia and India, makes it quite clear that in his time the Persians

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(8) Forbes : Metallurgy in Antiquity. pp. 387,444.

(9) Le Strange : The Lands of Eastern Caliphate. p. 316.

(10) Ibid. p. 278.

(11) Ibid. p. 476, quoted from Ya'kubi. II, 395, 425.

(12) Ibid. p. 387.

(13) The Travels of Marco Polo. Broadway Travellers edition. Edited by Sir E. D. Ross and E. Power. p. 39.

(14) Marco Polo used « Andanicum, Andaine, and Ondanique » as a name applied for Indian watered steel.

(15) Ibid. p. 48.

(16) Ibid. p. 73.

called both theirs and the Indian steel "poulad jauherder," which was, as he further explains :

"Acier ondé, acier qui a des ondes, qui est ce que nous disons acier de Damas pour le distinguer d'avec l'acier de l'Europe" (17). Further, Chardin adds : "C'est de cet acier-là qu'ils ont fait leurs belles lames damasquinées."

The expression "ondanique" appears in a quotation from Idrisi the Moslem geographer (C.A.D. 1099-1154) as "hindiah" and found its way into Spanish in the shapes of "Alhinde," "Alfinde," "Alinde," first with the meaning of steel, then assuming, that of steel mirror, and finally that of metallic foil of a glass of mirror (18).

In Transcaucasia a few ornaments of iron appear in the thirteenth century in the Ganda Karabeg region. In Georgia and Armenia iron appears in the same period (19).

Other Moslem geographers, Yaqut (1228 A.D.) (20) and Al-Mukaddisi referred to the iron wealth of Sicily ; the ore was exported to India for making delicate instruments during the eight and ninth centuries.

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This is on iron deposits in the lands of the Eastern Caliphate, but what about the useful metal in the western land of the Caliphate : Spain ?

Spain had since the time of the Phoenicians had been known as a rich store-house of mineral wealth and was, before the discovery of the deposits outside Europe, a leading world producer of copper, mercury, lead and iron ore (21). Its mines contained in perfection all metals applied to warlike uses of that remote epoch.

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(17) Voyage du Chevalier Chardin en Perse. p. 355, Paris 1811.

(18) Hint or Al-Hind is used in Berber also for steel. J.R.A.S., vol. IX, p. 255.

(19) Ibid. p. 449.

(20) Yaqut is the compiler of a big geographical dictionary, which contains all geographical names in Alphabetical order. Yaqut : Encyc. vol. I, p. 201. See also Mukaddisi, p. 239 - 240.

(21) Encyclopaedia Britannica : Edit. 1955 , p. 145.

The Visigoths established a powerful empire in Spain in the 5th Century under which the arts of ancient civilization were encouraged, including the iron industry.

At about the beginning of the 8th century when the Moslems became masters of much of Spain, they stimulated greatly the manufacture of iron. The natives who had withstood the Moors also, extended their Catalan forges north into France and even to other European countries (22). So prominent did the industry of Spain become, that its iron workers were sought by other countries.

India and China.

Beside the iron mines in Islamic territories, the Moslems used to import from India and China enough quantities of good iron. We are not supposed to trace the historical chronology of iron industry in India, but it is enough to say that the Roman trade in Indian iron and steel was an important one (23). The great centuries A.D. when the blacksmith must have been skilful, and commanded an unlimited supply of the best metal (24).

India was an important iron source to Moslem countries without any contest in middle ages. The sword-blades of medieval India had a great reputation according to many authorities. El-Beiruni in the 10th century referred to the good quality of Indian iron-industry. Indian swords-finished or semi-finished continued to be imported into Persia till days quite recent. Edrisi says on this subject : "The Hindus excel in the manufacture of irons, and in the preparation of those ingredients with which it is fused to obtain that kind of soft iron which is usually styled Indian steel."

China.

North-west of China was, and is still, generally rich in iron-

(22) Goodale : Chronology of iron and steel. p. 28.

(23) Steel made in India was apparently of good enough quality for manufacture into 100 different surgical instruments, according to medical writings that have come down to us from 400 to 300 B.C.

(24) The Lat or iron-pillar of Delhi, India, erected about 415 A.D. shows high skill of iron workers at that time. It is a solid shaft of wraught iron, calculated to weight seventeen tons and to contain eighty cubic feet of metal.

ore (25). That mineral was one of the earliest commodities exported from China to the West, and one of the earliest references to its exportation from China to the Roman Orient is given by Pliny (died 79 A.D.) who mentions that Chinese iron was the best known in the Roman markets and that second to it came from Partia (26).

The high reputation which the Chinese iron gained in the Roman markets apparently continued during the Arab period. Ibn-Khurdathabba in the 9th century speaks of the exportation of the fine iron of China from the port of Luqueen or Luqin ancient Cattigara, Gulf of Tong-King. Three centuries later, Idrisi, the Moslem geographer, mentions iron amongst the exports of China (27). There is therefore some reason to think that the iron workshops of Damascus and other cities renowned in medieval times, had made use of the importation of the fine Chinese iron, which added both to the quantity and quality of the local product of the mines in the Near East.

3. CENTRES OF SWORD-MAKING

a) Islamic East

1) Arabia.

In Arabia, before Islam, Mu'tah in the land of ancient Moab, was famous for its swords. These were known as "al-suiof al mashrafieh." At the same period, the Arabs used to import swords from Ubullah, a little Iraqi town on the Digla river. The blades of Bosra in Syria were often praised by Arab poets, as well as the swords of the town of Aryah.

In Yemen, the sword industry flourished since antiquity.

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(25) O. Jance : Quelques Antiquités chinoises d'un caractère hallstattien, in the museum of far Eastern Antiquities, Stockholm. Bulletin, No. 1930, pp. 177 - 83.

(26) Ex omnibus autem generibus palma Serico ferro est, Pliny, Historia Naturalis, XXX, 14 (41), 145, quoted in F. Hirth, China and the Roman Orient, loc. cit., p. 225 - 226, footnote 2.

(27) P.A. Jaubert : Géographie d'Drisi. Paros 1836 - 40, t. 1, p. 51.

This was not only because Yemen once possessed the suitable ore for industry, but also because the Yemenite imported enough quantities of Indian steel. The reputation of Yemenite swords eclipsed after the collapse of the Himiarite dynasty, just before the dawn of Islam. After Moslem conquests, the Arabs soon put their hands on centres of the swords industry in Persia, Syria and other places (28).

2) Iran.

Since antiquity, Persia had a reputation for swords-making. In the twelfth century, Ibn al-Balkhi notes that at Chahiq in Fars, excellent swords and other blades called Chahiqi are made (29).

Al-Firdawsi, the great Persian poet praised in his "Shah-Nameh" the excellence of Chahiqi blades.

Kirman.

Marco Polo on his visit to Persia, reports that in Kirman, the arm-smith makes all kinds of harness for horsemen, namely bridles, saddles, swords, spurs, bows and arrows, quivers and other weapons after the fashion of those parts (30).

Paulus Jovius referred to the reputation of Kirman in the industry of arms during the sixteenth century; Turks used to buy these Kirman swords at high prices (31).

Qumm.

Olearius in his voyage during the seventeenth century notes that the best swords he found at Qumm, and are considered the best in the whole country of Persia. The steel of which they are made comes from the city of Miris, four days march from Ispahan (32).

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(28) S.A. Huzayyin : Arabia and the Far-East. Cairo 1942., p. 200.

(29) Le Strange : Description of the Province of Fars in Persia. London. Asiatic Society Monographs., No. XIV, 1912, p. 24.

(30) The travels of Marco Polo. p. 39.

(31) Jule's Marco Polo. Book XIV. vol. 1. p. 89.

(32) Olearius : Voyage.. fait en Moscovie, Tartarie et Perse. Vol. II. page 681. Leiden 1719.

Khurasan.

In the eighteenth century, the Comte de Ferrières Sanvebœuf speaks of the finest blades being made in Khurasan, and evidently the industry of weapons was very old there; for in the tenth century, we hear of good knives being made in Neisabur. The comte also praises the sabre blades of Qazwin as being much better tempered even than those of Damascus (33).

Isphan.

Isphan in Khurasan province, the old capital of Persia, cannot be ignored as a chief centre of sword-making, notably from the 16th to the 19th century. The swords of "Assad-u-llah" were most probably made at Ispahan. Khwarasm also made good swords and likewise cuirasses and bows. Shiraz is also mentioned by some European travellers as a famous centre of sword-making.

Anyhow, the reputation of Persian swords had been well established. Chardin (1643-1713) gives a very appreciative account of Persian swords. "Their scimitars are very well damasked and exceed all that the Europeans can do, because I suppose our steel is not as full of veins as the Indian steel which they use commonly. They forge their blades cold, and therefore they dip them, they rub them with tallow, oil or butter to hinder them from breaking; then they temper, them with vinegar and coperas, which being of corroding nature, shows those streaks or veins, which they call Damask work" (34).

3) Egypt and Syria.

According to medieval historians, the Fatimides possessed magnificent collections of fascinating arms in their palace-stores, but it is difficult to be precise as to their provenance; whether these weapons were made in Egypt or were imported from Persia, India or Syria. We must not forget the fact that Syria,

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(33) Comte de Ferrières - Sainvebœuf : Mémoires historiques, politiques et géographiques., 1782 - 89., Vol. II, p. 9., Paris.

(34) Sir John Chardin's Travels in Persia. The Argonaut Press, London 1927, p. 270 - 71.

namely Damascus was to Cairo an important centre of export. The Syrian capital was a flourishing market for Persian and Indian arms, besides her own. Damascus, from the earliest times has been the market of the surrounding deserts. For centuries, the "Damascus blade" carried far afield the reputation of the city's armourers. Diocletian promoted the industry, but it perished when Tamerlane carried off the smiths in 1401, and became despoiled of all the efficient craftsmen and armourers.

As an important sword-making centre, Damascus has been somewhat exaggerated, especially after Timurlane's destruction. Most probably, the city was not the home of the so-called Damascus-steel, but a processing station from which it was distributed. The metal of the famous Damascus weapons was made at Kona Samundrum of the Hyderabad district of India, as early as the fifth or fourth century B.C. ([35]), by a fusion process known as wootz ([36]).

When the Arabs conquered India, they carried the steel wootz cakes to Damascus, where a lively industry in converting this unique material into weapons and armour flourished. Unlike the Romans, the Arabs visited the Indian smeltries and saw how wootz steel was made. They carried this knowledge as far west as Toledo, whence it eventually spread northwards.

Although one meets plenty of Islamic swords so-called Damascus blades, yet most of these belong to the 18th or 19th century industry — these are not at all genuine and are not attributed to middle-ages manufacture.

4) Turkey.

The home of the Turks extends from Central Asia to Eastern Europe including Anatolia, Armenia, and the Caucas. Long before they became Moslems, the Turks had a reputation of being skilful weaponsmiths who worked the iron ores of the Altai for the Avars until their fall (552) ([37]). Attaining power

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(35) Goodale, S. : Chronology of iron and steel, p. 24.

(36) The word wootz belongs to the telengana language of the south-eastern parts of Hyderabad State. It was produced by the carburisation of wrought iron in crucibles.

(37) Forbes : Metallurgy in Antiquity. p. 444.

during the reign of the Abbasides in Bagdad, they got in touch with Persian armourers ; and later with the conquest of Syria and Egypt (1517), the Turks transported to their new capital a horde of craftsmen, artists and armourers who helped to develop their arts. Nevertheless, the Ottomans owned their characteristic types of sabres : the qilij and the yatagan. In Anatolia, the Turks inherited the old Byzantine iron deposits in Eastern Asia-minor and in the Taurus mountains. There existed a rich wealth of iron deposits, namely in Alaia, Adana, Amaxia in Upper Cilicia and Galatia (38).

b) Islamic West

Toledo.

Under the Moors, the manufacture of swords throve until the 15th century. Toledo and the sword are indissolubly associated in the literature of arms ; it is impossible to mention the name of the city without recalling the unchallenged excellence of the blades it has given to the world. Toledo blades were proverbial for their excellent tempering, and were famous as early as the days of the Romans (39).

Tarik ibn Zeyad, when he took Toledo in 712 A.D., found amongst a profusion of crowns, jewellery, gilded armour, daggers and swords richly mounted, bows, lances and various arms, offensive and defensive.

The sword industry of Toledo had passed under the control of the Arabs ; and Abdel Rahman II (822-852) regulated and reformed it. One of the numerous friendly passages between Arabs and Spaniards was marked by a gift of Toledan blades from Al-Kakkam II to Sancho, Count of Navarre (865 A.D.) (40).

Seville.

Seville was also noted for the excellence of its steel blades ;

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(38) Ibid. p. 386.

(39) Toledan blades have been famous for 2000 years, the « culter toletanus » being mentioned in the « Cynegetica of Gratius » (Faliscus) during the first century B.C. Encyc. Brit., p. 271.

(40) Calvert : Spanish arms and armour. p. 11 - 12.

also Almeria, Murcia and Granada. Al-Makkari, the Andalusian historian, mentions that during the 12th and 13th centuries, Almeria was famous for the fabrication of metal vases and arms. Ibn Saïd the well-known traveller, writing during the 13th century reports that Murcia was also noted by its excellent industry of arms. The traveller said that Seville blades were the most renowned and that its watered steel was its unique characteristic.

In spite of Cordoba, being the important capital of Moslem Spain, yet it was never a centre of arms industry.

Granada.

Among the highly interesting examples of swords, during the 15th century, some of those tempered at Granada still exist in the collections of Spanish museums. The famous sword so-named Boabdil sword, which went to king Ferdinand, the conqueror of Granada (1492) has been kept in Spain since then.

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In Moslem Spain, the form of the sword did not develop. It maintained its original Arab type — a straight double-edged blade with a down curving guard, and not like the shape in the Moslem East where it developped into various forms.

A map showing the principal sword-making centres in Middle Ages is attached.

Map of the principal sword-making centres in Middle Ages.