

THE INNER ASIAN WARRIORS*

General remarks on the tactics of Inner Asian mounted "nomads" abound even in popular literature but—their great importance for world history notwithstanding—there exists no comprehensive study of the traditional (pre-gunpowder) armies of Inner Asia. Interest here will be focused on their key-factor: the warrior himself. Examined in succession will be: his reputation, training, discipline, horsemanship, the equipment of his mount (stirrup, horseshoe), personal weapons (bow and arrow, sword, spear, lasso) and the means used to ensure a supply of arms.

LADIES AND GENTLEMEN,

It is an undeniable fact that violence has a strange fascination for most of us. Children have always played war games and the saturation with violence of our movies and television programs is the subject of public debate which, appropriately, may turn to violence. Polls and viewer research have convincingly shown that ratings go up in proportion to the level of violence incorporated in the show and my political advisers strongly suggested that I follow the trend. As a democratically elected president I feel that it is my duty to cater to your baser instincts and—although the chances of my being reelected are nil—I think I have to give you what you want, and to treat you with violence. In doing so I also try to emulate Vergil whose best-seller *Aeneid* begins with the catchy phrase, "*Arma virumque cano . . .*"

There are other, less pragmatic reasons for my choosing this subject. Inner Asia's contribution to the development of arts and sciences is relatively modest; the great influence it exerted on the history of mankind was through the excellence of its armed forces. Yet, the subject has never received adequate treatment. Most of the work done is rather repetitious, focusing on the well-known features of nomad cavalry tactics such as shooting from horseback and feigned retreats performed with a view of disorganizing enemy ranks. Of course all this is important but in this presentation I would like to deal not so much with the army, its tactics and strategy,¹ but rather with the anonymous Inner Asian warrior on whom the success of these

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¹ I have touched on this very important and neglected subject in my "On Mongol Strategy," *Proceedings of the*

military forces rested. In so doing I will have to limit myself to some specific questions related to training and equipment of the traditional (pre-gunpowder) Inner Asian man-at-arms, with—here and there—a short remark on the economic factors which determined the matériel he had to make use of.

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The outstanding ability of the Inner Asian warrior has been universally recognized by friend and foe. Geographic determinism, a characteristic feature of ethnographic thinking in Antiquity, attributed the savage temperament of the "peoples of the north" to the harshness of the climate in which they lived, propitious to the development of military virtues. "Why are the inhabitants of warm regions cowardly, and those who dwell in cold regions courageous"—asks Aristotle in *Problemata* (XIV, 16)—"Is it because human beings have a natural tendency which counteracts the effect of locality and season? . . . Now those who are hot by nature are courageous and those who are cold are cowardly. The effect of hot regions upon their inhabitants is to cool them . . . but those who live in a cold climate become heated in their nature. . . ."² Vitruvius writes in the same vein: "Now while the southern peoples are of acute intelligence and infinite resource, they give way when courage is demanded because their strength is drained away by the sun; but those who are born in colder regions, by their fearless

Fourth East Asian Altaistic Conference, ed. Ch'en Chieh-hsien (Tainan, 1975), pp. 238-249; reprinted in Denis Sinor, *Inner Asia and its Contacts with Medieval Europe*, (Variorum Reprints, London, 1977).

² Ed. W. D. Ross, translation by E. S. Forster (Oxford, 1927).

courage are better equipped for the clash of arms, yet by their slowness of mind they rush on without reflection, and through lack of tactics are balked of their purpose."³ According to Ptolemy (*Tetrabiblos* II.2) the northern peoples—whom he calls by a general name Scythians—are savage in their habits because their dwelling places are continually cold.

Generally speaking in these early writings the term "northern peoples" is applied indiscriminately to all the barbarians whether of the nomadic type, such as the Scythians, or sedentary as the Celts. Although in his *Politics* (VI.4) Aristotle affirms that the pastoral peoples are the best trained of any for war, his opinion is based on general speculation rather than on direct experience. The antithesis of north and south in which the former is associated with the forces of evil and thus pregnant with danger for civilized humanity is a notion underlying the basic cosmological concepts of Eurasia and is well attested also in the Scriptures. Whether this *topos* is rooted in reality is a question beyond the scope of this article but it is certain that in Greece as well as in China the reputation of the Inner Asian warrior stood high since his first contacts with them.

Herodotus praises the military qualities of the Scythians and his opinion is fully shared by Thucydides according to whom no people, whether in Asia or in Europe, can match the military might of the Scythians if these are united, although "they are not on a level with other races in general intelligence and the arts of civilized life."⁴

Speaking of the Huns, Ammianus Marcellinus (XXXI, 2, 9) states that "they could easily be called the most terrible of all warriors." In a homily attributed to Theodoros Synkeillus and preached probably on the first anniversary of the unsuccessful attack of the Avars on Constantinople (625), the orator referred to the barbarian armies of this ferocious people whose "life is war": ὁ βίος ὁ πόλεμος.⁵ On the other end of the Inner Asian *oikoumene* the Hsiung-nu posed a terrible threat to the Chinese. Their historian Ssu-ma Ch'ien opined that warfare seemed to be "their natural disposition."⁶ He also quoted the remarks of a Chinese

fugitive to the Hsiung-nu to the effect that the latter "make it clear that warfare is their business."⁷

The Arab writer al-Jāhiz (c. 776-869) felt that the Turks occupied "in war the position of Greeks in science and the Chinese in art."⁸ Speaking of the Mongol army, the Persian historian Juvaini (c. 1252-61) waxes lyrical: "With regard to the organization of their army, from the time of Adam down to the present day . . . it can be read in no history and is recorded in no book that any of the kings that were lords of the nations ever attained an army like the army of the Tartars. . . . What army in the whole world can equal the Mongol army?"⁹ The same opinion is expressed by Thomas, archdeacon of Spalato, an eyewitness of the Mongol campaign in Hungary: "There is no people in the world as experienced [as the Mongols] in war, one which could, as they, defeat the enemy—particularly in the open field—be it by sheer force or military know-how."¹⁰

On what grounds may such opinions be justified, what are the factors that made the greatness of the armies of Inner Asia? Conversely, what were its weaknesses and limitations? In what follows I will attempt to give a partial answer to these important questions.

The study of the economic, social, and military structures of Inner Asia leave no doubt concerning the social character of the army. It was a "people's army" in the literal sense of the word. Not only were all able-bodied men permanently liable to military combat-service, they were also—at least in the Mongol Empire—under military orders even in peacetime.

According to Juvaini, "It is an army after the fashion of a peasantry, being liable to all manner of contributions and rendering without complaint whatever is enjoined upon it . . . It is also a peasantry in the guise of an army, all of them, great or small, noble and base, in

⁷ *Shih chi* 110, 11b; Translation by Burton Watson, *Records of the Grand Historian of China*, II (Columbia University Press, 1961), p. 171.

⁸ C. T. Harley Walker, "Jahiz of Basra to al-Fath ibn Khaqan on the 'Exploits of the Turks and the Army of the Khalifate in General," *JRAS* 1915, 631-697, p. 685.

⁹ Translation by John Andrew Boyle, *The History of the World-Conqueror*, I, pp. 29-30 (Manchester University Press, 1958).

¹⁰ "Sed non est gens in mundo, que tantam habeant bellandiciam, que ita sciat, maxime in campestri conflictu, hostes evincere, sive virtute, sive sagacitate pugnando." Ch. XXXVII. A. F. Gombos, *Catalogus Fontium Historiae Hungaricae*, I-IV (Budapest, 1937-1943), [henceforth *Catalogus*] III, p. 2239.

³ *De Architectura*, VI, 1, 9; ed. Frank Granger, v. II, p. 17.

⁴ *The Pelopponesian War*, II, 97, 5-6.

⁵ Ferenc Makk, *Traduction et commentaire de l'homélie écrite probablement par Théodore de Syncelle sur le siège de Constantinople en 626. Acta Universitatis de Attila József Nominatae, Acta Antiqua et Archaeologica* XIX (Szeged, 1975), pp. 16, 78.

⁶ *Shih chi* 110, 1a: 戰攻以侵伐其天性也

time of battle becoming swordsmen, archers and lancers and advancing in whatever manner the occasion requires."¹¹

It seems likely that much of what Juvaini said about the Mongol soldiers was applicable to most great Inner Asian armies. Needless to say, the soldiers were unpaid. It was only very late and probably under Iranian influence that the il-khan Ghazan decided to give some modest pay to the low ranking soldiers. The high ranking Mongol officers remained unpaid. One of them was taken prisoner by the Mameluks in Ghazan's campaign in Syria (1303). On being asked by his captors what his pay was, he replied: "The Mongol is the slave of his sovereign. He is never free. His sovereign is his benefactor; he does not serve him for money. Although I was the last of Ghazan's servants, I never needed anything."¹²

For the men of Inner Asia military service was a natural occupation. Neither the Turkic nor the Mongol languages have a native word for "soldier," just as they have no generic terms for war or peace. Fighting was a precondition of survival; only collective military action could ensure the survival or the prosperity of the political community. It is thus not surprising that military training, individually as well as in groups, began very early.

Speaking of the Hsiung-nu, around 200 B.C. Ssu-ma Ch'ien writes: "The little boys start out by learning to ride sheep and shoot birds and rats with a bow and arrow and when they get a little older they shoot foxes and hares, which are used for food. Thus all the young men are able to use a bow and act as armed cavalry in time of war." In the middle of the thirteenth century, speaking of the Mongols, the Franciscan John of Plano Carpini expresses himself in almost identical terms: "(The men) hunt and practice archery, for they are all, big and little, excellent archers, and their children begin as soon as they are two or three years old to ride and manage horses and to gallop on them, and they are given bows to suit their stature and are taught to shoot; they are extremely agile and also intrepid."¹⁴

¹¹ Boyle, *op. cit.* p. 30.

¹² Based on Waṣṣāf, quoted from H. H. Howorth, *History of the Mongols*, III (London, 1888), p. 472, based on d'Ohsson, *Histoire des Mongols*, IV (La Haye, 1835), p. 335.

¹³ Watson, *op. cit.* II, p. 155.

¹⁴ IV.10, ed. Wyngaert, *Sinica Franciscana I* (Ad Claras Aquas, 1929), p. 50. Translation from *The Mongol Mission*, edited by Christopher Dawson (Sheed and Ward, London, 1955), p. 18.

In Inner Asia as elsewhere, discipline was the backbone of the armies. John of Plano Carpini—a monk, with a personal understanding of what discipline meant—could not withhold his admiration of the Mongols: "These men . . . are more obedient to their masters than any other men in the world, be they religious or secular."¹⁵

The description given by Ssu-ma Ch'ien of the seizing of power by the Hsiung-nu ruler Mao-tun (c. 209-174 B.C.) illustrates well Chinese admiration for the discipline of the Inner Asian soldier. He is said to have trained his soldiers to shoot at whatever target he himself was shooting. In succession he aimed at his best horse, his favorite wife, his father's best horse, and after each exercise he executed those who had failed to follow his example. Finally he took aim at his own father. His troops, by then well disciplined, discharged their arrows on the same target, shot his father dead, and secured the throne for Mao-tun.¹⁶

The splendid organization and discipline of the Mongol troops is described in some detail by the Dominican David of Ashby in a book *Les faits des Tatars* written probably in the 1270s:¹⁷

You have heard how they pitch camp and how they arrange their guards by day and night in their camps. And know that they stay as peacefully by night as by day, like monks in their cloister. Never would you hear a man shouting there nor a horse neighing, for the horses are all well-schooled, except those which remain at stud. Now I want to tell you how they move their camp and in what way all the people in the army know when they must strike their tents and load them up: for when the tent of the chief has been fastened on, a loud general summons is given, and for this occasion there is a wonderful drum as I will demonstrate and show you in this diagram.

It is like a very tall whistle of bronze or copper and across the open top of it there is stretched a large piece of leather, as you find in a drum used for hunting river-birds, and this is supported by four stakes as high as a

¹⁵ IV.2, ed. Wyngaert, p. 45, tr. *The Mongol Mission*, p. 14.

¹⁶ Cf. Watson, *op. cit.* p. 161.

¹⁷ The fragments which remain of this important text can be read in C. Brunel, "David d'Ashby auteur méconnu des *Faits des Tartares*," *Romania* 79, 1958, 39-46. To the best of my knowledge they have never been translated into a modern language. The passage given here in English appears on pp. 42-43 of Brunel's article. On David of Ashby cf. also Jean Richard, "The Mongols and the Franks," *Journal of Asian History* 3, 1969, 45-57, p. 53.

man's waist, as I have already shown you in the diagram. And if the chieftain wishes to move camp, when midnight is passed he orders the drum to be struck and the man who is allotted this task grasps two wooden maces in his two hands, as I have shown you, and strikes as hard as his strength and breath allow him to do. And know that the wonderful thing about this drum is that it can be heard easily for a league around. Immediately great and small prepare their horses and put their equipment on them. After a good interval, the drum is beaten for the second time, then they strike their tents and load up all their possessions, and the divisions assemble, and those who advance on the outside go in the vanguard and after them the others in order right up to the chief who comes last or in the middle, depending on how the order of march of the camp is arranged. Then the drum is struck for the third time and the vanguard moves off and all the others follow, in very good and regular order. Nor would you ever hear any outcry or uproar except for the noise of the horses' hooves, for no one dares to exclaim or shout when the camp moves nor can any man ride in front of another except according to the order prescribed for the divisions. When the camp is led off in this way, a set of people allotted to the task, search through the whole area occupied by the army to collect up the things that have been forgotten. Some have to collect up all the animals, others, clothes and equipment of any kind, and if they find any of these things they keep them or carry them along in the wake of those who have moved the camp. Those who have lost something ask these search parties about it and bring witness and guarantor. Thus they recover by pledged word all the things they have forgotten and lost.

Although discipline was very strict, the men do not seem to have suffered unduly under it. Mirkhwond (1432-98), a Persian historian of the Timurid period remarks that when in the Syrian campaign of Ghazan khan five thousand soldiers lost their horses, they cheerfully undertook to march home. He also comments that if, after such a march that took two months, on their arrival, they had been given orders to set out again on another campaign, they would have obeyed without complaints.¹⁸ Of course, if discipline was to be strict, punishment for disobedience had to be harsh. In 1205 the orders given by Chingis to his general Sübötei included an interdiction for the soldiers to ride at full

gallop. "Once you have given such orders," Sübötei was instructed, "those who disobey should be birched." As a general guideline Chingis is reported to have said: "Those who disobey our orders, if worthy of our attention, should be sent to us; if not worthy of our attention, they should be beheaded on the spot."¹⁹

Punishment for cowardice was very hard indeed and solidarity among the fighting men highly encouraged. According to Carpini, "When they [the Mongols] are in battle, if one or two or three or even more of a group of ten run away, all are put to death; and if the whole group of ten flees, the rest of the group of a hundred are all put to death if they do not flee, too. In a word, unless they retreat in a body, all who take flight are put to death. Likewise, if one or two or more go forward boldly to the fight, then the rest of the ten, if they do not follow, are put to death. And if one or more of the ten are captured, their companions are put to death if they do not rescue them."²⁰

Grudgingly though repeatedly Byzantine sources express admiration for the discipline of the barbarian soldier. The *topos* that they obey their chiefs "because of fear and not love" smacks of sour grapes. Even in our age the idea lingers on, probably owing to Montesquieu's vigorous and splendidly biased formulation:^{21a}

"Les peuples du nord l'Europe l'ont conquise en hommes libres; les peuples du nord de l'Asie l'ont conquise en esclaves . . . le génie de la nation tartare ou gétique a toujours été semblable à celui des empires de l'Asie. Les peuples, dans ceux-ci, sont gouvernés par le bâton; les peuples tartares, par les longs fouets. . . il règne en Asie un esprit de servitude qui ne l'a jamais quittée; et dans toutes les histoires de ce pays, il n'est pas possible de trouver un seul trait qui marque une âme libre: on n'y verra jamais que l'héroïsme de la servitude."

Montesquieu's interpretation does not rest on the

¹⁹ "bidanu jarliq dabaqsad-i bidana taniqdaqun metüs-i bidana ököl iretkün bidana ülül taniqdaqun olon-i mün tende bö'et mökörü' ülürkün" paragraph 199 of the *Secret History of the Mongols*, ed. Louis Ligeti, *Histoire secrète des Mongols* (Budapest, 1971), pp. 164-165.

²⁰ VI.3, ed. Wyngaert, p. 77, tr. *The Mongol Mission*, p. 33.

²¹ Maurice, *Strategicon* XI, 2, 3, ed. H. Mihăescu, *Mauricius. Arta militara, Scriptores Byzantini VI* (București, 1970), p. 268.

^{21a} *De l'esprit des lois* XVIII, ch. 5-6.

¹⁸ D'Ohsson, op. cit., pp. 334-335.

evidence provided by Byzantine sources. Maurice says explicitly that "the people of the Türks is numerous and free,"²² a statement repeated almost verbatim in the *Tactics* of the emperor Leo VI written around 904 in which it is applied to the Hungarians.²³

The combination of inborn courage and discipline acquired through constant training accounts for the excellence of the Inner Asian warrior. According to Theophylaktos Simokattes (7th century) the Mukri—an Inner Asian people living on the confines of China—displayed "great courage in armed conflicts because of experience gained in daily drills and steadfastness shown in face of danger." By the same author, the Oghur of the South-Russian steppe are said to be "among the strongest because of their number and the military drill they undergo."²⁴ According to Maurice, the Türks do nothing else but practice how to fight the enemy with courage.²⁵

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Although the use of infantry is not unknown in the military history of Inner Asia, the great conquests and victorious campaigns were the works of light cavalry. Its superior horsemanship has earned universal admiration. The annals of the Yüan dynasty laconically remark that by nature the "Mongols are good at riding and archery. Therefore they took possession of the world through this advantage of bow and horse."²⁶ In the eyes of the western writers the Inner Asian warrior is inseparable from his mount. According to Zosimus the Huns "could not plant their feet firmly upon the ground, living, even sleeping, as they did on horseback."²⁷ The description given by Ammianus Marcellinus is more elaborate: "they are almost glued to their

horses, which are hardy, it is true, but ugly, and sometimes they sit them woman-fashion and thus perform their ordinary tasks. From their horses by day or night every one of that nation buys and sells, eats and drinks, and bowed over the narrow neck of the animal relaxes into a sleep so deep as to be accompanied by many dreams."²⁸ According to the *Strategikon* of Maurice, the Avars can barely stand on the ground because, having been brought up on horseback, their legs have become weak.²⁹ According to the abbot Regino, the Hungarians of the 9th century are "constantly riding horses; on them they go and stand, think or converse."³⁰

Well-trained, well-disciplined the warrior of Inner Asia has a peerless ally: his horse. The relatively small, pony-type animal—considered ugly by foreign observers—is related to the so-called Prjewalski-horse, the only wild variety of the species which survived until modern times. The toughness and wantlessness of this breed, coupled with its relatively good speed and exceptional endurance caused it to be the most formidable single factor of Inner Asian military power.³¹

Inner Asian saddlery and bridles can be dealt with briefly as neither of them shows characteristics applicable to the whole area. Contrary to widely held opinions the stirrup does not seem to have been an Inner Asian invention. The beginnings of its use are difficult to establish partly because many of them were made in an organic material—wood, leather, bone—which tend to disintegrate when buried in the ground. More reliable evidence can be culled from sculptures and other representations of mounted warriors, some of which are fairly detailed and prepared with an obvious attention to technical details. The earliest known representations of the stirrup come from Korea and Japan and can be dated to the 4th and 5th century A.D. There is no evidence to show that the Huns (c. 370-450) used stirrups, well-known to the Avars a century later. It was from them that the Byzantine armies learned the use of this device which then passed

²² XI, 2, 2 = ed. Mihăescu p. 268: καὶ τὸ μὲν Τουρκῶν πολυάνδρον τε καὶ ἐλεύθερον.

²³ Cf. Gy. Moravcsik, "La Tactique de Léon le Sage comme source historique hongroise," *Acta Historica Academiae Sc. Hungaricae* I, 1952, 161-184, p. 175.

²⁴ VII, 7, 13, ed. de Boor p. 258: ἔθνος δὲ τοῦτο τῶν ἰσχυροτάτων καθέστηκε διὰ τε τὴν πολυανδρίαν καὶ τὴν πρὸς τὸν πόλεμον ἔνοπλου ἀσκήσιν.

²⁵ XI, 2, 2, ed. Mihăescu, p. 268.

²⁶ S. Jagchid—C. R. Bawden, "Some Notes on the Horse-Policy of the Yüan Dynasty," *CAJ*, X, 1965, 246-268, p. 246.

²⁷ *Historia nova*, IV, 20. Translation by James J. Buchanan and Harold T. Davis (San Antonio, Texas, 1967), p. 153.

²⁸ XXXI, 2, 6, ed. John C. Rolfe (Loeb, 1939), p. 383.

²⁹ XI, 2, 19, ed. Mihăescu p. 272.

³⁰ Gombos, *Catalogus*, p. 2039, *ad annum* 889.

³¹ In "Horse and Pasture in Inner Asian History," *Oriens Extremus* XIX, 1972, 171-183 (reprinted in collected articles cited above, footnote 1) I have assembled some data, objective as well as subjective, on this animal so there is no need here to expatiate on the same subject.

to the Arabs.³² As late as in the early 7th century the stirrup was still not used in Iran.³³

The presence in Inner Asia of another piece of important equine equipment, the horseshoe, cannot be established with certainty before the Mongol conquest. Of course the use of hipposandals—the covering of the hooves with some material—might be difficult to prove since these were usually made of perishable material such as leather, ropes or even wood which would tend to disintegrate in the tombs. The iron horseshoe, the use of which is well attested in fifth century Europe,

³² It would seem that stirrups are first mentioned in the *Strategikon* of Maurice, i.e., around 630, where they are called, by a term borrowed from Latin, σκάλα or σκαλα ἵππικῆ. Cf. Haralambie Mihăescu, "La Littérature byzantine, source de connaissance du latin vulgaire, II," *Revue des Études Sud-Est Européennes* XVII, 1, 1979, 61-91, p. 53.

³³ Cf. the excellent articles of I. L. Kyzlasov, "O proiskhozhenii stremjan," *SA*, 1973, 3, 24-36, and of A. D. H. Bivar, "Cavalry Equipment and Tactics on the Euphrates Frontier," *Dumbarton Oaks Papers* XXVI, 1972, 273-291, particularly pp. 287 and 290.—Bivar accepts the argument that the stirrup was brought across the steppe by the Juan-juan who, according to some, appeared in Europe under the name of the Avars. "The track of exiles westward across Siberia is marked by finds of stirrups derived from the Chinese prototypes" (p. 287). While there can be no doubt concerning the westward move of the object itself, there is no inherent reason to link it with the migration of one single people. Of course, if the identification of the Juan-juan with the Avars is a priori admitted, then the temptation of linking the diffusion of the stirrup with the migration becomes too strong to be resisted. There is no evidence to show that the Juan-juan or even the Türks who succeeded them in Mongolia used this device. In his well-documented chapter on "The Origin and Diffusion of the Stirrup" Lynn White Jr., *Medieval Technology and Social Change* (Oxford 1962), pp. 14-28 reaches the conclusion that "stirrups first appeared in the West some time in the early eighth century" (p. 24).—The common Turkic word for stirrup *üzängü* and its variants, is a derivative of *üz(ä)* "above, on high," an etymology proposed already by W. Bang and considered likely by G. Doerfer, *Türkische und mongolische Elemente im Neupersischen* III, (Wiesbaden, 1965), pp. 144-149. The very ease with which an etymology can be given would suggest that the object became known to the Turks fairly late and that its name then spread as a *Kulturwort*. As Doerfer, loc. cit., points out, the Mongol word for stirrup, *döröge*, should not be connected with the Turkic forms. It has no etymology within Mongol. Clearly, the stirrup is not the invention of Altaic peoples.

does not seem to appear in Inner Asia before the Mongol period and even then only occasionally. Jagchid and Bawden give some indication of its existence in Yüan China,³⁴ and Kirakos of Gandzak reports that the Mongols in Armenia levied one horseshoe per inhabitant.³⁵ An anonymous Latin poem written on the occasion of the Mongol invasion of Hungary notes that the Mongol horses are unshod: *Est silex equi ungula / ferri, clavi non gerula*.³⁶ In Rashid ed-Dīn's version of the Turkic legend of Oghuz kaghan the use of horseshoes is mentioned as a special precautionary measure.³⁷ According to Thomas of Spalato, a reliable witness, the Mongol horses "run around on rocks and stones without horseshoes as if they were wild goats."³⁸ In the middle of the 15th century Oyirad envoys to the Ming court had to be provided with horseshoes,³⁹ a fact which shows that the western Mongols appreciated the advantages of using the device. Of course the shoeing of huge horseherds was impracticable. In an account of the Kalmucks' crossing the Volga in 1722 we read: "... the Kalmuck Tartars came over the river on the ice to take up their usual winter quarters in the desert: they covered a road with earth over the ice for their cattle to pass on, their horses for want of shoeing, as well as their other cattle, being equally unable to set their feet on the bare ice."⁴⁰

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³⁴ *Op. cit.*, p. 249.

³⁵ E. Dulaurier, "Les Mongols d'après les historiens arméniens," *JA*, 1858, I, p. 483.

³⁶ Cf. Gombos, *Catalogus*, III, p. 2282.

³⁷ Karl Jahn, *Die Geschichte der Oghuzen des Rašid ad-Dīn*, Österreichische Akademie der Wissenschaften, Phil.-hist. Klasse, *Denkschriften* Bd. 100 (Wien, 1969), p. 25.

³⁸ Ch. 37. Gombos, *Catalogus*, III, p. 2239: "per rupes vero et lapides absque ferramentis its discurrunt ac si capre forent silvestres."

³⁹ David M. Farquhar, "Oirat-Chinese Tribute Relations, 1408-1446," *Studia Altaica, Festschrift für Nikolaus Poppe* (Wiesbaden, 1957), 60-68, p. 62.

⁴⁰ *Memoirs of Peter Henry Bruce Esq.* (1783; reprint: London, Frank Cass and Co., 1970).—On the early use of hipposandals and, more generally, on the early European data concerning the protection of the horses' hooves, cf. Paul Vigneron, *Le Cheval dans l'Antiquité gréco-romaine. (Des guerres médiques aux grandes invasions)*, I (Nancy 1968), pp. 45-50.—There is no Common Turkic word for horseshoe and no word with this meaning is attested in Old Turkic. Some Turkic languages such as Coman, Turkish, Turkmen,

The typical Inner Asian warrior is not only a superb horseman; his skill in archery is equally remarkable.⁴¹ He seems to have invented the difficult art of shooting from horseback without halting. Expertise in riding and shooting is at the basis of the Greek technical term ἵπποτοξότης "mounted archer" which, applied to the Scythians, appears already in Herodotus (IV.46) and which, on occasion, is used as a synonym of their name.⁴² Speaking of an ill-defined barbarian people—probably Pechenegs or Comans—whom she calls Scythians, Anna Comnena (writing between 1138 and 1148) describes them as "infidel barbarians, prodigious (horrible?) mounted archers."⁴³ A contemporary of the Huns, the poet Sidonius Apollinaris pays eloquent tribute to their military qualities: "Scarce has the infant learnt to stand without his mother's aid when a horse

Kumyk use *nal*, a loanword from Arabic. The original meaning of "shoe" is maintained in Middle Turkic documents, cf. A. K. Borovkov, *Leksika sredneaziatskogo tefsira XII-XIII vv.*, (Moskva, 1963), p. 227. Another word for "horseshoe" *taka* and its variants appear in a number of other Turkic languages, cf. Radloff, *Wörterbuch* III, 779, 789, Tuvín, Tatar *daga*, Chuvash *takan*, etc. In some languages the two forms coexist, e.g., Kazak, Karakalpak *nal* and *taya*, Uzbek *taqa*, *naxal*, *nayal*. *Taka* has a perfectly clear Turkic etymology. It derives from the Common Turkic verbal root *taq-* "to fix, to attach" and originally it probably meant a hipposandal. From Turkic the word passed into Mongol. Classical Mongol has *taqa* for which Kowalewski gives the revealing definition "un fer (de cheval), espèce de patins qu'on met sur les souliers ou les bottes, ces patins sont armés de pointes de fer: on s'en sert pour grimper sur les montagnes où il y a de la glace." The word exists in the modern dialects, e.g., Khalkha, Kalmuck *tax*. Among the Tunguz languages Evenki has *taka*, Manchu *tahan*. Of course a detailed study of this word is out of the question within the framework of this article, but it is clear that the lines of penetration of the horseshoe into Inner Asia run from the west and the south and not from China. I feel reasonably certain that the device is a western invention.

⁴¹ A good selection of passages culled from Byzantine sources and describing the Turks' skill in archery is presented by Walter Emil Kaegi, Jr., "The Contribution of Archery to the Turkish Conquest of Anatolia," *Speculum*, XXXIX, 1964, 96-108. I refrain from repeating here his data.

⁴² Cf. E. Darkó, "Influences touraniennes sur l'évolution de l'art militaire des Grecs, des Romains et des Byzantins," *Byzantion* X, 1935, 443-469, p. 447.

⁴³ ἀλλοκότους ἵπποτοξότας, *Alexiad* XII, VIII, 5, ed. Leib, vol. III, p. 79.

takes him on his back. You would think the limbs of man and beast were borne together, so firmly does the rider always stick to the horse, just as if he were fastened to his place: any other folk is carried on horseback, this folk lives there. Shapely bows and arrows are their delight, sure and terrible are their hands; firm is their confidence that their missiles will bring death, and their frenzy is trained to do wrongful deeds with blows that never go wrong."⁴⁴ Jordanes' judgment is more terse: the Huns are "excellent horsemen . . . skilled in the use of the bow and arrow."⁴⁵

Maurice's *Strategikon* notes⁴⁶ that the Türks assiduously exercised themselves in shooting arrows from horseback, a statement repeated verbatim by the Emperor Leo who applies it to the Hungarians.⁴⁷

The Hungarian mounted archer was particularly dreaded by his contemporaries. A supplication of the people of Modena to St. Geminianus, their patron, contains the request that they be protected from the Hungarians' arrows.⁴⁸ According to the Abbot Regino (d. 915), in their campaign of 889, the Hungarians "who live like wild beasts rather than like human beings . . . have killed but few with their swords but thousands with their arrows which they aim with such accomplished art from their bows made out of bone that it is scarcely possible to defend oneself against their shooting."⁴⁹ In 901, in the course of the war waged by them against the Lombards, "an innumerable multitude perished by the shots of their arrows."⁵⁰ The Lombard historian Liudprand in his description of the battle between Louis, son of Arnulf Duke of Bavaria and the Hungarians, states that the latter

⁴⁴ *Panegyric on Anthemius*, 262-269, ed. and tr. W. B. Anderson (Loeb, 1936), I, pp. 30-31.

⁴⁵ XXIV, . . . "ad equitandum promptissimi . . . et ad arcus sagittasque parati," ed. Mommsen, *MGH.AA.V*, Pt. 1, p. 91.

⁴⁶ XI, 2, 8, ed. Mihăescu p. 270.

⁴⁷ *Taktika* XVIII, 50, ed. Migne *PG*. 107, 957-958. On the interrelatedness of the two texts cf. Gy. Moravcsik, "Bölcs Leo taktikája, mint magyar történeti forrás," *Századok* 85, 1951, 334-353, and also Bohumila Zástěrová, *Les Avars et les Slaves dans la Tactique de Maurice*, *Rozpravy Československé Akademie Věd*, Ročník 81, Sešt 3, 1971.

⁴⁸ "Ab Ungerorum nos defendas iaculis." Gombos, *Catalogus* II, p. 843.

⁴⁹ "Vivunt non hominum, sed beluarum more." "... per paucos gladio, multa milia sagittis interimunt, quas tanta arte ex cornis arcubus dirigunt, ut earum ictus vix precaveri possit." Gombos, *Catalogus* III, p. 2039.

⁵⁰ *Ibid.*

(called in the text Turci) killed many by turning their backs to the enemy as if fleeing and shooting their arrows backward.⁵¹

The Seljuk horse archers won the respect of the crusaders. "From the frequent use of Latin writers of words like 'pluvia,' 'imber,' 'grando,' and 'nubea' to describe the volume of Turkish archery," writes R. C. Smail,⁵² "it is probable that a high rate of fire was maintained." In fact their projectiles cloud the skies more than would rain or hail.⁵³ The same image is used more than a thousand years earlier by the Annals of the Former Han in the description of the ambush laid by the Hsiung-nu for the Chinese general Li-ling in 99 B.C.,⁵⁴ or by Roger, Canon of Várad, relating how, in 1241, the Mongols "shot their arrows like rain" on the Hungarian troops of Ugolin, archbishop of Kalocsa.⁵⁵

Of course the Mongols of the 13th century appear as archers par excellence. In Armenian sources they are generally referred to with the term "the nation of the archers."⁵⁶ In 1241, in a letter sent to the king of England, the Emperor Frederick II considers the Mongols more familiar with the bow than any other people, and describes them as "incomparable archers."⁵⁷ Matthew Paris himself uses the same epithet.⁵⁸

To give a technical description of individual pieces of armament would lead us beyond the scope of this article, the more so since there was no uniformity in the equipment of the Inner Asian warrior. It differed widely according to place, people and epoch. The most important single piece of equipment was the compound bow, the various types of which can fairly well be reconstructed. It was made of wood and horn, specially strengthened with sinews glued to the wooden

core. An important feature is its asymmetry resulting from the grip being placed below the bow's center.⁵⁹

Of course almost every one of the thousands of archeological sites explored yielded some arrowheads, not all of them used in warfare. The length and the material of the shafts is less well known; made of wood they tended to disintegrate in the burial sites. Plano Carpini⁶⁰ does give some indication as to their length in the 13th century but the interpretation of his data is difficult.⁶¹ In his descriptions of the Mongols' armament Thomas of Spalato notes that the notch at the end of the shaft of the Mongol arrows was so narrow that they could not be used with "our" (presumably the Hungarians') bows. According to him the Mongol arrow shafts were four digits longer than their Hungarian (?) counterparts, and the arrowheads were made of iron, bone, or horn.⁶² The bone arrowheads of the Huns had been noted by Ammianus Marcellinus.⁶³ Their continued use about nine hundred years later by the Mongols is an indication not only of their high quality but also of the perennial shortage of metal which the Inner Asian armies had to overcome, and about which I will have more to say.

However skilled, to defeat the enemy the Inner Asian archer had to fight him at close quarters. His most used personal weapon, the sword, is attested in

⁵¹ "Gravis itaque hic indeque oritur pugna, versique terga ceu in fugam Turci, directis acriter boelis, id est sagittis, plurimus sternunt." Gombos, *Catalogus* II, p. 1470.

⁵² *Crusading Warfare (1097-1193)* (Cambridge University Press, 1956), p. 81.

⁵³ "si grant planté de saietes et de quarriaux que pluie ne gelle ne feist mie si grant oscurté. . . ." Continuation of William of Tyre, *Recueil des historiens des croisades. Historiens occidentaux* II, p. 606.

⁵⁴ *Ch'ien Han-shu* 54, 12a: 矢如雨下

⁵⁵ Ch. 21, "sagittas velut pluviam emittentes." Gombos, *Catalogus* III, p. 2073.

⁵⁶ Robert F. Blake - Richard N. Frye, "History of the nation of the Archers (the Mongols) by Grigor of Akanc'," *HJAS*. XII, 1949, 269-443, p. 384.

⁵⁷ Matthew Paris, *Chronica majora*, ed. Luard IV, p. 115.

⁵⁸ Ed. Luard III, p. 488.

⁵⁹ Hundreds of works deal with the Inner Asian bow and arrow. For a good technical description of the compound bow see W. F. Paterson, "The Archers of Islam," *JESHO*. IX, 1966, 69-87. A wealth of information is contained in the detailed monographs of K. F. Smirnov, *Voorużenie savromatov*, *MIA*. 101 (1961), pp. 31-70 on bows and arrows, A. I. Meljukova, *Voorużenie skifov*, *Arkheologija SSSR*. Svod arkheologičeskikh istočnikov, vyp. D 1-4, (Moskva 1964), pp. 14-44 on bows and arrows, and A. M. Khazanov, *Očerki voennogo dela sarmatov* (Moskva, 1971), pp. 28-43 on bows and arrows. For a more recent period: Joachim Werner, *Beiträge zur Archäologie des Attila-Reiches*, *ABAW*. N. F. Heft 38A, 1956, especially pp. 46-50. A good general survey of Inner Asian arrows: Käthe U. Köhalmi, "Der Pfeil bei den innerasiatischen Reiternomaden und ihren Nachbarn," *AOH*. VI, 1956, 109-159.

⁶⁰ VI, 9, ed. Wyngaert p. 79.

⁶¹ Cf. the comments on p. 42 of Paul Pelliot, *Recherches sur les Chrétiens d'Asie centrale et d'Extrême-Orient* (Paris, 1973).

⁶² "Sagitte eorum nostris sunt quatuor digitis longiores, ferrea, ossea et cornea cuspidate conspicatae." Ch. 37, Gombos, *Catalogus* III, p. 2239.

⁶³ XXXI, 2, 9, ed. Rolfe, p. 384.

many shapes, sizes, either in its straight variety—short, dagger-like as the Scythian *akinakes*, or long, single- or double-edged—or as a sabre, pointed at the end, curved and sharpened on one side only. The Huns of Attila (4th c. A.D.) were armed with two swords, one of them of the long, double-edged type, the other a shorter, single-edged equestrian slashing sword.⁶⁴ Sabres were used by the people—perhaps revolutionaries—who in the last decades of the 7th century replaced the former ruling class of the Avars armed with straight swords.⁶⁵

An anecdote in the Russian *Primary Chronicle* throws an interesting light on the perennial competition between sword and sabre. It reports how the Slavic Polyanians paid one sword per hearth as a tribute to the Turkic Khazars who, upon examination of these weapons commented: "Evil is this tribute, prince. We have won it with a one-edged weapon called a sabre, but the weapon of these men is sharp on both edges and is called a sword. These men shall impose tribute upon us and upon other lands."⁶⁶ Both sword and sabre are represented in the grave finds of the South Russian steppe which date from the tenth to the fourteenth century.⁶⁷ The Pecheneg graves of the ninth and tenth centuries yielded massive sabres with slightly bent blades no longer than one metre and with wooden hilts. The curvature of the blades becomes more noticeable in later graves.⁶⁸ Sabres and swords do not appear all too often in the graves. Pletneva's explanation that this was due to the value of these weapons and the consequent desire of the survivors to keep them for themselves, makes good sense. Plano

Carpini noted⁶⁹ that swords were used by the wealthier Mongols only, the poorer soldiers carried axes.

Next in importance to the bow and the sword, spears and lances must be mentioned in the inventory of the traditional arsenal of Inner Asia. Since in most cases the wooden shafts have disintegrated, it is often difficult to distinguish spears—used for hurling as well as for thrusting—from lances held rigidly in the battle. Although these constituted the principal weapons of the Sarmatians, they appear but rarely among the gravefinds.⁷⁰ There is some pictorial evidence from Panticapaeum (Kerch) showing presumably Sarmatian horsemen wielding very long lances⁷¹ and such figures appear also on the rock pictures of the Upper Yenissei.⁷² The Sarmatians represent a distinct branch in the military history of Inner Asia and cannot be considered as typical. Military continuity on the steppe evolved from the Scythian prototype. The use of a short, light spear was probably universal. It was the preferred weapon of the Seljuks in the 12th century.⁷³ Plano Carpini mentions a special type of lance used by the Mongols. It has a hook in its iron head with which a man can be dragged from his saddle.⁷⁴

A word may be said about the use of the lasso as a weapon. The first mention is probably that made by Herodotus (VII,85) in connection with the Sagartians. According to the Suidas Lexicon⁷⁵ it was used by the Parthians in whose army a whole contingent (σειροφόροι) fought with this device. Speaking of the Sarmatians, Pausanias notes that "They throw a lasso round any enemy they meet, and then turning round their horses upset the enemy caught in the lasso."⁷⁶ In his

⁶⁴ Werner, op. cit., pp. 38-46. I cannot forego the pleasure of citing William Trousdale's erudite and imaginative book *The Long Sword and Scabbard Slide in Asia* (Smithsonian Contributions to Anthropology 17, 1975), rich in interesting data and ideas pertaining to the accoutrement of the Inner Asian warrior.

⁶⁵ Gyula László, *Études archéologiques sur l'histoire de la société des Avars*, *Archaeologia Hungarica Series Nova* XXXIV, 1955, p. 236.

⁶⁶ Samuel Hazard Cross and Olgerd P. Sherbowitz-Wetzor, *The Russian Primary Chronicle, Laurentian Text*. Translated and edited. The Mediaeval Academy of America, Publication No. 60 (Cambridge, Mass., 1953), p. 58.

⁶⁷ G. A. Federov-Davidov, *Kočevniki Vostočnoj Evropy pod vlastju zolotoordynskikh khanov*. *Arkheologičeskie pamjatniki* (Moskva, 1966), specifically pp. 22-26, 117.

⁶⁸ S. A. Pletneva, *Pečenegi, torki i polovcy v južnorusskikh stepjakh*, *MIA*.62 (1958), 151-226, pp. 159, 168.

⁶⁹ VI, 4, ed. Wyngaert p. 77.

⁷⁰ Cf. Khazanov, op. cit., in footnote 59, p. 44. This is the most detailed presentation of the Sarmatian military.

⁷¹ Cf., e.g., M. Rostovtzeff, *Iranians and Greeks in South Russia* (Oxford, 1922), plate XXIX, and Joseph Wiesner, *Die Kulturen der frühen Reitervölker*, in *Die Kulturen der eurasischen Völker* (Frankfurt-am-Main, 1968), 3-192, p. 111.

⁷² Hj. Appelgren-Kivaio, *Alt-aitaische Kunstdenkmäler* (Helsingfors, 1931), fig. 93—at present not available to me.

⁷³ Cf. Smail, op. cit., in footnote 52, pp. 78, 113.

⁷⁴ VI, 9, ed. Wyngaert p. 79. Berthold Laufer, *Chinese Clay Figures*. Pt. I, *Prolegomena on the History of Defensive Armor*, Field Museum of Natural History Publication 177 (Chicago, 1914), p. 228 refers to Chinese illustrations (not available to me) of such lances used by the Hsiung-nu.

⁷⁵ s.v. *σειραις* ed. Adler, vol. IV, p. 346.

⁷⁶ *Description of Greece* XXI, 5-6, ed. and trans. W. H. S. Jones, vol. I (Loeb, 1931), pp. 106-107.

Jewish Wars Josephus Flavius⁷⁷ relates how in 72 or 73 A.D. the Armenian king Tiridates had a narrow escape after having been caught by a lasso (βρόχος) thrown by an Alan. Writing in the second half of the eighth century Moses Khorenats'i adapted Josephus's description to events posterior by some two centuries. In his narration king Trdat was caught by a "strap of sinew wound around with leather" thrown at him by the king of the Barsil.⁷⁸ According to Ammianus Marcellinus the Huns "throw strips of cloth plaited into nooses over their opponents and so entangle them that they fetter their limbs and take from them the power of riding or walking."⁷⁹ A legend related by Sozomen tells the story of Theotimus, bishop of Tomi, whom a Hun tried to drag away with a lasso but his hand remained extended in the air until the intended victim interceded with God on the Hun's behalf.⁸⁰ In view of such information one may wonder whether the rope which, according to Plano Carpini,⁸¹ every Mongol soldier carried on him was really intended for the towing of war engines—as the Franciscan opined—or was, quite simply, a lasso.

* * *

It stands to reason that the supply of matériel needed by a highly mobile cavalry force posed problems that would have taxed an industry far more advanced than that of traditional Inner Asia. In small quantities iron is a fairly ubiquitous metal but the manufacture of arms—arrowheads, lances, spearheads and, more particularly, sabres—requires a fairly sophisticated in-

dustry using the skill of specialist workers and permanent workshops. The three principal sources of arms supply were trade with the sedentary peoples, the employment of specialized craftsmen—often prisoners of war—and the taxation in kind of conquered, sedentary populations.

In the involved history of trade between the peoples of Central Eurasia and the surrounding sedentary civilizations weapons and iron have played an important role. Of course most of our evidence originates with the exporter and has a negative character. It shows a constant endeavor by the sedentary states to limit trade to official, controlled market places and also failure to prevent contraband. In Han times the very soldiers charged with defending the borders of the empire are known to have sold iron weapons to their enemy, the Hsiung-nu.⁸² Yet the law was quite explicit: "In the barbarian market officials as well as the common people are not allowed to carry weapons and iron out of the frontier barriers. The same regulation applies also to the market in the capital."⁸³ In the second century A.D. Hsien-pi auxiliary troops serving with the Chinese army insisted that their dues be paid in iron instead of money.⁸⁴ A memorial written in A.D. 177 deploras the ineffectiveness of the arms embargo: "Therefore, refined metal (bronze?) and iron were smuggled out without our notice, and fell into the possession of the (Hsien-pi) rebels. . . . Now, their weapons are even sharper and horses faster than those of the (previous) Hsiung-nu."⁸⁵ At the end of the second century A.D., in a commentary of a passage of the *Ch'ien Han-shu*, Ying Shao, a distinguished civil servant, remarked that "in the markets the sale for export of arms and iron to the Hu (Northern Barbarians) was forbidden to the officials as well as to the people."⁸⁶ The prohibition of exporting iron to the barbarian tribes is attested also for T'ang times. Illegal export continued to plague the officials of the Ming dynasty. From the rich documentation assembled by Henry Serruys⁸⁷ I will select just a few telling examples.

⁷⁷ VII, 7, 4, ed. B. Niese, vol. VI (reprint: Berlin, 1955), p. 602.

⁷⁸ Cf. Robert W. Thomson, *Moses Khorenats'i. History of the Armenians* (Harvard University Press 1978), p. 237. On the historical events cf. K. Czeglédy, "Kaukázusi hunok, kaukázusi avarok," *Antik Tanulmányok* II, 1954, 121-140, pp. 130-131, unknown to Thomson.

⁷⁹ XXXI, 2, 9, ed. and transl. John C. Rolfe, vol. III, pp. 384-385.

⁸⁰ *Ecclesiastical History*, VII, 26, in Henry Wace and Philip Schaff (editors), *A Select Library of Nicene and Post-Nicene Fathers of the Christian Church*, Second Series, vol. II (Oxford and New York 1891), p. 395. Attention to the use of the lasso as a weapon among the Inner Asian peoples was called by Moravcsik Gyula, "A hunok taktikájához," *KCsA.* I, 1921-25, 276-280, where further references can be found.

⁸¹ VI, 4, ed. Wyngaert p. 77: "et funes ad machinas trahendas."

⁸² Ying-shih Yü, *Trade and Expansion in Han China* (University of California Press, 1967), p. 99.

⁸³ Yü, op. cit., p. 122. See also *ibid.* p. 129.

⁸⁴ *Ibid.* p. 109.

⁸⁵ *Ibid.* p. 132.

⁸⁶ Gerhard Schreiber, "Das Volk der Hsien-pi zur Han-Zeit," *Monumenta Serica* XII, 1947, 145-203, p. 195.

⁸⁷ "Sino-Mongol Relations during the Ming. III. Trade Relations: The Horse Fairs (1400-1600)," *Mélanges chinois et bouddhiques* XVII, 1975, 59-72.

In 1407 an imperial rescript reminded the Chinese commander-in-chief of Kansu that the "old regulations" forbade the sale of weapons. In 1437 a high-ranking officer defended himself against the charges of "trading helmets, harnesses, bows and arrows with Mongol tribute envoys for camels." In 1443 "an official wanted to prohibit all relations between Mongol envoys and Mongols in the Ming service residing at the capital, and simultaneously the sale of weapons, copper and iron along the road to and from the capital." The very fact that again and again over the years the interdict had to be repeated shows that the law was disregarded. Serruys cites several cases when arrowheads hidden in wine jars were smuggled to the Oyrads.

The crucial role of the trade in arms is well exemplified in the rise of the Jurchen as described in the *Chin-shih*: "In the old times the Wild Jurchen had no iron. Whenever somebody from the adjacent states came to sell armor, they used to pay a high price in this trade. [Ching-tsu—an early leader of the Jurchen] also ordered all his brothers and clan members to buy. When they had obtained much iron, they used it to manufacture bows, arrows and other weapons. His military power increased gradually and there were many people who at one time or another wanted to join him."⁸⁸

Byzantine data, although far less numerous, offer an exact parallel to the information provided by Chinese sources. In the early fifth century the Huns were as eager to trade with the Romans as the Hsiung-nu and their successors in Mongolia had been with the Chinese. After the death of Attila, in 465, the Emperor Marcian—who had always pursued an uncompromising policy towards the Huns—banned the export to the barbarians of weapons and of any material from which they could be manufactured.⁸⁹ About a century later, the law was incorporated in Justinian's code.⁹⁰ In 562, to the dismay of the Emperor Justinian, an Avar embassy to Constantinople purchased some arms, impairing thereby their relations with Byzantium.⁹¹

⁸⁸ Herbert Franke, "Chinese Texts on the Jurchen. II. A Translation of Chapter One of the *Chin-shih*," *Zentralasiatische Studien* XII, 1978, 413-451, p. 421.

⁸⁹ Cf. E. A. Thompson, *A History of Attila and the Huns* (Oxford, 1948), p. 180, with textual references.

⁹⁰ In: XXXXI "Quae res exportari non debeant." *Codex Iustinianus*, ed Paul Krueger (Berlin, 1892), pp. 178-179.

⁹¹ Menander, fragment 9, ed. L. Dindorf, *Historici Graeci Minores*, vol. II (Teubner, 1871), p. 8. Cf. also Thompson, op. cit., p. 172.

To supplement, or even to substitute for, the arms obtained through trade artisans were needed. Though probably not free, those engaged in the manufacture or repair of weapons enjoyed a special status. There is evidence to suggest that these men were linked to each other by a strong esprit de corps which—on occasion—may have led to the formation of political entities. Thus it is well known that before creating their own empire in the middle of the sixth century A.D., the Türks were the "blacksmith slaves" of the Juan-juan. A similar example is the case of Caucasian kingdom of Zarīkaran mentioned by the tenth century Arab geographer Mas'ūdi, according to whom the name "means 'makers of coats of mail' because most of them are engaged in the manufacture of coats of mail, stirrups, bridles, swords and all other weapons made of iron."⁹²

A characteristic and in some respects very modern case is that of German prisoners of war "digging for gold and manufacturing arms" for the benefit of the Mongols. The Franciscan Rubruck, who in the middle of the thirteenth century vainly tried to contact and help them, placed their whereabouts at a distance of one month's travel to the east of Talas, in a certain town called Bolat.⁹³ The exact location of that city is uncertain but its name—derived from the Persian *pūlād* "steel"—leaves no doubt about its role. Similarly, the presence in Anatolia of place names *Demirciler* "Blacksmiths" led Xavier de Planhol⁹⁴ to the correct conclusion that these settlements were originally established by nomad artisans grouped together by reason of their occupational specialization.

Rashid ed-Dīn gives a description of the organization of Persian and Mongol armorers in the realm of the il-khan Gazan. Within each city they were constituted into guilds, and the workers were paid at a standard rate for each unit produced. By switching from timework to piecework, according to our source, production quintupled.⁹⁵

Scarcity of metal and of weapons led the Mongols to impose taxes payable in kind. According to the *Secret History of the Mongols* (paragraph 279), as part of his reorganization of the taxation, the khan Ögödei decreed that besides silk and silver, quivers (*qor*), bows

⁹² V. Minorsky, *A History of Sharvān and Darband* (Cambridge, 1958), p. 155.

⁹³ Rubruck XXIII, 3, ed. Wyngaert pp. 224-225.

⁹⁴ "Les Nomades, la steppe et la forêt en Anatolie," *Geographische Zeitschrift* 53, 1965, 101-116, p. 111.

⁹⁵ D'Ohsson, *Histoire des Mongols*, vol. IV (La Haye, 1835), pp. 431-433.

(*numun*), armor (*quyag*) and weapons (*jebe*) be collected and stored.⁹⁶ Rubruck noted that in the lands lying west of the Don, even into the Balkans, the Mongols exacted a tribute consisting of an axe per annum and per household, and of all the unwrought iron they could find.⁹⁷ According to the Armenian historian Kirakos of Gandzak, during the reign of Hülegü the very heavy taxes in kind imposed upon the conquered lands included one arrow and one horse-shoe, presumably by household.⁹⁸

It is of course difficult to estimate the amount of metal needed for the outfit of an imaginary "average" Inner Asian warrior. On the basis of grave finds—the weight of metal weapons found buried with Hungarian warriors of the time of the Conquest (9th c. A.D.)—Szabolcs de Vajay⁹⁹ estimates that some thirty metric tons of crude metal were needed to equip a cavalry force of about twenty thousand. Unfortunately archaeologists seldom indicate the weight of the weapons found. This is regrettable since such data would allow us to infer the size and nature of the industrial basis needed to produce them. Thus I have not come across any indication concerning the weight of many thousands of arrowheads found in Scythian graves. In some sepulchres they are very numerous indeed, as—for

⁹⁶ For the text cf. ed. Ligeti, p. 256.

⁹⁷ I, 5, ed Wyngaert p. 168: "totum ferrum quod invenerunt in massa."

⁹⁸ Dulaurier, op. cit., in footnote 35, p. 483; K. P. Patkanov, *Istoriya mongolov po armjanskim istočnikam*, II (St. Petersburg, 1874), p. 88.

⁹⁹ "Über die Wirtschaftsverhältnisse der landnehmenden Ungarn," *Ungarn Jahrbuch* 1979, 9-19, p. 16.

instance—in the 8th kurgan of Elizavetov (dated the second half of the fourth century B.C.) which yielded 985 bronze and 59 iron arrowheads.¹⁰⁰ Although in the wake of a battle or a hunt some could be retrieved, arrows were an expendable commodity. The need for them and other new weapons must have been constant and quite acute.

As any other soldier in history, the warrior of Inner Asia depended on the technology and the resources of the society to which he belonged for his weapons, and these were greatly determined by environmental factors. To command a supply of horses essential to ensure his superiority over the agriculturalist, the nomad mounted warrior was bound to remain within the steppe belt.¹⁰¹ To obtain the weapons he needed he had to rely on metallurgy which cannot operate without two essential ingredients: ore and combustible. The second of these was not available on the steppe. The supply of metal had to come from the forest-belt over which the mounted warrior had but limited control. The steppe which provided the warrior with his mounts—the key-factor in his military success—denied him the means necessary for the development of his weaponry. It could not provide the artisanal or semi-industrial basis essential to maintain the military superiority of the Inner Asian armies which, very early in history, learned to make optimum use of the natural and human resources available to them.

¹⁰⁰ Meljukova, op. cit., in footnote 59, p. 29.

¹⁰¹ I have dealt in some detail with this very important question in my "Horse and Pasture . . ." cited above in footnote 31.

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