Oral traditions about early iron-working in the Caucasus mountains

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ABSTRACT: The origin of the smelting of iron is usually attributed to regions to the South and East of the Black Sea. This paper details some oral traditions from the Caucasus Mountains describing the early development of the processing of iron and steel. Most of the mountain regions had no writing until less than a century ago, so the oral records cannot be scientifically dated, but comparison with archaeological and other data suggests that they date from the early development of iron, at the beginning of the Iron Age.

Introduction

It is widely accepted that the development of iron smelting took place over an extended period in the Middle-East region, probably around 1200 to 1000 BC. (Pigott 1989, 67). Its development was slow, partly because until it is converted into steel and hardened, wrought iron is inferior to bronze in its strength properties (Waldbaum 1999, 27). Prior to this time its use was mainly decorative or ceremonial, and most of the early iron artefacts found have been made of native iron, generally from iron meteorites, which usually contain nickel (ibid). The amounts of meteoric iron used were generally small, either because the meteorites themselves had been small, or because with the larger meteorites it was difficult to remove sufficiently small pieces to be handled with primitive forging methods.

This paper presents some oral traditions about early iron-working in the Caucasus, and compares these with historical evidence from other sources. In addition there is a considerable amount of archaeological evidence of early iron smelting, around the eighth to seventh centuries BC and earlier, in the eastern Black-Sea region of Colchis, now the Republic of Georgia (Chachutaischwili 2001, 182). There is also archaeological evidence of early smelting of iron from 1100 BC in Svaneti, in the high Caucasus (Coghlan 1956, 50).

A problem in the early development of iron was that tongs had not been invented for holding hot iron for forging, whereas bronze could be worked in the cold state (Coghlan 1956, 69). A study of primitive methods of working iron among native peoples in Africa showed that, as an example, the anvil would be a granite block, and the hammer would be a small piece of granite held in the hand, without a handle. The hot iron would be held with green sticks as primitive tongs which, although dipped into water, would soon catch fire (ibid, 109).

Oral traditions of the Caucasus Mountains relating to the production of iron

Historians prefer to use written literature as the source of their information, firstly because once it is written, no matter how misleading the information contained, it remains unchanged for ever and so can be studied; and secondly because its recording can usually be dated.

Figure 1: Map of the Great Caucasus. The Nart sagas are strongly preserved in the tribal areas of the NW. Note that the Balkars and Karachays live adjacent to Svaneti, where archaeological evidence of early iron-smelting has been found (Coghlan 1956, 50).

Oral evidence, on the other hand, is transmitted 'from father to son', during which process it can be altered. The content held by an individual can also be changed in order to ensure its continuing interest and meaning to the audience. Moreover, the dating of its origin is almost impossible, except by inference from other historical or archaeological evidence. On the other hand, oral records often preserve information from very ancient times. Where the oral tradition is replaced by writing, and the conditions for oral transmission fall into decay, such ancient information is usually lost. It is often apparently irrelevant details, especially when preserved in more than one oral version, that are the most significant. In the analysis of oral legends it is now recognised that details, however small, should not be ignored: in his book on the analysis of oral narrative using the methods of structural anthropology, Leach states that 'detail is the very essence' (Leach 1997, 4). That is why some of the oral records have been quoted in detail, below.

Georgia, in the region of the Great Caucasus mountain range, has had a written language since the fourth century AD, but the rest of the Great Caucasus, even including the mountainous parts of Georgia, generally had no written language until it was introduced by the Soviets in 1924. This does not mean that culture or history did not exist, but that instead of being stored in books, it was stored in the memories of specialists. These specialists were known as *geguakos* among the Adyge (Circassian) people, and were either freelance or employed by local princes (Dumézil 1930, 1–18). They fulfilled a similar function to that of the minstrels of medieval western Europe. This means that they were employed to entertain the people by sharing the old traditions, especially at festivals, meetings, games and so on. The *geguakos* have now completely vanished, but before they did so, much of their work was recorded in writing for preservation. Even now, there are very old people who still remember some of the old traditions, and there are numerous annual expeditions into the mountains to record these before they are irretrievably lost.

Foremost among the traditions of the NW Caucasus region (see map, Figure 1) are the so-called Nart sagas. The Narts were a mythical or legendary tribe that 'went before' the present people. The men were led by heroes, who helped to protect their folk from their enemies. Although many of the legends, in spite of the linguistic

differences, are common to the whole area, each tribe has its own distinctive slant in its Nart legends. Although the blacksmith is an important figure in all of the national versions of the Nart epos, the legends of the Balkarian and Karachay people, who live in the high Caucasus, are particularly interesting for their emphasis on him. Most of the following material comes from the Balkaro-Karachay epos compiled from earlier records by Khajieva and Ortabayeva (1994).

One of the early myths (*ibid*, 302) describes the creation of the world by the Teyris (gods), whose chief was Teyri of the Sun, 'the mighty keeper of the world'.

> 'One day, in ancient times, Teyri of the Sun was angered by the fogs: after covering the earth, they did not let through the Sun's light. The Sun became angry, he became furious, and turning towards the earth, after beginning to rumble, he erupted. Sparks and stones were scattered from the Sun's core like rain on the earth. This is where gold, silver and iron-stone appeared on the earth. All of it is eruption from the Sun'.

Interpretation of this passage is debatable, but clearly it must include folk memories of the finding of iron meteorites.

The founder of the Nart tribe was the Nart blacksmith Debet (whose name incidentally, is locally considered to be a distortion of the biblical 'David', who himself was also a blacksmith according to the Koran (1967, 179, 294), and according to many traditions from central Asia (Tavkul 2000)). Debet was the culture hero and inventor of equipment for men; in that society men's interests consisted mainly of hunting, fighting and the rustling of domestic animals (the parallel culture heroine was the inventor of women's equipment). It must be pointed out that the primitive blacksmith's work was not merely the forging of iron and possibly the shoeing of horses, like the modern blacksmith. He had to begin with iron ore, smelt it, work it to produce compacted iron, shape it, then possibly carburise it and finally quench and temper it to produce steel suitable for its purpose. So his job literally meant obtaining a 'sword from a stone', like our King Arthur in some versions of his legend. There are various versions of Debet's birth, including a song telling that his father was the sky and his mother was the earth (Khajieva and Ortabayeva 1994, 302–304). When the earth gaped open, he was born. His foster mother was the Mother of Water, who nourished him. Later, in preparation for his work as a smith:

> 'Teyri of the Fire taught him the language of fire,
> Teyri of the Earth taught him the language of stones'.

Debet went off into the mountains, where he would talk with the stones,

> 'He crumbled these stones with his hands
> And found out what each stone contained.
> He was eating the stones, like bread.
> To learn what is in each, he would try many stones.'
> 'He knew the languages of fire, of water and of earth'.

Then later:

> 'He was the first in the world to make a blacksmith's bellows,
> He was the first in the world to obtain iron,
> He was the first to begin burning mineral coal'.

After he produced the weapons:

> 'He tempered them, plunging them into the Black Sea.
> The raw iron he turned into damask steel'.

There is a description of Debet's testing of his products:

> 'He tested the armour, striking [it] with a sword,
> But the sword would not take it — the edge became chipped and blunted.
> Debet's arrows would punch through Mingi Tau [Mount Elbrus],
> His arrows would fly as far as the Black Sea'.

It should be mentioned that in relatively modern times, the test of a sword was still rather less scientific than our laboratory-based tests, even if the results were not so dramatic as those described in the song above. Writing about the year 1900, Baddeley had a traditional Caucasus long dagger made especially for him. This was tested in the usual manner by '…chopping a large nail in two at a blow and stabbing a thick copper-piece through with one thrust, neither edge or point suffering the slightest damage. This I understood was the usual test. The method of making the steel itself was kept jealously secret'. Baddeley also describes the faking of the irregular wavy lines of damascened steel, 'by tracing them rapidly with matches dipped in grease and then applying acid' (Baddeley 1940, I:129). At a later stage he viewed another special sword and was told 'it would cut a gun-barrel in two, or a young bull's head off, at a blow' (*ibid*, I:238).

A prose legend tells how the blacksmith Debet acted as 'midwife' to one of the great heroes who was born from a meteorite (Khajieva and Ortabayeva 1994, 308–309). The plot is that Debet went into the mountains to collect iron stones, and was spending the night in a cave.

> 'At midnight some kind of unusual blue light flooded

through the cave and lit it up like the sun. The amazed Debet went outside and saw flying in the middle of the sky an enormous star with a tail, and it was brightly lighting up the whole world. This star, after flying across the sky, fell very far away, between two huge mountains. From its falling the whole world shook, and the mountains rang. In spite of the night, Debet set out for there. After three nights and three days he reached the spot and saw that between these two mountains everything had burned up and become as black as black. Debet looked around and saw a huge hole, and in the middle of it was a large dark-blue stone, which had split in two'.

Inside the split stone was the baby hero, whom the blacksmith took with him.

'Meanwhile the blacksmith Debet brought and smelted both fragments of the stone that had fallen from the sky. …he forged from this iron the [special sword for the young hero]. And the blacksmith Debet used to add little by little the remaining part of this iron from the sky to the iron that he smelted from terrestrial stones, when he forged swords, arrows and other weapons for the Narts. That is why the weapons made by Debet were so unbeatable'.

This last sentence appears to be the result of an empirical observation that the addition of meteoric iron, with its high nickel content, results in a superior steel after heat treatment; referring, of course, to its improved hardenability, ferritic strength and corrosion resistance. In the legend the superiority is, of course, attributed to its coming from the sky, from the gods.

Although early blacksmiths must have quickly realized that the most important requirement for hardening is the rate of cooling during quenching, many peoples have traditions that there are inherent qualities in certain specified waters. The song quoted above mentions quenching in the Black Sea. There are two Nart legends from Balkaria in which the culture heroine provides her own urine for the hardening of special steel girths for a hero's horse harness, which the blacksmith 'tempered several times in the "medicinal water"' (*ibid*, 436, 442). There is a temptation to see in this a precursor to nitriding, although the times and temperatures would have been unsuitable in practice. In the same legend the hero berates the blacksmith for not heating the steel to a suitably high temperature before quenching. In spite of the smith's traditional secrecy, some of the technical requirements have evidently been picked up by the narrator.

There are various traditions describing the development of tongs. In an Agyge Nart legend, the idea came to the culture heroine, who then transmitted the idea to the blacksmith by 'killing two snakes, laying them crosswise, nailing them together with a nail and placing them on the threshold of the smithy' (Gadagatl and Vetrova 2000, 36). In a Georgian legend the blacksmith received the idea by seeing a dog holding a piece of meat between his crossed front legs (Rekhviashvili 1953, 168).

Another interesting Nart legend that occurs in all of the regional versions, and in which the blacksmith plays an important part, relates to the birth of the Nart hero, Sosuruk. Once again, the baby is born from a stone. In the Adyge version (Gadgatl and Vetrova 2000, 44), the blacksmith, Tlepsh, is asked to break open the stone:

'He split the stone in two with his heavy hammer and freed the boy that was inside. The boy was blazing with a hot flame, sparks were flying from him! Then Tlepsh gripped the infant's knees with his huge tongs and, so that he would cool down, he dipped him seven times in the cold water from beneath the grindstone. Thus the blacksmith tempered the newborn baby, and the boy became hard, like damascened steel. Only his knees, caught up by the tenacious tongs, remained unhardened, and were just like those of ordinary people'.

Thus, although this parallels the Achilles story, in this case the baby hero starts off red-hot, so the story also relates to the heat treatment of steel. But like Achilles, the one vulnerable part of the hero's body, in this case his knees, eventually resulted in his death.

Finally, mention should be made of two separate tales, both of which refer to a thin steel blade that could be coiled very tightly. In one of them (*ibid*, 39), the skilled Adyge Nart blacksmith Tlepsh gets his revenge on an enemy by forging a blade, which he then coils up tightly in a box, and sends as a gift to the offender. This works like a 'jack-in-the-box': when the offender opens it, the blade springs out and kills him. In a Chechen legend (Malsagov 1983, 312) a hated Prince Solsa owns a sword 'which he was able to wind round his hand, just like a thread wound on a bobbin'. The practicality of this legend can be put into doubt by a simple engineering calculation, which shows that for a hardened steel with the relatively high yield strength of 1000 MPa, the thickness of the sword would have to be less than 0.25mm for it to be coiled to a radius of 50mm without a permanent set.

Conclusions

The above information has shown how, with allowances made for the dramatization by people who were not trained metallurgists, the ancient oral legends of the Caucasus follow the generally-recognized development of early steel-making: first the use of native iron, generally in the form of meteorites, and later the smelting of terrestrial ores and the discovery of hardening processes.

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