

ORIGIN AND RELATIONSHIPS BETWEEN WALACHIAN (ZACKEL) AND TSIGAI SHEEP BREEDS FROM THE DANUBIAN AREA

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Walachian (Zackel) and Tsigai breeds are the most important autochthonous sheep breed groups of the Danubian area, generally of Central and SE Europe. The study, improvement, conservation and use of these breeds require a correct biological scheme of classification of them, a reference system based on their fenetic, genetic and phyletic relationships.

Lauvergne (1988) proposed a whole methodology ("visible genetic profiles") for the study of sheep and goats in the Mediterranean area and present at least for caprinae a cladogram based on genetic distances. Terrill (1988) proposed a fenetic classification, more a concise description, based on utility and exterior. We think that with this approach it is not always possible to have an useful reference system for the understanding of the biological relationships between breeds.

The present paper studies more in depth than the previous one (Draganescu, 1994) the problem of phyletic relationship of Tsigai breeds and of Walashian breeds just from the Danubian area, their moment of separation, their genetic distance and their genealogical tree.

How we studied which breed belongs to Tsigai and Walachian (Zackel) group, which taxon is the common ancestor, the time of divergence and the genetic distance (the used method)

Generally, breeds have been included in Tsigai or Walachian group according to their wool quality, geographical location, some other characteristics (tail type) (Simon and Buchenauer, 1993) and perhaps, for Tsigai, according to their name. The grouping was useful but the common ancestor was not known and the relationships between breeds was not clear.

First of all we accepted that the common name of Tsigai or Walachian breeds is an evidence of a common ancestry. A group of related breeds with a common ancestor but with different locations, must have a genetic radiation centre where the common ancestor has been located and a means of dispersion. We noticed that the transhumance sheep system of production which originated perhaps from Spain, France or Italy had three centers in SE Europe. The north Danubian centre (some 150 villages in the Meridional Romanian Carpathians) had transhumance routes from the northern Car-

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pathians, Panonian lowland to Crimea and Caucasus. As a curiosity, from 46 Tsigai flocks (each of some 2 000 sheep) of a village (Poiana Sarata, Covasna district) 30 used to be in the 19th century in Crimea (Opreanu, 1935), a distance of some 700 km. Some 200 000 seep were registered yearly at the Turkish border as passing the Danube for wintering in Dobrogea and north Bulgaria. That was the most important means of dispersion, especially for Tsigai. We do not know do not know exactly the situation in the other transhumance centers - Macedonian and Dinaric.

A comprehensive study of the morphological and physiological characters must be done by a matrix for cladistics. We do not have enough data and we made a subjective comparison. For a comparative study of amino acid nucleotide sequence a large cooperation is required.

The time of divergence was appreciated from the start of the reproductive isolation and the genetic distances by the duration of isolation and from phenotypical differences.

The monophyletic or the polyphyletic type groups was estimated by the number of primitive, ancestral characters (coarse wool). If two breeds share a primitive character this is an evidence of a common ancestry - monophyly. If there are two ancestral characters (spiraled horns, V-corkscrew horns) the polyphyly is possible.

We intended to construct a cladogram. Not having enough data we are content to name it a branching genealogical tree.

Origin, time of separation, genetic distances of Tsigai sheep breeds. The problem of Karnobat and Ruda breeds

Tsigai breeds are milk and meat breeds white or black (recessive), medium woolled sheep with brown (black) redish or white face and legs. They have a mezomorph, hypometric type, a long thin tail, polled or horned on rams (spiraled long horns) polled or small horned ewes. It was preferred by the Turkish for its meat quality and Sokolov (1960) appreciated that in milk production it is the first breed after Friesian.

The ancestor of all Tsigai breeds is the Romanian Tsigai, ancient autochthonous breed just of central and SE Romania. With the exception of Plevan Blackhead and Kivircik, all Tsigai breeds have the same name (Tigaie, Cigaja, Tsigaya). Kivircik was imported to Turkey from Romania (Cantemir 1716, Iorga, 1930) and the change from Tsigai to Plevan Blackhead was made in the 1920 s. Tsigai means "short, silken, soft, crimp wool" (XVIIth century).

For the origin of Tsigai in central and SE Romania there are three hypothesis: 1) Tsigai is the sheep of the Dacs (Ovis dacicus - Maior, 1898), the old inhabitants of Romania, before the Roman conquest (105 AD); 2) it was brought by the Greek from Asia Minor to Tomis on boat in the first millenium BC (in the Balkans there were no Tsigai, but on the "Tropheum Traiani" memorial in Constanta district there are Tsigai sheep sculptured; but ... in Asia Minor there is no trace of Tsigai; 3) it was brought to the Carpathians from Spain by the Roman colons, transhumant shepherds who also brought the transhumance system.

The dispersion of Tsigai from Romania was made by the transhumant shepherds, inhabitants of Sacele (SE of Brasov) and Covasna (Carpathians bend) transhumance

centres. We note that in 1926 there still existed in Crimea a "Society of Transylvanian Shepherds", (Sokolov, 1960)

Time of divergence. We suppose that the transhumance to Hungary, Slovakia, Czechland stopped in the 17-18th century (perhaps there was a law against it, as in Croatia in 1984). The transhumance to other countries stopped in 1900 - 1920. The reproductive isolation opened the possibility of divergence.

Genetic distances and genealogical tree. The genetic distance, observed by a comparative subjective exterior study, made by us on Romanian, Slovak, Hungarian and Yugoslav Tsigai, due to an invitation in Hungary by Prof. I. Bodo, is was not proportional with the reproductive isolation being affected by crossbreeding.

Perhaps Romanian transhumant shepherds from Voivodine in their routes to Istria, crossed their Tsigai with a breed of Bergamo type (maybe Solkava). As a result Tsigai have now two main branches:

1) *The old Tsigai type* presented previously is well adapted to mountain, lowland and even to transhumant conditions. Romanian Tsigai is the typical representative of it. Some Yugoslavian Tsigai, Czech, Slovak Tsigai, Russian Tsigai, Turkish Kivircik, are genetically not too far from it. There are some information that in Russian Tsigai some Romney blood was introduced. It was also supposed that the Romanian Tsigai bela (with white face and legs) received some Merino blood during the transhumance to Russia.

2) *The Blackhead Tsigai* is adapted more to lowland conditions. It has a large body size, lop ears, black face and legs (instead of brown), white to yellow medium-coarse wool, a better birth rate (some 150%) and a better milk production. From Voivodina the Blackhead Tsigai passed perhaps in the 19th century in N Bulgaria (Pleven Blackhead) in south Romania (Blackhead Teleorman Tsigai) and lately (1960s) in Hungary and Slovakia (Figure 1).

The problem of Karnobat and Ruda breeds. Karnobat was a breed of South Bulgaria (Karnobat, a town near Burgas) mistaken for Black Tsigai, but with a different inheritance of colours (Black dominant, as in Walachian, not recessive as in Tsigai). It is a result of an old mutation or of a cross with Walachian, with a very long isolation. Ruda breeds are White South Bulgarian, Starazagora, Dubrowska ruda, Albanian Ruda) which have something more in common with Bergamo breeds than with Tsigai.

Origin, time of separation, genetic distances of Walachian (Zackel) sheep breeds

Walachian (Zackel) sheep breeds are a milk, mixed wool, young lambs meat, fur pelts breeds, very well adapted to the extensive management systems, to the natural conditions of Central and SE Europe, to mountain grazing, wintering in open fields, to long distance walking and has flocking instinct. They are angular (dolichomorphe), small (hypometric) type with white, black (dominant) or grey wool, brown or spotted face and legs, short ears, long thin tail.

Monophyletic or polyphyletic group? The ancestral characters of Walachian breeds seem to be the coarse wool but also laterally spiraled horns in rams (absent or small in ewes) or corkscrew horns. The first ancestral characters (coarse wool) seem

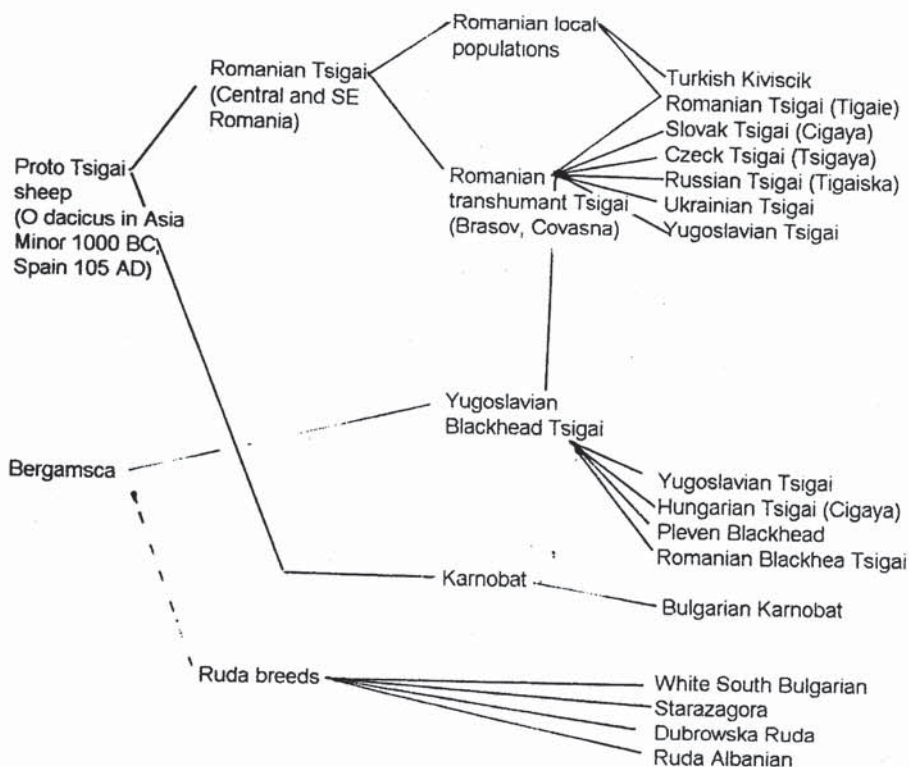


Figure 1. - GENETICAL TREE OF TSIGAI BREEDS

to make connection with other groups (Churro) and the form of horns separate the subgroups (Walachian - Ratsca). In such conditions Walachian breeds seem to be a polyphyletic group. The problem of phyletic classification of the Walachian breeds is more complicated than in the Tsigai breeds. Our paper will present, in such conditions, the most credible hypothesis of a genealogical tree of the group. The traditional breeding method of Tsurcana, as well as of Tsigai, being the community breeding in small region (Lush, 1947) in Walachian breeds there are many isolates. Maybe some isolates will be accepted in the next future as breeds.

The ancestor of most Danubian Walachian breeds is Romanian Tsurcana. It is difficult to make a credible supposition for the common ancestor of Balkanic and Dinaric Walachian group. Draganescu (1994) paid attention to the Greek Vlahikos and Bosnian Vlastic sheep, this being the breed of transhumant shepherds. We use the name Walachian (from the nickname of Ramanians) because it is used in many countries. The name "Zackel" has the same meaning. In the Sass language, spoken by the German ethnics living in Romania, Zackel means "mountain peasant" i. e. Romanian but this name is not used in any country for a breed.

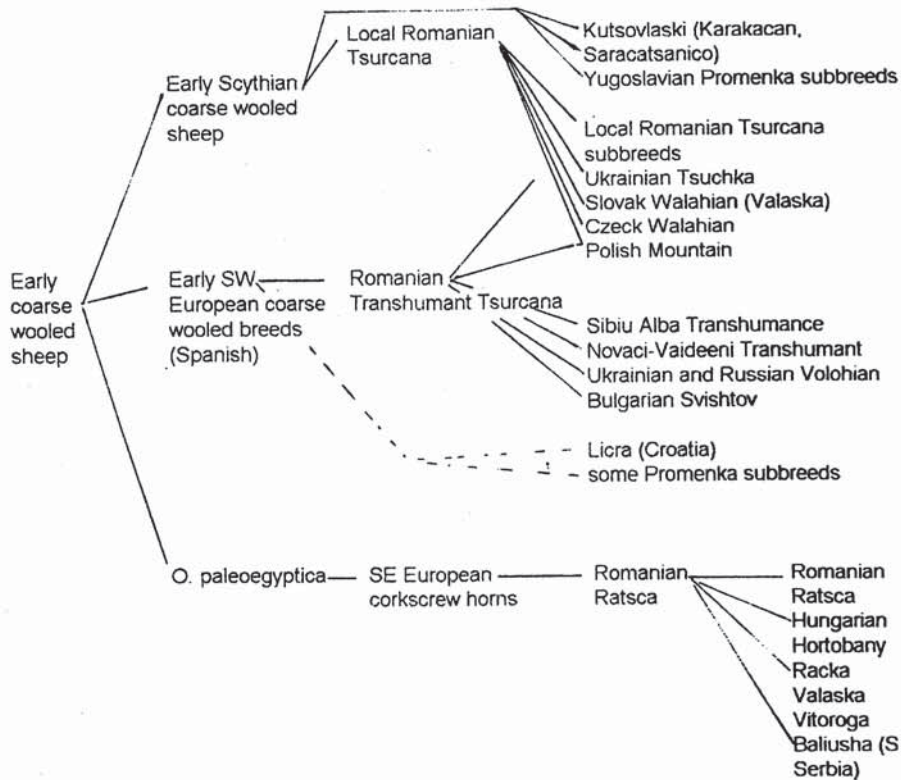


Figure 2. - GENEALOGICAL TREE OF WALACHIAN (ZACKEL) BREEDS

The origin of Walachian group is obscure. The traditional view states that it was the sheep of the old populations of Central and SE Europe (Dacians, Scythes, Tracs) its type being encaved on Columna Traiani in Rome after the conquest of Dacia (now Romania) in 105 AD. Muzzolini (1988) supposed that it was introduced in this region just towards the year 500. The polyphyletic origin proposed by us accepts many sources of origin, waves of diffusion from *O. paleoegyptica* (Ratsca horns), from Spain (with Roman colons, transhumant shepherds) and perhaps some old local coarsed wooled sheep (Scythian).

The dispersion of Walachian sheep from Romania was made 1) by the Romanian who used to live out of Romanian territory (S Ukrain, N Carpathians, etc); 2) by transhumant shepherds mainly from Margin Sibiu transhumant center. The transhumance routes are presented in the European map of Muller (1939), Grigg (1974) but the map does not show well the transhumance centres and routes to north-west and to south-west.

Time of divergence. The Walachian breeds have been isolated at least 1 000 - 1 500 years in three areas: Carpathians, Macedonean (N Greece, Macedonia, S Bulgaria, Albania) and Dinar mountains. Even if each of isolated has a polyphylectic origin, they

tend to be more related. We are more interested just in Carpathian and to some extent in Dinaric group. The moment from which the new breeds became independent evolutive units was some 200 - 500 years earlier for breed dispersed from Marginal Romania than those produced by transhumance (some 100-200 years).

Genetic distance and genealogical tree

The genetic distance between Walachian breeds is the sum of initial distances caused by different origin and of acquired distance after isolation, due to the selection and crossbreeding. The initial distance seems to be more important. Some Tsurcana subbreeds are more different (transhumant and Tsurcana from Apuseni mountains or Ratsca) than Walachian breeds from different countries (Polish mountain and transhumant Tsurcana). There is not a systematic comparative morpho-physiological study of these breeds and it is necessary.

There are two possibilities of constructing a genealogical tree: 1) on the supposed different common ancestor basis (O palaeoegyptica, Spanish coarse woolled sheep or local Scythian coarse woolled sheep) or 2) the last 1000 - 1500 years isolates - Tsurcana, Macedonian, Dinaric. We applied once (1994) the second way. Even though we know that there are not enough data we will do now a tree based on the supposed origin.

(1) *Breed having some relationships with palaeoegyptica - Ratsca* breed (now subbreed) named *Racka* in Hungary (possibility of confusion, because the name is used for all Tsurcana breeds), *Valaska Vitoroga* in Serbia and *Baliusa* in S Serbia, perhaps it is the breed of some Romanian peasants from SW Romania or from Serbia, as the Serbian name gives the indication. It is not too productive but it has spectacular horns, especially the hungarian, better conserved and selected for that.

(2) *Local breeds may be descendent from early Scythian sheep* (even if Muzzolini raises some objections) with modest production, adapted to arable or upland area system of production. Many Romanian Tsurcana subbreeds are from that group (E Romanian, Tsushka, Grey Tsurcana, Maramures Tsurcana etc). Ukrainian Tsushka is derived from Romanian Tsushka.

Slovak and Czeck Walachian breeds, Polish Mountain breed was derived perhaps from such north Romanian breeds but they, especially the Polish Mountain breed, received some transhumant blood (imported in Poland in 1911-1913 and 1935-1937 from Romania).

Many subbreed of Pramenka in former Jugosslavia seem to be of the same type. The Bulgarian Karakacan (Alexieva, 1988) perhaps the same with Macedonian Karakasanska, with the Greek Saracatsanico and with Serb Kutsovlaski, was a transhumant breed owned by an extincted Walachian tribe (Masson) but with characteristics of traditional early coarse woolled sheep population or perhaps from the same group.

(3) *Transhumant breeds more related perhaps with the Spanish Churro* are the best as wool and milk productions and body size. In Romania there are two transhumant subbreeds: *Sibiu-Alba* (the big shepherds are from Sibiu district but the breeders are from Alba district) and *Novaci - Vaideeni* (on the south side of the Meridional Carpathians). Ukrainean and Russian Volohian breeds and Bulgarian Svishtov breed

are derived from Romanian transhumant Tsurcana, Volohian receiving some Malice blood (long fat tail). Lica breed in Croatia has something in common with this group.

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