VALACHIAN (ZACKEL) HERITAGE PHILETIC SHEEP GROUP - A TAXONOMIC PROBLEM

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"Taxonomy is the brick of which all the buildings of biological knowledge is build"
Pearl R. 1922)

Abstract

The Valachian heritage sheep breeds group is the most important native sheep phyletic group of Central and SE Europe, adapted to low-input sustainable farming systems, integral part of most economy and ecology of this region. In his taxonomy persists much error. Its phyletic old name Zackel is scientifically incorrect, being the translation into German of word "strepsiceros" from the name of a breed (O.a.strepsiceros =Corksrew horns valachian) from the old Egyptian phyletic group. The breeds identification, denomination and classification were not always based on scientific criteria. In the phyletic group are included breeds from others phyletic group (Ruda group, Old Egyptian group) and not clear his breeds. The genetic diversity of Valachian breeds is very large, produced by very many generation of evolution in diverse ecological niches, diverse pastoral systems, diverse community breeding in small regions. Most breeds have an island structure and the very different "island of a breed" is sometimes denominated "variety" or breeds. The branching of the Valachian sheep breeds phylogenetic tree is not to clear and there is a tendency to declare branching by not biological reasons. For solving the taxonomical confusions is necessary to develop a Farm Animal Taxonomy science considering the Zoological Taxonomy, that a NGO (EAAP, Dagene, Save, even FAO) must establish a correct short handed standard breed description, an international breed name connected to the phyletic group, as a duplication to the national name, establish a correct classification having a maximum predictive value for each breed. The molecular genetic technique can help some clarification, but it can't replace the classical methods.

Keywords: taxonomy, sheep, Romanian breeds.

Valachian sheep breeds, mistakenly named Zackel (Draganescu 1994), are the most important native breeds in Central and SE Europe. Farmed for generations by local communities in less favoured agricultural are of some 14 countries, from Caucasus to Bohemia and Pindus mountains, adapted to low-input sustainable farming systems, they continue to be an integral part of most economy and ecology of this region, sustaining their natural landscape. Thus in S. Jones and D. J. Bowles (2006) terminology, these breeds are heritage sheep breeds, an intrinsic part of the heritage of Europe.

Nevertheless on their identification, denomination, classification, in their taxonomy persist many errors, as generally in all farm animals' taxonomy.

In such situation we note that a correct taxonomical approach is the sine qua non basis of a correct animal genetic improvement, conservation, utilization (fig 1). Without correct breed identification, description, denomination and classification it is not possible to have scientific progress, communications, international and even national cooperation are not possible. As correctly suggested by Pearl (1922), taxonomy is the brick of which all the buildings of farm animal science are build, animal breeding, conservation, management, (Drăgănescu 1998, 2003, 2009).

"Classification and systematization are devices used to make diversity intelligible and

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manageable" notified Dobzhansky (1965 p.266), but what to do if classification and systematization are not correct?. As Mason noticed (1951, 1996) and we are stressed (1994, 2009) frequently the some breed has different names, different breeds have the some name and some phyletic groups are embarrassed. The present farm animal taxonomical science is at the level of 19-th century, in the Kuhn (1962, 2008), a science philosopher, words, a paradigm crisis. We have not a real taxonomical science at the level of zoological taxonomy (Drăgănescu 1979, 2006, 2009). Really the farm animal diversity is now not to well intelligible and manageable and seem that not all scientists notice that?

Mason and the EAAP Working Party on AGR of 1981-1993 years (Simon 1993) attempted to put some order in it, but did not end. We attempted, with not too much success to have a modest contribution in the clarification of some taxonomical aspects of SE European sheep breeds (1994, 2009), in connecting the Farm Animal Taxonomy with the modern Zoological taxonomy. However, as it is normal in science evolution, some research projects and essays, sometimes-really puzzles in the Kuhn words, ignore some scientific truth and increase the confusions until a real "scientific revolution" will come in this area.

Our paper, urged by some "puzzles" breeds presentation, is an attempt to bring a modest contribution for some clarification concerning the "Zackel" phyletic group (named by us since 1994 Valachian), a heritage sheep breeds group (in the S. Jones words) across Central and SE Europe, "an intrinsic part of heritage of Europe". Sure we are conscience that our work can be also a "puzzle"-solver, because with the present information it is difficult to solve perfectly the problem, a correct identification of origin, genealogical tree, moment of separation, and genetic distance between breeds, but such relativity can be accepted as a steep to the scientific truth.

1. Some queries on classification

Since the time of Darwin the "natural classification" has meant one based on common descent of organism. "The forms united together in a species, genus, class, or phylum, are, as Dobzhansky noted, supposed to have descendent from a common ancestor. As the common ancestor is not easy to identify, the classification continues yet to be based chiefly on some morphological studies of existing organisms rasher than on their common ancestor. Sheep–reproductive communities of individuals, breed's identification, denomination, classification, can be done especially on comparative morphology of tail (Pallas, Nathusius, Cirvinski) wool type, horn type, but sure on many others morphological and physiological characters. As not all taxonomists consider the same traits and some inevitable subjective approach persist, this criterion can be a source of errors-in breeds groups identification and classification. The historical data can help a correct identification of the correct breeds' identification of breeds' relationship

This Heritage Sheep Breeds, practically ignored by some "scientific" project, have mixed wool (25-30 % kemp-hair, coarse, 70-75 % transitional and fine fibres)* or more uniform coarse wool, long thin tail, bare head and slight convex profile, coiled, twisted horns (rams and some 15-20% of ewes), white (some 90%), but also grey or black (dominant to white), with face and legs white, brown or spotted (polymorphism with some fixation in some flocks and populations). There are small-medium size (37, 32-53, kg for ewes) breeds, with an angular (dolicomorphic) conformation, milk, meat, and wool production, adapted to transhumance, pendulation, extensive production, adaptation for summering in mountain pasture and for wintering in open field

It is supposed that all this breeds, named "Zackel", are perhaps originated from the old, 400 year AH, Early Scythian sheep, (Ovis aries rustica or longicauda? – Linnaeus**). Some questions still

* The mixed wool of Romania Tsurcana is composed of two type of fibbers: (1) some 25% kemp (hair), composed of 80% 25 (variation limits 13 – 36) cm long fibber, and 64 (41- 97) microns, and of some 2o% 22. cm long (12-36) and 58 (37-81) micron finesse. (2) some 75% wool fibbers of some 8 cm (2-19 cm), with an average finesse of 27 microns; from them 17% have a longer of 2-6 cm and a finesse of 3o microns; some 36% have a longer of 6-10 cm, and 47% of 32 (19-53) microns and 10-19 cm long

** The others 3 local phyletic sheep groups from this area is ssed to bees1.The Corkscrw horns Valachian (originated from O.paleoegyptica; 2 .Tsigai-related to Middle East Uniform wool sheep and to Marino, 4. Ruda- related to Italian Bergamasca

persist, however. Is possible that this group to be connected to the early West European mixed wool sheep (Spanish, Italian, Draganescu 1994, 1997) to have more than one common ancestor. Analysing the name of "Zackel" breeds presented by different authors (EAAP Working Party on AGR -Simon 1993, Mason, FAO 2000, national reports) for the "Scythian" group of sheep breeds is visible that:

(1). Any breed from this group is not named in his country Zackel. Simon and Mason do not understood the some breeds under this name. FAO, make just a national breed inventory, not a classification and do not use the name Zackel

(2). In this group is included different breeds, especially a breed completely different, with spectacular corkscrew horns, mixed wool but with less transitional and fine fibres, not adapted to transhumance, to mountains, to rain and to cold in open field;

(3). The branching of the phylogenetic trees, the lines of separation between breeds are not clear.

We attempted to clarify this problems (1994, 2004.) but seem that some supplementary precludes are necessary.

1. "Zackel" is the name of old Egyptian phyletic group of breeds. To avoid misunderstanding and to respond to first two queries it is necessary to clarify once more the meaning and the history of Zackel denomination. The Corkscrew horn breed, noticed perhaps in some SE European are, was presented to Buffon, who denominated it Valachian, perhaps because was owned by some Valach tribe. Darwin (1865) denominated it also Valachia and Linnaeus Ovis aries strepsiceros (straight horn). Nathusius (1880) translated the Linnaeus "strepsiceros" into german "zackel", ("Ger. Zacke=Prong Mason p.341 referring to his straight horns). In Hungary and W. Romania this breed was named Racka (that mean Serbian) and by Serb Corkscrew horns Valachian (Valaska vitoroga). The Serbian name seems to be the most correctly. Ryder (1968) noticed the elementary fact that this breed, as well as the Kosovo and Metohian Baljuha breed, belongs to the old Egyptian (O.a. Egypticus) group of breeds. These breeds have implicit no phyletic connection to the old local sheep (Early Scytian sheep) from SE and Central Europe, being brought here perhaps during the Roman time. Someone extended erroneous the Nathusius name to a phylogenetically different group of breeds, to all mixed wool breeds from the Central and SE Europe. We supposed (1998) that is done by Sas-Germans living in Romania, who use to give the name Zackel = mountain to the "Walach" who use to live in mountains, and to their sheep Valachian (Sas-German dictionary). It is doubtless that this phyletic group must be denominate Zackel or Corkscrew horn Valachian. Normally, in accord to taxonomical principles (firs denomination is not changeable) this group of breeds must be denominate Egyptian (?), but is not possible, because many breeds from this group are denominated Valachian.

1.b. Which must be the name of possible Scythian phyletic group of breeds? If it is doubtless that Zackel is the name of O.a. strepsiceros, of Corkscrew horn Valachian breeds, which must be the name of most local breeds from this part of Europe. There are two solutions: give the name of supposed common ancestor-Scythian or the name most used for them-Valachian (Valakhsaia, Valassky, Zuclechtena Valaska, Vlahicos, Walachensch, Srna Vlaska, Kutovlaska et al, name used in Ukraine, S Russia, Slovakia, Czech land, Bosnia, Greece). In our opinions the correct name is Valachian, and some other reasons will be presented further. The name Tsurcana, given by Romanian to this sheep is the oldest; etymologically having a Sanskrit origin, with the meaning sheep- goat. Sure if there are different opinions (perhaps there are, because the proposition was no accepted, no rejected) the problem must be analysed by an "Ethical zootechnical nomenclature commission", as Draganescu proposed (2006, 2009), similar to such zoological commission..

2. Some unclearness in Valachian phyletic group; breed denomination

The breeds identification, denomination and classification was made initially isolated in different country, not always on those criteria, and frequently changed by some unclear reasons. As a result some errors persist, some chaotic situations. Some of unclearness, confusions, is as follows.

In Valachian group are included breeds who belong to others phyletic group. Besides Corkscrew horns Valachian there are also some breeds- Sar Planina, Sjenika, Svrljik included in "Zaclel" breeds with all Pramenka breeds (Simon 1993,Belic 1951,Stojanovic 2003), or-some of them in Ruda breeds (Mason 1986), or as more or less independent Pramenka group (Kukovics, Kume 2005).

The Bulgaria breeds inventory (2006) consider just one typical "Zackel" breed Karakachan, even 9 breeds have coarse wool and are possible related to Valachian breeds from neighbour countries

An outward vision of SE European sheep breeds evidently that generally there are not common Zackel breeds in some different countries, or the name is different. As the present borders are originated from the 19-20-th century normally some breeds from a country must have connection to the breeds from others countries.

Breed denomination as source of confusions. Beside the crossing actions especially with merino, that possible changed the breed type in al SE Europe, is possible that a subjective change of breeds name in last two centuries produce many difficulties in scientific communications, cooperation, breeds identification and conservation. Perhaps more breeds have a name that indicates their origin, genetic relationship, as in zoological classification. Now the geographical location is more used, and that do not help the identification of breed's relationship.

The name Valachian of Bosnian sheep breed, mentioned by Mayr (1968) disappeared now. The name "Dormitor" (a Vlach word) given to a Monte Negro breed was changed in the last century. The name of Polish Valachian sheep was changed in the last tenth years to Polish Mountain and the name of Tsurcana to Ukrainian mountain. Romanian Turcana is named sometimes "Gymes Racka". We note that Savov (1959) quoted by Ryder (1968, p.177) wrote ".The name Tsigai, Tsurcana for coarse-woollen sheep and Stogosh for the cross between them, which are retained in Romania today, were use in Bulgaria as early as the eighteenth century" and the Savov opinions are attested also by others scientists. Tsurcana is clear a "Zackel" breed, possible the source of many others Valachian breeds.

We note however that the traditional name of breeds was maintained in some countries. In Russian the name Valachian was maintained for al local breeds that used to be located in 17 gubernies of the former Russian empire, from Bessarabia to Ural and Caucasus (Ivanov 1923..1950). In Check land and Slovakia the traditional name of Valachian sheep was maintained, also in Greece (Vlahico).

We have not a history of breeds name in this part of the world, but we note that the American scientist Matley (1968), who studied the transhumance in Bosnia and Hertsegovina, determine: "The Vlach have managed to exist through the centuries almost exclusively by herding of livestock on mountain pastures. In fact, so strongly has herding become associated with the Vlachs that in parts of Greece the term Vlachos is used to denote a shepherd, with no ethnic connotation, and since the Middle Ages the term Vlah has been used in Serbia and Bosnia as synonymous with mountain herder of any ethnic group" "An understanding of the culture of Vlachs and its origins is important for the study of pastoral life in Balkan Peninsula". We think that really the problem can be useful for understanding the sheep taxonomy in this are, interesting as a history legend, but he can't affect the good relations of people from the area.

Perhaps the Farm Animal Taxonomy needs also an ETHIC CODEX of nomenclature, as Zoological taxonomy has. Until the development of a real Farm Animals Taxonomy and of a Farm Animals Convention on Nomenclature, is necessary to accept some regulation from the Zoological Taxonomy. The first is the priority of name; it is not allowed without a clear justification to change the first name given to a breed.

3. The branching of the Valachian phylogenetic trees, breeding diversity,

A complete study of a breed phyletic group suppose the analysis of three more problems (a) the branching of the phyletic tree, (b) the breeds diversity problem, (c) breeds description aspects

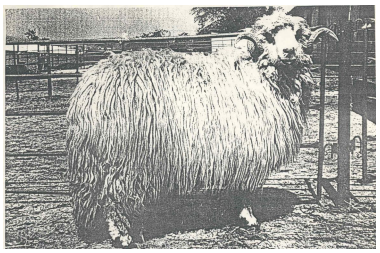
(a) The branching of the Valachian sheep breeds phylogenetic tree

Generally the structure of the Valachian sheep breeds, his phylogenetic tree was not analyzed. In 1994 we proposed a phyletic tree and after that we made some correction (fig.1). Sure it is just a hypothesis, a basis for critics and development. We subjectively considered the branch: North Balkan, South and West Balkan. As in the last time (2005, 2009) was the tendency to present Pramenka at list as a branch if not as an independent phylogenetic tree, we will present some opinions on this problem.

Pramenka is a phylogenetic branch of Zakel (Valachian) or an independent group of it? Pramenka is the Serbo-Croatian name of most mixed wool sheep breeds living in this space and generally accepted as "Zackel" (Simon, Mason, Stojanovici 2003, Belic, 1951) present some 198

"Pramenka" "varieties", really not all from the same phyletic group. Kukovics (2005), Kukovics (2006) show that Pramenka (7 breeds) is a group even at the level of "Zackel", Tsigai, Ruda. We think that this denomination was introduced in the last centuries for not to clear reasons, but with a linguistic justification (Promenka = with open fleece –pramen = staple or lock –Mason1986), but the breeds have not the homogeneity produced by the origin from a common ancestry. Many breeds are clear connected to the breeds from other geographical area. Typical is the tendency (2009) to introduce in this "group" breeds the Sarakatsaniko from Greece (=Karachatsaniko from Bulgaria, really Sarakatsanico+Vlahico)) included by other scientist in Vlachico breeds.
Subjectively we noticed that some breeds (Albanian Shodrane) accepted as Valachian ("Scythian"}, morphologically very similar to others, have a different proportion of wool fibers, some 80 % coarse instead of some 25, near to Corkscrew horns Valachian. That can be a subject to further research to see if is not possible the existence of a different phyletic group (now the weight of different fibres it is not known in most countries.

(b) The breed's diversity problem. Genetic diversity of Valachian breeds is and was perhaps very large. The ecological niches very divers, the diversity of pastoral systems (sedentary, pendulation-transterminance- village mountain pasture, transhumance), and the community breeding in small regions (Lush 1945 p.383), by different tribes promote an island structure not just of phylogenetic group(breeds) but also of each breed (sub-breeds). More or less empirical approach of the problem mislead to a "taxonomical" complication. Sometime the sub-breeds are accepted as breed; sometimes even they are very different they are considered as a sort of sub-breeds. MF Ivanov identified in the old Russian empire (17 gubernies) some 5 Valachian sub-breeds. We supposed (1998, 2008) that there are in Ukraine three more with different name (Sokolki grey, Reşetilov –black, Tsuska). From this 8 genetic population is conserved just one in North Caucasus. In Romania there are or use to be more than 5 "local variety", of Tsurcana, some of them completely different as morphological type and even productivity. (fig. 3,4,5). It seems that in other countries each of them is a different breed and that may bee is correct. The international cooperation, the AnGR conservation programs impose a clarification of breeds identification in all area, even is very difficult to change the traditional "scientific" approaches.


Transhumance Tsurcana


Caransebes Tsurcana


Hatseg Tsurcana

c) Standard breed description and denomination

For EAAP Working Party on AnGR (Simon 1993) was clear that for each species must be a standard breed description for breed's differentiation. The proposed description for sheep was not perfect. The wool quality, an important sheep taxonomic character is not presented or unclear presented in all area of Valachian group, especially in some countries. The idea was not continued, and that is one of basis of existing confusions. This Short handed standardized description of each operational taxonomic unit (breed, line) must be dome. On a proposed description we attempted to establish a diagnostic key for breeds identification (1998). We think that classical taxonomical methods are the basis for breed identification and classification. The molecular genetic technique can help some clarification, but we agree with Ruane (1999) that it can't replace the classical methods.
EAAP Working Party on AnGR (Simon 1993) attempted a second important taxonomical measure: establish an international breed name connected to the phyletic group, as a duplication

to the national name. These ideas must be continued by NGO and even GO. This measures are essential to to establish a correct classification (a standard hierarchy of OTU) on the basis of phenotypic phylogenetic, genotypic, relationships, classification having a maximum predictive value for each breed.

Conclusions

1.The Valachian heritage sheep breeds are a native genetic phyletic group of a region extended from Ural-Caucasus to Bohemia and Pindus mountains, descendent from the old Scythian, adapted to low-input sustainable farming systems, still an integral part of most economy and ecology of this region, sustaining their natural landscape. In their identification, denomination, classification persist many error.

2. Their phyletic old name Zackel is scientifically incorrect, being the translation into German of word "strepsiceros" from the name of a breed ((O.a.strepsiceros =Corksrew horns valachian) from the old Egyptian phyletic group.

3. The breeds identification, denomination and classification was made initially isolated in different country, not always on those criteria, and in some countries frequently changed by unclear reasons. As a result some errors persist, some chaotic situation. In the phyletic group are included breeds from others phyletic group (Ruda group, Old Egyptian group) and not clear included his breeds.

4. Genetic diversity of Valachian breeds is very large, produced by very many generation of evolution in divers ecological niches, divers pastoral systems (sedentary, transterminance, transhumance), divers community breeding in small regions. Most breeds have an island structure and is possible that sometimes the very different "island of a breed" are denominated just "variety", a not correct taxonomical category, and sometimes different breeds. More or less empirical approach of the problem mislead to a "taxonomical" complication.

5. The branching of the Valachian sheep breeds phylogenetic tree is not to clear. On some historical and sociological data we proposed 3 branches, but there is a tendency to declare branching by not biological reasons.

6. For solving the taxonomical confusions that persist in Valachian phyletic sheep group, is necessary to develop a Farm Animal Taxonomy considering the principles of Zoological Taxonomy. The NGO organization (EAAP, Dagene, Save, even FAO) must establish a correct short handed standard breed description for breed's differentiation, establish an international breed name connected to the phyletic group, as a duplication to the national name, establish a correct classification (a standard hierarchy of OTU) on the basis of phenotypic phylogenetic, genotypic, relationships and of historical information., classification having a maximum predictive value for each breed. The molecular genetic technique can help some clarification, but it can't replace the classical methods.

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Fig. 1. Suggested cladogram of Walachian (Zackel) – (modified from Drăgănescu 1994, 2009)