

The Starčevo-Criș civilization is the first Neolithic civilization whose ceramic items discovered on Romanian territory spread over almost all the country beginning with the 6<sup>th</sup> millenium B.C. In the Starčevo-Criș settlement from Glăvănești Vechi we obtained imprints of *Aegilops* cf. *speltoides* on a fragment of a pot and in the Hărman settlement we identified the following species: *Triticum monococcum*, *T. dicoccum*, *T. spelta*<sup>1</sup>.

The Vinia-Turdaș civilization was in Banat and the western part of Oltenia for the 2<sup>nd</sup> half of the 5<sup>th</sup> millenium B.C. and the beginning of the 3<sup>rd</sup> millenium B.C. In the settlement of Liubcova, situated in a depression having a hilly aspect, several species of cereal crops were cultivated on brown soil. A major part consisted of wheat of the *Triticum dicoccum* species, accompanied in a significant percentage by *T. monococcum* (about 10%) and *T. aestivum*. We could assess the apparition, for the first time on the Romanian territory of barley corn, *Hordeum vulgare*. It is worth mentioning the existence, among wheat grains resulted from cultivated species, of the wild species *Triticum dicoccoides*. It is however difficult to state precisely whether such grains came from really wild species still surviving in that region by that time, or they represented only grains of *T. dicoccum* in a wild state as a result of abandoning certain fields formerly cultivated with this species. The inhabitants of the Liubcova settlement also cultivated leguminous plants, such as *Lens esculenta* ssp. *microspermae* and to a lesser extent *Vicia* sp. In one of the pots containing grains, found in the settlement of Liubcova, the cereal caryopses were with the leguminous ones in relatively close rates, whereas in another pot the cereal grains amounted only to 7 percent, the rest being leguminous ones. If in the former pot the grains seemed to be destined for consumption, in the latter the contents of such a mixture could be the result of harvesting a combination of the grains as a result of crop rotation, alternating cereals with leguminous plants year after year. Grains of *Galium spurium* and *Rumex acetosa* were also discovered in the two samples taken from Liubcova, but in low rates, being developed as weeds in the respective crops<sup>2</sup>.

In the settlement of Parța situated in the Timiș fields during the Vinia civilisation, some lands were cultivated with *Hordeum vulgare* and other with *Triticum monococcum* and *T. dicoccum*. It is a surprising fact that weeds were antirely absent there<sup>3</sup>.

The second half of the 5<sup>th</sup> millenium B.C. and the first quarter of the 4<sup>th</sup> millenium B.C. were ascribed to a linear ceramic which occupied all of Moldavia, south-east and center of Transylvania and north-east of Vallachia. Unfortunately due to the small settlements in which archeological reserches were undertaken we can draw very few conclusions on the plants grown at that time.

<sup>1</sup> M.Cârciumaru, *Noi determinări de semințe carbonizate și impresiuni de semințe descoperite în straturile arheologice din Moldova*, Anuarul Muzeului Județean Suceava, X, 1983, p. 827-834; V.I.Markevic, *Bugodnestrovskaja Kultura na territorii Moldavii*, Kișinău, 1974, p. 155

<sup>2</sup> M.Cârciumaru, *Etude paléobotanique pour les habitats néolithiques et énéolithiques de Roumanie*, "Palaeoethnobotany and archaeology" - International Work-Group for Palaeoethnobotany 8<sup>th</sup> Symposium, Nitra-Nové Vozokany, 1989, Acta Interdisciplinaria Archaeologica, VII, 1991, p. 61-73.

<sup>3</sup> *Ibidem*.

During the same period in which the above mentioned areas were characterized by the Linear ceramic civilization, in the Romanian Plain, between the middle of the Buzău river and western Oltenia, the settlements of the Dudești civilization were identified. At that time, the Oltenia plain in the settlement of Cârcea was cultivated with more wheat species (*Triticum monococcum*, *T. spelta*, *T. aestivum*, *T. cf. durum*) and barley was a common presence. It is possible that the most spread vegetable was peas (*Pisum sativum* ssp. *arvense*)<sup>4</sup>. It is noteworthy to state that in spite of the favourable environmental conditions, the bovines, still the most numerous of the domestic animals, had already started a gradual process of dwarfing.

The Boian civilization developed in the center, east and south of Wallachia, in the south-east of Transylvania, and south-west of Moldavia between 4000 and 3400 B.C. Calcinated grains were recovered from the area of the Boian civilization spreading mainly from the settlements of Grădiștea Ulmilor, Vlădiceasca and Hârșova, thus coming from similar pedo-phito-climatic conditions<sup>5</sup>.

For this period it is notable the continuity of primitive species such as *Triticum monococcum* and *T. dicoccum*, whereas in the eastern part of Bărăgan, *T. spelta* began to reach a major representativ and very little *T. aestivum* can be reported. Barley of the *Hordeum vulgare nudum* species was also present in the area and from among vegetables only lentil (*Lens esculenta* ssp. *microsperrae*) was certainly used in man's food at the time. Species of *Triticum* cf. *dicoccoides* are noted in the settlements belonging to the Boian civilization, fact which can not be precisely explained either as representing degenerated species of *Triticum dicoccum*, or as species inherited from the local botanical background and accidentally found in cultivated areas.

The agricultural products of that epoch were stored in huge earthen pots and the cereal grains were crushed with the help of quite small grinders in order to be eaten.

The prevalence of the same wheat species was mentioned in the transition phase from the Boian civilization to the Gumelnița civilization in the Radoveanu settlement (*Triticum monococcum* and *T. dicoccum* and to a lesser extent *T. aestivum* and a somewhat better representation of *T. spelta*. Barley was present as *Hordeum vulgare* which in certain cases was identified as ssp. *nudum*. It is very possible that at that time a double sowing with barley and wheat was a current practice, as proven by the situation in Izvoarele where *Hordeum vulgare* and *Triticum dicoccum* were found together. During the same transition period from Boian to Gumelnița civilization the vegetables cultivated were mainly *Pisum sativum* ssp. *arvense* and only accidentally *Vicia ervilia*. Sometimes we found a mixture of peas and wheat, probably in view of boiling them together for consumption. As for trees, in Radoveanu we identified acorns belonging to *Quercus* sp.

Although, even from the time of Vădastra civilization (first half and beginning of the 2<sup>nd</sup> half of the 4<sup>th</sup> millenium B.C.) we possess important data on bovines for draught, and still little evidence on batches of grains certifying the cultivation of certain species. We still have evidence of *Triticum monococcum*, *Hordeum* sp. and *Panicum* sp.<sup>6</sup>

<sup>4</sup> *Ibidem*, M. Cărciumaru, *Contribuții la agricultura preistorică a Olteniei*, Litua, III, 1986, p. 5-9; K. Wasylikowa, M. Cărciumaru, E. Hajnalová, B.P. Hartyányi, G.A. Pashkevich, Z.V. Yanushevich, *East-Central Europe*, in "Progress in Old World Palaeoethnobotany" (Edited by W. Van Zeist, K. Wasylikowa, K.-E. Behre), A.A. Balkema, Rotterdam, Brookfield, 1991, p. 207-239.

<sup>5</sup> M. Cărciumaru, *Etude paléobotanique pour les habitats néolithiques et énéolithiques de Roumanie*, "Palaeoethnobotany and archaeology" - International Work-Group for Palaeoethnobotany 8<sup>th</sup> Symposium, Nitra Nové Vozokany, 1989, Acta Interdisciplinaria Archaeologica, VII, 1991, p. 61-73.

<sup>6</sup> B. Ghețje, C.N. Mateescu, *L'Élevage et l'Utilisation des Animaux Pendant le Néolithique Moyen à Vădastra (Roumanie)*, Zephyrus, XXVIII-XXIX, 1978, p. 135-145; Idem, *L'emploi des bovins pour la traction pendant la Phase Vădastra II (Néolithique Moyen)*, Zephyrus, XXI-XXI (1970-1971), 1971, p. 99-104; Idem, *L'Élevage et l'Utilisation des bovins au Néolithique Moyen et Tardif du Bas-Danube et du Sud des Balkans*, L'Anthropologie, T. 81, 1977, 1, p. 115-128.

In the first half of the 4<sup>th</sup> millenium B.C. the communities of the Precucuteni civilization occupied all the territory of Moldavia except for the southern part and north of Bucovina. In the Subcarpathians area of the Tazlău county in settlement of the type *Tell* from Poduri, *Triticum aestivum* and *T. dicoccum* were cultivated. To a lesser extent, *T. monococcum* and very little *T. spelta*, *T. compactum* and *T. durum* were to be found. Barley in its turns was frequently sown, mainly ssp. *Hordeum vulgare nudum*. It is extremely important to note an almost total lack of weeds. The various contexts in which the grains were found in the settlement of Poduri (over the floor of the dwelling, in "provision boxes", pots) also covered the so-called "silos" for cereal crop storage. Taking into account the prevalence of certain species in each silo, we can imagine a strict specialization: a silo for barley, a silo for wheat of the species *Triticum aestivum*, a silo for the species *T. monococcum* and *T. dicoccum*. We can go even further and assume a strict classification of silos according to the size of grain contained, because in one of them the grains of *Triticum monococcum* and *T. dicoccum* had small dimensions. Instead, bigger grains of these species were discovered stored in pots probably in view of sowing whereas those found in silos were meant for consumption<sup>7</sup>.

The areas populated by the Pre-Cucuteni communities will be taken over by those of the Cucuteni civilization which will last for the 4<sup>th</sup> and 3<sup>rd</sup> milleniums B.C. In fact, the Cucuteni civilization broadened its space occupying the whole of Moldavia, north-eastern part of Wallachia and south-east of Transylvania. The Cucuteni people from Izvoare cultivated their fields to a greater extent with wheat of the *Triticum dicoccum* species and barley either of the species *Hordeum vulgare* (possibly prevailing as ssp. *nudum*) or *Hordeum distichum*. A good reason for the idea of crop rotation from one year to the next on the same field is the fact that in certain samples in which grains of *Triticum dicoccum* were in majority, they also contained barley to a small extent (*Hordeum vulgare* and *H. distichum*) or, in the samples comprising barley in majority, caryopses of *Triticum dicoccum* are also found, accompanied to a lesser extent by *T. monococcum*, the species with a small representation were the result of leaving grains from the crop of the previous year on the field. In some samples *Triticum cf. discocoides* is well represented. In Izvoare, there are also present, among others, grains of *Cornus mas* to say nothing of the numerous grains of *Lithospermum purpureo-coeruleum* used for manufacturing necklaces in combination with other ornaments such as ceramic beads and animal teeth (cervidae)<sup>8</sup>.

In Mărgineni, we have serious evidence that the Cucuteni community cultivated to a significant extent, wheat of the species *Triticum aestivum*. This species was accompanied by a lot of other cereal species (but in smaller percentages) because the sample was recovered from a garbage pit. A similar situation appears in Văleni, with a special note that in this settlement we identified *Secale cereale* and *Panicum miliaceum* as well as *Sinapis arvensis* and *S. alba*. The Cucuteni community in Poduri cultivated some fields with wheat of the species *T. dicoccum* and in their proximity there were other fields cultivated with barley especially of the type *Hordeum vulgare nudum*. It is also to be noted the existence of weeds of the species *Rumex acetosa*. At Bălăneasa we found several species of grain in a pot, the most representative of them not exceeding 30 percent and the least representative no less than 12 percent. They were *Triticum monococcum*, *T. cf. dicoccum*, *T. cf. spelta*, *T. aestivum*, *Hordeum vulgare nudum*, *H. sp.* We consider that these species were meant

<sup>7</sup> M.Cărciumaru, F. Monah, *Raport preliminar privind semintele carbonizate de la Poduri - Dealul Ghindaru, județul Bacău*, Memoria Antiquitatis, IX-XI (1977-1979), 1985, p. 701-708; idem, *Détermination paléobotaniques pour les cultures Precucuteni et Cucuteni*, "La civilisation de Cucuteni en contexte européen", Iași, 1987, p. 167-174.

<sup>8</sup> S. Marinescu-Bălcu, M.Cărciumaru, *Colliers de Lithospermum purpureo-coeruleum et de "perles" de cerf dans l'Énéolithique de Roumanie dans le contexte central et sud-est européen*, Préhistoire européenne, Vol. 2, 1992, p. 70-88.

for consumption by boiling in that pot. In the settlement of Frumușica, re-evaluating old findings, we can say that *Triticum* cf. *monococcum*, *T. cf. dicoccum*, *T. spelta*, *Hordeum vulgare nudum* were sown and grains of *Lithospermum purpureo-coeruleum* were used<sup>9</sup>.

In the Sud-carpathian area of Buzău in the Cucuteni settlement of Sărata Monteoru there is proof of fruit picking of the species *Prunus* cf. *institia* because we found seeds of this species in a pot together with calcinated grains of *Hordeum vulgare vulgare*. In the plain of Fălticeni, the Cucuteni community of Preuțești cultivated *Hordeum vulgare* and *Avena sativa* and a weed of the *Lolium* sp. was mixed in those crops. Somewhere to the east, in the proximity of the settlement of Drăgușeni, *Triticum* cf. *dicoccum* and a species of barley were cultivated and in the Jijia plain, on the fields of the settlement Valea Lupului we could identify *Triticum monococcum* and *T. dicoccum*. The grains of the type *T. dicoccum* also contained small size grains. In that sample very few grains of *Hordeum vulgare* and *Agrostemma githago* were mixed<sup>10</sup>.

Numerous batches of calcinated grains from the Cucuteni settlement pointed out the variety of species and diversity of context in which the cereal grains of various types were mixed for consumption or even for sowing.

Returning in the Romanian plain we shall try to draw up some aspects related to the plant exploitation by the communities belonging to the Gumelnița civilization in the second half of the 4<sup>th</sup> millenium B.C. and the beginning of the 3<sup>rd</sup> millenium B.C. To the north, at the contact zone at the foot of the mountains, at Căndești, and in the Prahova plain, in the settlement Geangoești, barley of the species *Hordeum vulgare nudum* was cultivated. To the south, in the Pitești plain towards Găvanu, on the fields cultivated with *Panicum miliceum*, items of *Setaria italica* were also mixed together. In the same area, the qualities of the species *Chenopodium album* were well-known for nourishment purposes in the community Morteni because we found plenty of grains here. To the south-east of the Pitești plain, *Hordeum vulgare* was also cultivated as demonstrated by the samples recovered from the so-called "granaries" arranged in the settlement of Teiu where great quantities of grains were stored. Coming down south, in the Burnas plain we can state the continuity of *Hordeum vulgare* among cereal crops in the eponim settlement of the Gumelnița civilization where a lack of weeds can be noted. As expected, the Gumelnița community from Căscioarele whose settlement situated on a bank in the middle of the lake Cătălu were fully engaged in vegetables cultivation because we discovered significant amounts of calcinated grains of *Pisum sativum* *Vicia ervilia* and very seldom *V. hirsuta*. A little to the east, in the Mostiștea plain, several settlements of the Gumelnița civilization existed having a rich botanical material. For example at Grădiștea Ulmilor only grains of *Hordeum vulgare nudum* were determined and at Măgura Cunești only *Secale cereale* was present and at Vlădicasca we have evidence of a great variety of species. Here grains of *Triticum monococcum* (prevailing in our sample), *T. cf. dicoccum*, *T. cf. dicoccoides*, *T. aestivum* (prevailing in another sample), *T. aestivo-compactum*, *T. compactum*, *Hordeum vulgare*, were recovered. We can also note as one of the outstanding discoveries of the Gumelnița civilization, the recovery in the settlement of Ulmeni of the first seeds necklace in the Romanian prehistory made from the seeds of *Lithospermum purpureo-coeruleum*<sup>11</sup>.

<sup>9</sup> M.Cârciumaru, F.Monah, *Reconsiderări asupra determinărilor de semințe carbonizate de la Frumușica și Valea Lupului*, SCIVA, 35, 1985, 4, p. 351-352.

<sup>10</sup> M.Cârciumaru, *Noi determinări de semințe carbonizate și impresiuni de semințe descoperite în straturi arheologice din Moldova*, Anuarul Muzeului județean Suceava, X, 1983, p. 827-834.

<sup>11</sup> Idem, *Les collier de semences d'Ulmeni (culture de Gumelnița)*, Dacia, N.S., XXIX, 1985, 1-2, p. 125-127.

At the end of the 4<sup>th</sup> millenium B.C. and the beginning of the 3<sup>rd</sup> millenium B.C., all of Oltenia and north-west of Vallachia were covered by the communities of the Sălcuța civilization. Evidence of the customs connected in the first place with land cultivation by the membres of the communities attributed to the Sălcuța civilization is the finding of many agricultural tools and a few batches of calcinated grains. Thus, in Valea Anilor grains werre found in two pots. In one of them the grains were represented by the species *Hordeum vulgare* and in the other pot, the majority was *Triticum aestivum* accompanied by small amounts of *T. monococcum*. In the settlement of Curmătura, of the type Sălcuța, *Hordeum vulgare nudum* was cultivated too and among it a mixture of less than 1 percent of the grains were found to be *Triticum* cf. *compactum*, *T. aestivum*, *Lens* sp. and *Galium spurium*<sup>12</sup>.

In Romania the end of the Eneolithic Age is also marked by the Cernavodă I civilization. At Hârșova, from a settlement attributed to this civilization a significant amount of acorn of *Quercus* sp. was recovered.

<sup>12</sup> Idem, *Contribuții la agricultura preistorică a Olteniei*, Litua, III, p. 5-9.