THE STRUMA/STRYMON RIVER VALLEY IN PREHISTORY
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Henrieta Todorova, Mark Stefanovich, Georgi Ivanov

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The Struma/Strymon River Valley in Prehistory

In the Steps of James Harvey Gaul, volume 2
The South-Western region of Bulgaria is one of the less studied with respect to the paleobotanic regions of Bulgaria compared with some other parts of the country. In the last years the archeological excavations in this area have increased in number. Most of the studied sites (settlements) are located alongside the main stream and the feeders of the river of Struma. The river of Struma is one of the most significant rivers in Bulgaria. For is length – 290 km – measured from its sources till the state frontier with Greece it stands 4th in the country after the rivers of Iskar, Tundja and Maritza; and as for the size of its water catching ent – of 10797 sq.

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km. – it stands second after the river of Maritza. The rivers of Struma and Mesta are included in the district falling under the influence of the Mediterranean – a fact that is essential for the structure of the water balance. This region is distinguished for the highest rainfalls compared to the surrounding regions. The most often to be found in the region are the maroon forest soils and the most significant characteristics of the soil tegument here is the heavy erosion. The alluvium and delluvium soils alongside the river beds are shallow (Гълбик 1982).

In the period about 8000 BP according to climatic reconstructions based on precipitation of sapropel in the Mediterranean lands (Davis et al 2003) presumably there has been an increase in humidity in South-Eastern Europe. The palynological data from Pirin Mts. point to warmer and humid conditions in the period about 7200–6500 BP. In this time the temperate deciduous trees reached higher altitudes than today. According to the palaeoecological investigations in Pirin Montains around 6000 BP a change of the seasonality of the climate took place, when summers became significant cooler and winters warmer (Stefanova/Amman 2003).

The vegetation in the Struma valley westward of the town of Simitly, in the Tundja valley south of Belitza, Slavjanka and the East Rhodopes is described as one with superiority of the Mediterranean vegetable life. Characteristic species for the region are: Quercus coc-cifera, Pistacia sp., dendriform and red juniper, wild jasmine. A considerable place in the structure of the vegetation take the hairy oak tree

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(Quercus), Quercus frainetto, many horn-beam (joke-elm), water horn-beam – ostri. Many south kinds of vegetation are also represented as: the red juniper, Pistacia sp., the wild jasseminine, the Coronilla emerus, the Artemisia campestre etc. (ГЪЛЪБОВ 1982)

After L. Pernicheva (1999) the development of prehistoric cultures in south-western Bulgaria, and particularly along the Struma valley, is a key question in Balkan prehistory. The direct territorial connection of this region with the northern Aegean coast, and from there with Anatolia, conditioned specific dynamics of development through all prehistoric periods. (ПЕРНИЧЕВА 1999). After V. Nikolov today the Struma valley is considered the prime route for the Neolithization of the Balkan peninsula. (НИКОЛОВ 1999).

The studied settlements comprise the period Early Neolith – late Bronze Age and, in its major part they are located alongside the main stream and the feeders of the Struma river (Fig. 1). In the recent study an attempt has been made to summarize the results of the studied by the authors several sites (settlements) – Kovačevo, Гăлăbnik, Balgarčevo, Drenkovo-Ploshteko, Slatino, Vaxevo, Topolnica, Kamenska Čuka, as well as to compare the data with that of some other scholars who have studied sites in the region (Fig.1).

### Dating of the studied sites (settlements)

#### Vaxevo

The prehistoric settlement in the place „Studená voda“ is located on the first non-inlet ledge of the left waterside of Eleshnitsa river. The terrain represents vast, East slopping terrace of 550–554 altitude. Differenciated are 3 basic strata, comprising 7 horizons (levels). The first stratum comprises the 1st and 2nd horizons of the Early Neolith, characterised by white-painted ceramics (pottery). The second stratum comprises the 3rd and the 4th horizons belonging to the final period of the Early Neolith, characterised by brown painted ceramics as we as the 4th of the Middle Neolith. The third stratum comprises 3 horizons (levels) – one from the Late Eneolith, one from the Post Eneolith and one from the Early Bronze Age (ЧОХАДЖИЕВ 2001).

The charred vegetal remains are found in: granary of the 1st construction horizon, in a pit, together with white-painted pottery. The contents is about 150 grams.

The dominant quantity is of hulled barley (*Hordeum vulgare var. vulgare*). In the mixture there have been found grains of: einkorn (*Triticum monococcum* – 51), emmer, (*Triticum dicoccum* – 7 ), rye (*Secale cereale* – 5), *Triticum aesiviso/durum* – 1 (ПОПОВА 2001). The presence of the accompanying grains could be explained by the fact that they have been previously into the grain store and subsequently they have mixed with the barley. The studied grains are sized under the norm and fractured – which leads us to think that the conditions in the region have not been suitable enough. Having in mind that the settlement is located in a mildly hilly district with infertile soil – the only land suitable to sow has been alongside the river, it is obvious that those factors have influenced the degree of development of the crops.

#### Kovačevo

The settlement is located on one of the terraces of Pirinska Bistritsa river – at a distance of 20 km to the East from the outflow of Struma river. It is dated from the earliest phase of the European Neolith according to the explorers making the excavations (LICHARDUS 2000). The latest period is dated by means of $^{14}$C: 6830–6760 BP., and by means of paleomagnetism in-between: 5590–5410 BC. The analysis of the archeobotanic material done by Popova
(1992) has shown a dominating presence of the einkorn – *Triticum monococcum*, followed by emmer – *Triticum dicoccum*, as well as presence of hulled and naked barley – *Hordeum vulgare var. vulgare; Hordeum vulgare var. nudum*; millet – *Panicum miliaceum*; *Lathyrus sativa*. The archeobotanic studies of Е. Marinova during the later archeological campaigns but prove a dominant presence of emmer – *Triticum dicoccum*. The presence of *Lathyrus sativa* is documented also in her papers (materials) as well as of the other 3 kinds of pulses – *Lens culinaris*, *Pisum sativum*, *Vicia ervilia*.

The recent studies of the site demonstrated influence of the Mediterranean vegetation most clearly manifested by the fruits of *Pistacia terebinthus*. Quite abundant in the settlement layers together with *Cornus mas* is the wild vine (*Vitis vinifera ssp. sylvestris*). All the last mentioned three species belong to the collected in the settlement wilde plants. Another abundant fruit-stons in the archaeobotanical record are this of plums (*Prunus sp.*). Some of them have more rough surface and, supposedly pertain to *Prunus spinosa*, whereas some others with smooth rounded surface maybe pertain to *Prunus cerasifera* (MARINOVA 2001). This show a wide use of the wild plant resources in the surrounding of the site.

**Gălăbnik**

The settlement is located in the South-Eastern part of the Radomir kettle and it has been found during a correction (rectification) of Blato river in the „Gyuritza“ district. It has come into being on the left river side, at a 420 m altitude. It is dated from the Early Neolith. The 1st residential level (horizon) is dated 6000–5700 cal. BC. (BOJADZIEV 2000). The results have shown a domination of the emmer in all the three studied horizons, where the second place is taken by the einkorn. barley is less as quantity. From the leguminous plants lentils (*Lens culinaris*), pea (*Pisum sativum*), bitter vetch (*Vicia ervilia*) and chick-peas (*Cicer arietinum*) are found. The chick pea is found in a vessel, dated from the Early Neolith as appointed by Е. Marinova (MARINOVA et al. 2002). A similar finding has been discovered also in the Early Neolith settlement Oriltza, near the town of Kirkovo, East Rhodopes, (POPOVA, non-published) as well as also in the village of Kapitan Dimitrievo (MARINOV A 2001). The chick pea is a Mediterranean plant of which our country is its Nordest frontier of spreading. Its presence in those settlements as also in the Chalcolith strata of the tell Junatzite comes to prove that it has come together with the whole Anatolian complex of cultivated plants in the territory of the country.

**Balgarčevo**

The settlement is located to the north of the Kresna gorge and it is dated from the Early Neolith. It comprises two construction horizons. The settlement is located on a middle river ter-

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*Fig. 2. The Ubiquity of the cultivated and collected plants in the considered Neolithic sites.*
race on the right bank of the Struma near 10 km north-west of Blagoevgrad. The archeobotanical study reveals availability of *Triticum monococcum* and *Triticum dicoccum*. In one of the examined dwellings storage of hulled wheats has been found which was not in treshed state. The grains of the found cereals are bigger than average size which is evidence of favorable conditions of development. As for the leguminous the biggest quantity found in this dwelling is of peas. Together with it in the samples are present *Lens culinaris* and *Vicia ervilia*. The location of the site close to the Struma-river has been favorable for growing leguminous crops. The weed flora is presented by *Gallium sp.*, *Verbena officinalis*, *Ajuga chamaepitys*. The last two sorts are indicators of chalky soils.

**Drenkovo-Ploshteko**

The settlement is located in proximity of the town of Blagoevgrad. From topographic point of view its location is of importance both for the connections North-South and East-West in the valey of the Struma river. The late-Neolithic levels have been studied archeobotanically. The material originates from the floor areas of two dwellings. There have been found chaff from the sort of *Triticum monococcum* and *Triticum dicoccum* and, in great quantities, *Lathyrus sativus*. Interesting finding is the millet in being (*Panicum miliaceum*), which appears to be a comparatively rare finding in the Neolith Age in our lands.

**Slatino**

The settlement is located at the foot of Western Rila mountain, at about 380 m altitude, in the neighbourhood of the outflow of the Struma river. Here Early Chalcolithic period is dated (ČOHAdzIEV 1986), and it comprises 5 building horizons. The data achieved by C14 show: 4650–4500 cal.BC. The archeobotanical materials substantiate presence of: *Triticum monococcum* and *Triticum dicoccum*, as well as of hulled and naked barley, bitter vetch, lentil. (POPova 1995). The data of Marinova show a dominant participation of emmer, as well as the presence of various leguminous plants. In storages of *Triticum dicoccum* different kinds of weeds have been found: *Bromus sp.*, *Asperula arvensis*, *Polygonum convolvulus*, *Centaurea sp.* Most of those weed sorts speak for the availability of winter sowings (MARINova et al. 2002). In the material there is also another kind of storages of seeds of *Chenopodium sp.* That could be considered as likely food in periods of crisis. The seeds of

\[\text{Fig. 3. Distribution of the mineralized wood of the Neolithic in Gălăbnik (after Grozeva, not published).}\]
Chenopodium sp. are abounding in proteins and fats so gruels could be made from some of the sorts (Стойнов/Китанов 1960).

Kamenska Čuka
This site is located nearby the town of Blagoevgrad. The site consists of a settlement and a mound occupying a commanding height (elevation 404 m above sea levels). Geologically, the basin is composed of low-lying alluvium surrounded by colluvial slopes and older metamorphic hills (Стейнович/Банков 1999). The site is dated Late Bronze Age. The achreobotanical results show the presence of a number of cereals and legumes, where in the first place has been the einkorn. Besides it in the sown fields also naked barley, millet, lentil, bitter vetch have been sown (Попова 1998).

Discussion
The results of the studied settlements are generalized and compared with other archeobotanical materials of the same period and of adjoining regions in Table 2. The ubiquity of finding the sorts of cultural and wild growing plants is presented in Fig. 2. There it could be seen that in all of the studied by us sites the hulled wheat prevail. Comparatively well are presented the both species of barley as well. It makes impression that the barley or the einkorn wheat prevail in the settlements with higher altitude or by unfavorable soil conditions – as Kremenik (Какалова/Сарбинска 1986), Vaxevo, Rakitovo (Чакалова/Божилова 2002), Kapitan Dimitrievo (Маринова 1999). The naked wheats (Triticum aestivum/durum s.l.) appear sporadically, which comes to show that during this period they still haven’t succeeded to take over. The ubiquity of leguminous crops and their variety (5 species) is of special interest. In the most of the settlements they are found in great quantities as storages. The availance of this diversity is in connection with evasion of any risks for the crops, as some have greater power of endurance in drought and poor soils (Lathyrus sativus и Vicia ervilia), when the pea needs higher humidity. On that basis a conclusion could be drawn that they have had a big importance as sources of proteins for the Neolithic man. Most of the settlements are located in the by-mountain regions, near to water sources. The findings of chik pea among the legumes are of a special interest, as it has been known to be found till recently only in the Southern parts.

Fig. 4. Charred wood from the Neolithic site Kovačevo.
of the Balkan peninsula, namely Dimini and Otzaki (Kroll 1981). This kind of legume comes to our lands in the Near Eastern crop assemblage, still it does not succeed to take an equal place together with the other legumen.

In the diet of neolithic man particular role have played also the wild plants. In the studied settlements are often to be met a number of remains of fruits: of Cornus mas, Sambucus nigra, Vitis sylvestris, Rubus sp., Prunus sp. and partly Pistacia terebinthus which have been objects of collection. The situation is different with the seeds of wild grasses and legumes that are found in appreciable numbers in some Early Neolithic sites. Various wild plants could have been collected for human consumption. A good example in that respect is the available supply of Chenopodium sp. that appears in the Eneolithic Slatino. The mere presence of manz others in archaeological deposits is not yet proof of their

Fig. 5. Charred wood in the Late Bronze Age Kamenska čuka (A) and Koprivlen (B).

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use as such. The may have been brought to the settlement unintentionally (VAN ZEIST 1988).

The findings of the einkorn are numerous in the territory of Bulgaria (HOPF 1973; RENFREW 1973, POPOVA 1995). On the Balkan peninsula it presents in the Neolith in the territory of Greece – Franchti, Achileon, Sitagri II (HANSEN 1991; VAN ZEIST 1988; KROLL 1981); Jugoslavia – Starčevo, Оbre І; Аnzabegovo І–ІІ (RENFREW 1979). The evidence of early einkorn cultivation in Cağönü, SE Turkey (7500–6500 BP.) (VAN ZEIST 1972; 1988) prove the close contacts between Anatolia, the Greek territories and the Balkans as a whole, where einkorn was of great importance especially during the early stages of Neolithic period.

The wide areal of the emmer could be explained with its ability to give crops in different ecological conditions. By relatively not vast lands the sowings have decisive importance in keeping the crops. Its ears do not fall apart, its stems are extremely robust and for that reason they are used for roofs and to strengthen walls. It is drought-resistant and could be cultivated in different soils on account of its developed root system. The emmer wheat grains recovered from the basal levels of Cağönü. Its findings are numerous. The barley in its both varieties appears in the Neolith but it takes the second place with the exception for the settlements of Vaxevo and Rakitovo. It is obvious that the different kinds of the barley plant have entered through Asia Minor and Greece to the territory of Bulgaria.

New data from Northeren Greece (VALAMOTI 2004) from the neolithic levels of Dikili Tash and Arkadikos show concurrent type of data with those of Sredna and Gorna Struma. In these settlements prevalence of hulled wheat and a rich spectrum of legumen has been also established. The predominant leguminous crops are the drought-resistant Lathyrus sativus and Vicia ervilia. The spectrum of the wild-growing fruits is presented by Malus/Pyrus/Sorbus, most likely preserved as dried fruits.

As the here presented data shows the archeobotanically studied sites in the valey of the Struma river belong mainly to the Neolithic period. That is connected predominantly with the significance of the region in clarifying the problems of the Neolithisation in our lands. From this region only one settlement of the Eneolithic period and one of the Bronze Age have been studied archaeobotanically untill now. It comes to show that the further work in the region should be directed also in the study

<table>
<thead>
<tr>
<th>Sites</th>
<th>Data</th>
<th>Cultivated plants</th>
<th>Wild plants</th>
</tr>
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<td>x x x x x</td>
<td>x x x x x</td>
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<tr>
<td>Kovačevo</td>
<td>early neolith</td>
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<tr>
<td>Čavdar</td>
<td>early neolith</td>
<td>x x x x x</td>
<td>x x x x x</td>
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<tr>
<td>Slatina</td>
<td>early neolith</td>
<td>x x x x x x</td>
<td>x x x x x</td>
</tr>
<tr>
<td>Vaxevo</td>
<td>early neolith</td>
<td>x x x x x</td>
<td>x x x x x</td>
</tr>
<tr>
<td>Kap. Dimitrijev</td>
<td>early neolith</td>
<td>x x x x x</td>
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<tr>
<td>Kamenska čuka</td>
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</tr>
<tr>
<td>Koprivlen</td>
<td>late bronze age</td>
<td>x x x x x</td>
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</tr>
</tbody>
</table>

Tab. 2. Cultivated and collected plants in the considered sites (with Bold own studies in Struma valley).
of those later periods. This would contribute to following the overall picture of the ancient agriculture in the process of its development in the pre-history in the valley of the Struma river.

**Mineralized, nonchared and charred wood**

The presence of wood in the archeological sites usually is connected with its usage in different activities: construction, instruments of production, fuel, etc. Almost always it has been collected in the vicinity, thanks to which the wood provides precise information about the flora in the studied region. Such studies are extremely important in the low-lying lands of our country, in particular the valley of the Struma river, where there are none preserved sediments suitable for pollen analysis.

The settlement Topolnitza is dated Early Neolith. The not-charred wood is from the ІІ horizon of dwelling no. 2. It is highly mineralized. After the run analysis the presence of oak and wood of Rosaceae family has been proved. 3 fragments of conifer trees, Gymnospermae and 2 of Pinus sp. have been determined. The material contained in addition a wooden awl, which has been done by oak wood and a wooden nail, originating of wood – representing a kind of Rosaceae.

The noncharred wood in the Gălăbnik (Fig. 3.) settlement has been studied by Groseva. 21 species of wood have been found, total 126 fragments. The most numerous are the oak fragments – 26, followed by the Rosaceae – 14 and those of the ash-tree – 15 and the pine trees – 13. It has been determined that the ash-tree has been used for the longitudinal beams, and the wood of the conifer trees, the sycamore and the Rosaceae – for objects of the everyday life. It is confirmed by the finding in Topolnitza, where the nail is also done from Rosaceae wood.

In the neolithic settlement of Kovačevo (Fig. 4), together with the oak tree (Quercus) that prevails, widely spread is the cornel-tree (Cornus mas) as well. A possible explanation of its large scale presence but could be its usage as construction material. The cornel tree has robust and resilient wood which is extremely suitable for weaving the walls of dwellings. The riverside forests are presented by Alnus, Ulmus, Fraxinus, and the sub-Mediterranean flora by Pinus nigra.

Oak wood has been found also in Kamenska (Fig. 5.). In a smaller quantity fragments of: Abies sp., Juniperus sp. Pinus sylvestris, Pinus nigra, Ulmus sp., Fraxinus sp. Rosa sp. have been found. It is possible that they have been collected in a more remote places as well as in the higher place of the mountains (Popova 1988).

Oak wood has been found also in the village of Vaxevo. The oak is widespread kind of wood and its role in the archeological context could be explained with some of its qualities. The oak wood is very robust, the oak could be found in easy of access places and used for fuel it comes fast to high temperature, which is an advantage for households.

**Conclusions**

The neolithic settlements in South-Western Bulgaria are rich in archaeobotanical material. The wide spread of *Triticum monococcum* is based on its ability aclimate to different ecological circumstances. Due to its well developed root system *Triticum monococcum* grows well on infertile mountain soil, as well as in very damp soils. In investigated settlements *Triticum dicoccum* is represented by a large quantity. Barley takes second place among the cereals in the studied samples. Additional to the cereals wide spectrum of pulses was used. We conclude that the represantation of this species in investigated settlements from territory of Bulgaria is comparable to results from other settlements in the Balkan peninsula.

The wood presented in the settlement layers witnesses of the oak forests prevalence and of the use made of diverse ecological niches in the near proximity. In the riverside valleys the woods collected have been of elm-tree (*Ulmus*), alder-tree (*Alnus glutinosa/incaena*), ash-tree and plums. The data of use of black pine-tree (*Pinus*) show that it has been even more widely spread in the past as nowadays.

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