

Cultural Ecology of Old Cultivated Plants in the Carpathian Area

Dedicated to
Axel Steensberg

In the Carpathian area there are some plants cultivated up to this day which were earlier of major importance in Europe's economic life and had actually appeared already at the dawn of tillage in the Near East and in Iran (einkorn, emmer, panic-millet etc.). By now, their cultivation is limited to the marginal areas and the highlands; they can be found on sites difficult of access, in poor soil, on burned clearings of mountainous regions. They are usually grown on minor plots, because the households need only a small crop. It is only the oldest, conservative-minded generation, the poorer social strata, which cultivates them. Agricultural authors of the 18-19th centuries still mention these plants, but agricultural statistics include them only rarely if at all. Our scope of knowledge on their growing is rather limited.

There is a particular relationship between these old cultivated plants and man, i.e. the community. Not only the plants themselves are old, but also are the primitive cultivation methods as well as their methods of consumption (unlike the cultivation of wheat, barley and rye). The people are not interested in the improvement of these plants, and in fact, they deny their cultivation to the authorities; on the other hand, the authorities do not pay attention either to the cultivation of einkorn, emmer, foxtail-millet, panic-millet etc. Primitive implements are used for their cultivation, hulling and grinding. As a result, an archaic cultural ecosystem is being formed by man, the plants and the implements. Relying upon ancient traditions and experiences, man integrates these cultivated plants into his culture. Some of them are not used any more for human food, but only for the forage of animals or other purposes.

I.

In the area of Asia Minor and Iran (Ali Kosh, Çayönü, Jarmo etc.) einkorn (*Triticum monococcum*) was grown already 9 500 - 8 000 years ago; its wild ancestor (*Triticum boeoticum*) can also be found in this region as well as on the Balkans (Zohary 1969:48-49; Renfrew 1969:161-162; Harlan 1977:360-367). H. Helbaek was still of the opinion that *Triticum monococcum* „is the progeny of the small-grained wild wheat, *Triticum aegilopoides*“ (Helbaek 1959:366). Einkorn is an ancient cultivated plant in the Carpathian area also and was grown there already in the Neolithic and the Bronze Age. However, the decline and fall of the Roman Empire also involved a regression in its cultivation. As shown by archaeo-

logical finds, it was cultivated in the Bronze Age both on the Great Hungarian Plain (Poroszló, along the River Tisza) and in different parts of Transdanubia (finds from the Late Bronze Age are known, for instance, from Sopron). In the 4-5th centuries the einkorn was an important cultivated plant in the southern part of what is to-day Slovakia (the main sites are Nitra and Rusovce). In the 6-7th centuries remains of einkorn can be found less frequently in the Carpathian area (Hartyányi-Nováki 1975:65; Hajnalová 1976:228-254; Beranová 1980:316-318). The next find of *Triticum monococcum* is known from 1240 in Slovakia (Bánov, Beranová 1975:17). Then a long time passes without any evidence of its cultivation. As a matter of fact, the raising of einkorn was latent for several centuries and became gradually limited to the highlands. In the 18th century it was still cultivated in the eastern part of the Great Hungarian Plain (Bihar), while numerous data are known from Transylvania, including the period between the middle of the 15th century and the present time. In fact, the Hungarians, Saxons and Rumanians of Transylvania are still cultivating this plant or have eventually discontinued it in the last decade only. There are still fine sowing of einkorn to be seen in the Bihar Mountains, the Mezőség region (Cîmpia Transilvaniei), between the rivers Maros (Mureş) and Aranyos (Arieş) in the Munții Metalici (Hungarian Erdélyi Érchegység; Nyárády 1941-1942:87; Borza 1945:7-9; Gunda 1966:306-309; Péntek-Szabó 1981:259-277). No data are available from the past two or three centuries about *Triticum monococcum* having been cultivated by Slovaks and Ukrainians in the Northern Carpathians.

Nevertheless it seems that its cultivation did not cease long ago here either. *Triticum monococcum* was probably often mistaken for *Triticum spelta*. When earlier authors (Fényes 1843:549, Vol. II) are mentioning *alakor* from the Trencsén (Trenčín) region, for instance, the denomination applies not to the latter, but to the former cultivated plant. In the Gömör region belonging already to the Northern Carpathians the Hungarians call the earless stem of *spelt alatka*; deriving probably from the earlier cultivation of einkorn (Hungarian *alakor*).

According to records of 1817, the Transylvanian peasants cultivated in years of scarcity einkorn together with the oat and potato. In the lean year 1817 the peasantry lived on bread made of einkorn and oats, but einkorn was more expensive than oats: a bushel of the latter costed 2 gulden, the former about 3 gulden (Teleki 1862:316-317).

In Transylvania *Triticum monococcum* is sown in spring and autumn. In the highlands the newly broken grassplots are first sown with einkorn. Although of a rather modest nutritive value, einkorn grows also on weedy soils and is frost-resistant. In Transylvania it is actually cultivated at a height of 900 m. above sea level. It is harvested with the sickle. Its flour is used by Hungarians and

Rumanians for baking bread, but is mixed as far as possible with the flour of wheat, barley or maize. In the Kalotaszeg, Mezőség and Torda-Aranyos regions (Transylvania) the Hungarians are baking the einkorn flour into an unleavened flat bread on a hot slab. The flour is kneaded with whey and salt-water, while a flat stone is smeared with oil, fat or butter and used for baking the ca. 3 cm. thick flat bread. The bread is dipped in boiled whey or a soup when being eaten. Einkorn bread can be conserved for a long time. Rumanian women, in fact, bake it as a gift to the shepherds. In recent times einkorn has been used only as forage for pigs, horned cattle, sheep and fowl. Thus, an ancient human food has become the fodder of animals, as happened for other cultivated plants, such as barley and maize. The straw of einkorn is used for weaving hats. In the Hungarian village of Szék (Transylvania) there are only a few peasants who still cultivate einkorn on tiny plot of 3 - 4 square metres in order to obtain the straw for weaving hats. The soil is broken up only with the spade. The einkorn is cut with the sickle, and the grains are rubbed out of the ear with the hand. These small einkorn-plots are in shady places to prevent the straw from growing too long, since long straw is not suitable for hat-making. The straw of einkorn is used also as litter, for pig-singeing, roofing and the tying up of vine-branches and maize-stalks. The cultivation of einkorn fluctuates conspicuously. In the Székely villages (Székely: Hungarians of Eastern Transylvania) there are, in fact some years with a rather considerable crop, followed by other years, when hardly any peasants cultivate *Triticum monococcum*. Where it had still been cultivated 10 - 30 years ago, we find it today only as a weed in the oat- and barley-sowings (Bertsch 1949:31; Gunda 1966:306 - 309; Péntek-Szabó 1981:266 - 274).

The name of *Triticum monococcum* is *alakor* in Hungarian and *alac* in Rumanian. The two names are clearly related. The terminology probably comes from the language of an unknown people, with Hungarian acting as intermediary language for the Rumanian term (Péntek-Szabó 1981:264; a more careful opinion about the derivation of the word is expressed by Bakos 1982:204, 414).

According to K. Moszyński einkorn is also cultivated in the Balkans (Dalmatia, Herzegovina, Macedonia, Serbia, Bulgaria), rather rarely by the Ukrainians and formerly quite frequently in Poland (Moszyński 1929:214). It is remarkable that in 1938 - 39 there were still several peasant farms in Germany (Erlaheim, Balingen region; Wartberg, Erlenbach, Heilbronn region etc.) where einkorn was actually cultivated (Bertsch 1949:31 - 32).

II.

The history of emmer (*Triticum dicoccum*) is similar to that of einkorn. Its cultivation was probably started at the same time as that of einkorn in the area of Asia Minor and Iran. Its wild ancestor is *Triticum dicoccoides*, the result of an intricate spontaneous hybridization of wild einkorn and *Aegilops speltoides* (Renfrew 1969:162-163; cf. Helbaek 1959:367).

In the Northern Carpathians (Liptovská Mara, Barca, Nitriansky Hrádok, Šarovce, Slovenské D'armoty, etc.), the Great Hungarian Plain (Poroszló, Jászdózsa, Dévaványa, Alpár etc.) and Transdanubia (Bölcske, Pákozd, Keszthely) *Triticum dicoccum* occurs in archaeological finds from the Neolithic times to the 5-6th centuries. In the following times we do not know anything about its cultivation, nor is suitable archive material available (Tempír 1969:7-66; Hartyányi-Nováki 1975:65; Hajnalová 1975:227-254; Beranová 1980:316). It should be noted, however, that an emmer find of the 9th century is known from beyond the Carpathians near Brno (Šlapanice, Beranová 1980:318), in a Moravian settlement. *Triticum dicoccum* is also mentioned from Bohemia (Bylany u Kutné Hory) from the second half of the 13th century (Beranová 1975:17, Tabl. 2).

For many centuries the cultivation of emmer remained unnoticed by botanists and ethnologists on remote fields. In the last decades, however, this cultivated plant has been found in villages of Moravia and Slovakia. In these regions Fr. Kühn distinguishes four subspecies of the cultivated emmer: *Triticum dicoccum* var. *volgense*, *Triticum dicoccum* var. *maturatum*, *Triticum dicoccum* var. *farrum*.

Two or three of the four subspecies are being raised in one and the same village (Kühn 1970:589-590). As far as I can see, *Triticum dicoccum* – just like *Triticum monococcum* – remains within the single peasant farms; the peasants do not exchange the grains, nor sell them on the market, insisting on sowing the very grains grown on their holding. As a consequence, these cultivated plants remain for all practical purposes stuck on a farm and become so to say „a family-plant“. The neighbours do not even know about each-other cultivating such ancient plants. I was able to observe the same thing in the Zemplén Mountains (Hungary) in regard to the cultivation of *Setaria italica*. According to Fr. Kühn, *Triticum dicoccum* was mistaken in earlier agricultural and botanical literature for spelt (*Triticum spelta*). So far, there is no unequivocal evidence of spelt being cultivated in Czechoslovakia (Tempír 1963:97; Kühn 1970:587-594). The question will be treated further below. Here it should be noted, however, that the typical area of cultivation of emmer includes the White Carpathians, the Javorník Mountains, the Zvolen region (Horný Tisovník, Stará Huta, Dolná Strehová), and to a certain extent Eastern Slovakia as well. All the terms published by M. Markuš from

Western and Central Slovakia (*sobotišť, ský rýž, špalda, turčianský tenkel, oravský okriš etc.*) are the different denominations of *Triticum dicoccum*, just as the Central and Eastern Slovakian terms *okrm, autar, autir, volter, vóter* stand for emmer (Markuš 1975:34-35; I must admit, however, that the Slovakian paper by M. Markuš is not always clear). According to F. Kühn the terms *tengel* (Starý Hrozenkov), *tenkel* (Sobotišťe), *rýž* (Sobotišťe), *špalda* (Velké Karlovice, Starý Hrozenkov) etc. also signify emmer (Kühn 1970:590; cf. Kühn-Hammer-Hanelt 1976:294-295). In the Javorník Mountains the words *tenkel, špalda, gengel* are also used as denominations of *Hordeum distichum* var. *nudum* (Tempír 1963:93-97). This barley species is sown in the highlands instead of wheat. Still cultivated in the past century in the highlands and on the flat-land of North Eastern Hungary (Zemplén Mountains, Rétköz, Bodroghöz etc.) the plant known as *vóter* (*autir, outir*) is definitely not *Triticum spelta*, but *Triticum dicoccum*. The latter is cultivated also by the Hungarian and Rumanian population of Transylvania, but only in the hill- and highlands (Kalotaszeg, Kolozsvár and surroundings). Emmer is also known to be a cultivated plant of the Houtzuls (Ukrainian ethnic group) in the North Eastern Carpathians (Bukovina), where it is called *pšeneca* (Borza 1945:19; Nyárády 1941-1942:87; Szabó-Péntek 1976:46). The cultivation of *Triticum dicoccum* in the Carpathian area is unknown to K. Moszyński, who says that – among the Slav peoples – only the Serbo-Croats and the Russians along the middle course of the Volga and the lower course of the Kama as well as the non-Slavic population of these regions are raising this plant; furthermore, its cultivation can also be observed on Ukrainian areas (Moszyński 1929:215). According to archaeological finds discovered in Poland, emmer was cultivated in that country in the 10-13th centuries (Hensel 1965:42). I find it rather remarkable that M. Markuš quotes from the South Eastern part of Poland the name *samopsa* which is actually one of the names of *Triticum dicoccum* among the Slovaks (Markuš 1975:24, 38). In the Polish language, however, *samopsza* means *Triticum monococcum* (Moszyński 1929:214). In earlier Polish dictionaries different interpretations of *samopsza* are to be found (e.g. spelt).

M. Markuš gives us detailed information from various regions of Slovakia (Zólyom, Hont, Nógrád, Turóc, Gömör, Vihorlát) on the growing and consumption of *Triticum dicoccum*; these may be summarized as follows (Markuš 1975:29-36).

Emmer is sown in burned clearings difficult of access, where dung cannot be carted out. Brushwood and branches are burnt and the ashy soil is hoed (Fig. 1 B). Thus the ashes will be mixed with the earth. The plough will be used only rarely for tilling such clearings. Towards the end of February or the beginning of March, but sometimes even as late as April, the glumaceous grains are sown with the hand. The sown soil is smoothed by means of a bush-harrow drawn by a man or a

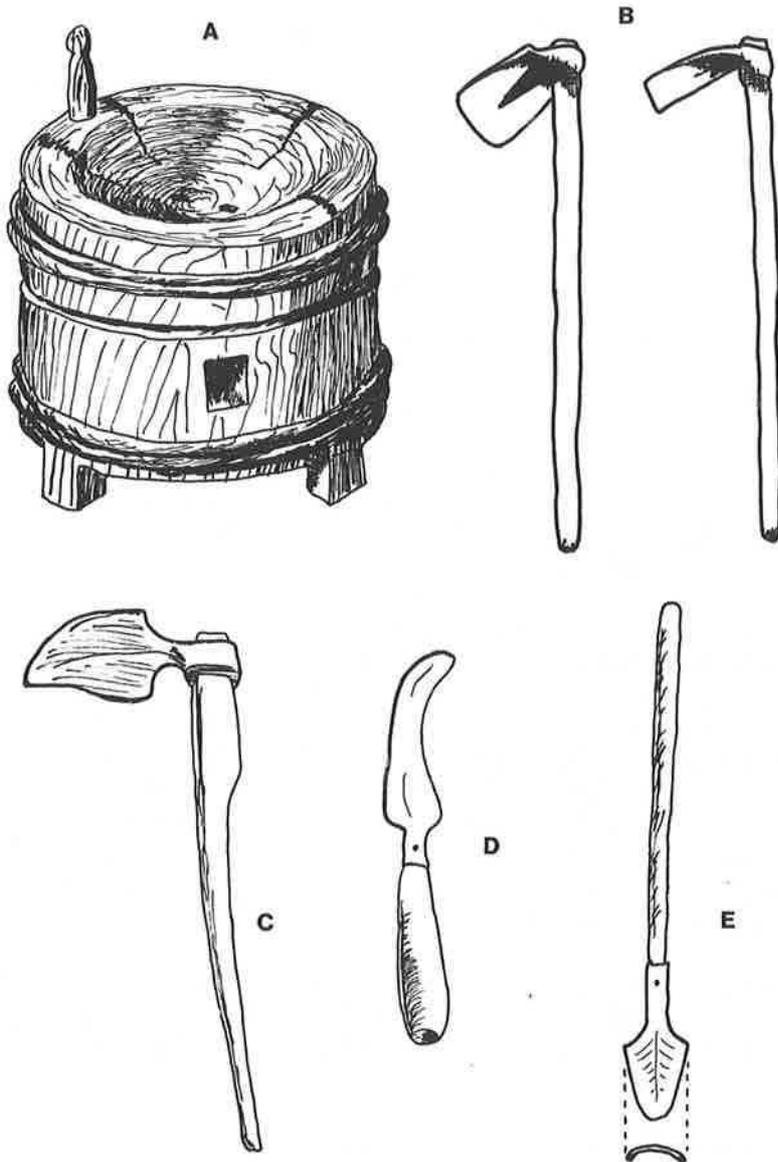


Fig. 1
 A: Wooden hand-mill for husking the foxtail millet. Velké Karlovice, Moravia. After L. Kunz. – B: Hoes for tilling burned clearings. Porúbka, Slovakia. After M. Markuš. – C: Hoe for tilling burned clearings. Javorník Mountains. After L. Kunz. – D: Knife for cutting off the ears of panic-millet. Nagyszénás, County Békés, Hungary. – E: Digging-stick for weeding the foxtail millet. Nagybózsva, Zemplén Mountains, Hungary.

woman. Sown in April, the emmer ripens by the end of August or the beginning of September. In the case of crop rotation (i. e., if the burned clearing is not a fresh one), the emmer will be sown after rye. Emmer is not choosy as far as the soil is concerned; and it can stand cold as well as heat. Harvesters must take care to prevent the rachis of the ear from breaking into pieces. This is why the emmer is cut by the women early in the morning or at night with a serrated sickle or a small scythe. The half-ripe ears are scorched, the grains rubbed out between the palms and will thus be eaten, in an almost prehistoric way.¹ The emmer is threshed with the flail, often in the barn during winter, or less frequently by treading out with a horse. The grain was dried on the oven. Before eating it, the glume had to be cleaned off. For this purpose it was hulled between two flat stones, in a mortar, a hand-mill or a foot-pestle. A mush can be prepared out of emmer with milk and water. The mush is used as the last course of a wedding menu and is also eaten on Christmas Eve. At pig-killing it is put into the white sausage. In the Hont and Nógrád regions emmer is mainly grown for obtaining a tasty sausage. Its flour is used for baking an unleavened flat bread in hot ashes or on a flat stone. In the case of bread-baking its flour is sometimes mixed with barley- and oat-meal. Among the Slovaks (Turóc, Zólyom) one of the names of the bread made of emmer flour is *bochnik* (Old Bohemian *bochnec*, Polish *bochen*), deriving from the Old High German *fochen*, *fochánza*, *fochanze* 'bread baked under ashes' (Machek 1957 :37; Heyne 1901 :268). Emmer is also used as fodder for horses, pigs and fowls. Pigs fed with emmer are supposed to have a more tasty bacon. In the Gömör region the Slovaks make baskets and hats of emmer straw; at the beginning of this century they sold them on the markets of towns in Northern Hungary (Tokaj, Nyiregyháza, Miskolc, Vác, Losonc). On the way to the market they occasionally exchanged their products for maize, lard or apples.

The emmer mush was cooked in North Eastern Hungary as well; emmer-bread and flat cake are mentioned in the Bodrogköz and Rétköz regions; pigs were fed with emmer (Ecsedi 1935 :276; Márkus 1939 :390 - 391; Kiss 1961 :25, 67, 157, 250, 346, 354, 369). The cultivation of emmer (Hungarian *vótér*) is mentioned in church documents of 1802 (Balassa 1964 :70), which permits us to conclude that it was consumed also by middle-class families.

¹ Among the Palócz (Hungarian ethnical group in Cserhát, Mátra and Bükk Mountains) the not yet fully ripe, milky rye ears are scorched on the flame, the grains are crushed in a wooden mortar and the pulp is baked on embers in fist-size lumps or as cakes (Pintér 1909 :244). The Polish and Czech *prazno* (a knoedel-like meal) is also made of half-ripe rye (Maurizio 1927 :140- 141).

III.

The history of spelt (*Triticum spelta*) is rather mysterious. It is unknown in the wild state and missing from the archaeological finds of the ancient crop-growing areas of Asia Minor and Iran, but is cultivated on the north-western table-land of Iran and in the Armenian Caucasus. Spelt is known to have been cultivated in Armenia already about 3000 B. C.² In Germany and Switzerland it occurs rarely in Neolithic times, but rather frequently in the Bronze Age. Several hypotheses have been set up on the origin of cultivated spelt. According to some authors this wheat species is the result of mutation or of the spontaneous crossing of wild emmer and *Triticum compactum* ('club wheat', a variety of bread wheat; La Baume 1961:30; Bdojan 1972:302; Bertsch 1949:39). Of course, there are also other opinions on the subject. "This species" – writes H. Helbaek – "has the semitoughness and structural habit of einkorn and emmer, except that its internode adheres to the spikelet by its lower end and not, as in the two others, by the upper end. Genetics have demonstrated that a similar form may be produced by crossing emmer and *Aegilops* sp." (Helbaek 1959:365; cf. McFadden-Sears 1946:81). However, bread wheat (*Triticum aestivum*) was certainly cultivated already in the area of Asia Minor and Iran as well as in the European area when the first rudimentary speltsowings appeared around the human settlements. A. De Candolle is probably right in supporting the hypothesis that spelt originated from bread wheat or some other wheat species in not too early prehistoric times (De Candolle 1894:385). If *Triticum aestivum* or *Triticum compactum* played any genetic role in the evolution of spelt, then we must evidently regard spelt as a recessive deteriorated species as compared to bread wheat: the kernels are held by the glumes like a vice, the ear easily disintegrates into spikelets consisting of internodes, and the glumes and kernels are covered by their pales.

In mentioning the Serbo-Croatian (*pir*) and Slovenian (*píra*) names of spelt, K. Moszyński affirms that all Slav peoples cultivated spelt, but stopped its cultivation on a considerable part of their region of settlements transmitting its name to the wheat-grass (*Agropyron repens*, Moszyński 1929:218). In the Slovak language, for instance, *pyr* means wheat-grass. Spelt is also cultivated in the Velebit Mountains by the Croatians (Degen 1936-1938:345. Vol. I.). The "Alamani" spelt is a rather significant grain crop in Russia, particularly in the

² Recently G. N. Lisitsina has written the following: "... the findings of *Triticum spelta* in Transcaucasia are chronologically earlier than the European ones and in most recent time its remains were among the palaeo-ethnobotanical findings from the layers of the Halaf period of the Yarim-tepe II site in Northern Mesopotamia" (Lisitsina 1978:49-51). Cf. F. Kh. Bakhteyev and Ž. V. Yanushevich, Discoveries of Cultivated Plants in the Early Farming Settlements of Yarym-Tepe I and Yarym-Tepe II in Northern Iraq. *Journal of Archaeol. Sciences* 1980. Vol. 7 Pp. 167-178).

region along the middle course of the Wolga (Maurizio 1927:267; Engelbrecht 1916:24-25).

Recently *Triticum spelta* has been found in Northern Moldavia (the middle phase of Tripolie-culture, Janushevich 1978:61, 63), Slovakia (Devín-Bratislava, Hallstatt-period, Hajnalová 1978:88-92). Remains of the *Triticum spelta* (with emmer and einkorn) from settlements of the Neolithic times are abundant in Poland (Mogila, Zawarza, Lasek, etc., Klichowska 1975:105-107). In Hungary we know sporadic spelt (?) remains from the Neolithic-Copper Age (Zengővárkony) and the Bronze Age (Poroszló), but no finds from the Roman, the Migration or later periods (Hartyányi-Nováki 1975:7, 29), although spelt was definitely known to the Romans, spelt-mush having been a food of their soldiers (Markuš 1975:25). Slovak, Hungarian and Rumanian archaeological finds do not include spelt either. The fact that spelt is often missing from archaeological finds may be explained by a regression taking place in the growing of that cultivated plant. In Hungarian documents spelt is mentioned at the end of the 15th century (1498), when the peasants actually paid their taxes in spelt. At the beginning of the 15th century, the German burgesses of Buda sold the spelt on the market. Particulars in documents of the 15th century as well as the Hungarian denomination of *Triticum spelta* (Hungarian *tönköly*, from High German *Dinkel*) leded Zs. Bátky to conclude that this wheat species was imported to Hungary by German immigrants from the Rhineland, through the Danube trade (Bátky 1918:27-29). This would be a secondary appearance of spelt in the Carpathian area. The cultivation of spelt was probably for several centuries what may be called a latent branch of agricultural activity within the Carpathian Basin, actually driven back to marginal areas. The earlier Hungarian name of the plant has vanished, and *tönköly* (see above) is of later date. Although F. Kühn definitely denies the raising of *Triticum spelta* in Czechoslovakia (Kühn 1970:594), earlier Hungarian statistics (Bátky 1918:27-28) as well as etymological results (the Slovak *tenkel* is from the Hungarian *tönköly*, Machek 1954:286) permit us to conclude that *Triticum spelta*, which secondarily came undoubtedly from Hungarian regions to the Northern Carpathians, was still cultivated at the end of the last century in the southern part of Central Slovakia. In some towns of Central Slovakia (Nová Baňa, Pukanec) spelt seems also to have been sold (Markuš 1975:26), while the data from the 18th century published by Slovak historians from the Zólyom, Nyitra and Hont regions (Horváth 1962:37) certainly apply to the cultivation of *Triticum spelta*. The documents mention white and red spelt. Early Hungarian agricultural works also allude to white, blue, black and red spelt (Pethe 1805:449).

In the middle of the last century *Triticum spelta* was frequently cultivated in the hilly and mountainous regions of the Carpathian area (surroundings of Pozsony,

Kassa). On the Great Hungarian Plain, however, not even its name was known. It was raised in Western Hungary, in Transylvania (Szatmár, Kalotaszeg, Székely land) and in the Banat region (Galgóczy 1855:259). According to my own observations spelt was still found among the field crops of the Zemplén Mountains and Boldva Valley (Northern Hungary) in the years between 1930 and 1940 (Gunda 1937:52; Ikvai 1967:72).

The Rumanians are known to have cultivated spelt already in the 17th century (Claudian 1939:77). According to A. Borza this plant is raised by the Rumanians rather frequently in the Eastern Carpathians (Munții Apuseni, Maros and Aranyos valleys, Mezőség, Szilágy etc.), but on small plots only (Borza 1943:10; Prodan 1931:283). In a recent Rumanian ethnographical work *Triticum spelta* is named *alacul roșu* (red *Triticum monococcum*), without mentioning where it is cultivated and how it is consumed (Butură 1978:152). In his monograph on Rumanian plant cultivation T. Pamfile does not mention the cultivation of *Triticum spelta* (Pamfile 1913). Unfortunately the Rumanian works do not always elucidate the species of glume wheats meant by the different dialect terminologies (*alac, caplagea, grîu-gol, tenchiu, săcară alba, orz muchei, grîu moale* etc.). In fact, *Triticum monococcum*, *Tr. dicoccum* and *Tr. spelta* are often designated by one and the same name. The opinion of A. Borza according to which *Triticum spelta* must be Roman remains in the Munții Apuseni, is devoid of foundation (Borza 1943:13). *Triticum spelta* was actually cultivated in the Carpathian area already before the Roman period. It is in any case remarkable that a Rumanian terminology of *Triticum spelta* is of Hungarian origin (Rum. *teânc, tentiu* from Hung. *tönköly*, Tamás 1966:776).

The Transylvanian Saxons cultivated *Triticum spelta* 50-60 years ago mainly in the Bistritz region (Nösnerland) in a two-course rotation system (E. Dorner 1910:220; Krauss 1943:568). The Saxons had brought spelt with them from the Middle-Rhine and the Mosel regions already in the 12th century, but apparently without maintaining its former name (*Dinkel, Spelz*). The Saxon *Ualenk* is from Rumanian *alac* (Krauss 1943:568). Spelt was introduced into the Banat region (Yugoslavia, Rumania) towards the end of the 18th century by Swabian colonists (Bertsch 1949:46). In Galicia and Bukowina its cultivation is also due to German settlers (18-19th century; Borza 1945:17).

Of course, all these opinions are more or less of a theoretical nature. Into the Banat region – where spelt was cultivated at the beginning of this century by both Germans and Rumanians – it could have been introduced from Transylvania as well, just as into Galicia and Bukowina.

Unfortunately we have no detailed ethnographical observations on the cultivation and consumption of spelt. In the Zemplén Mountains and the Boldva valley (Northern Hungary) it was sown by the Hungarians in the barren soil of

small plots (1930 - 1940) and was harvested at daybreak with a sickle to prevent the ear-axis from going brittle. The grains were threshed out by means of a thick stick or a flail and were hulled in a hand-mill or a mortar. The glume was also rubbed off with the hand. The cleaned grains were ground to coarse meal in a hand-mill and used for cooking a mush. Poor people often made an unleavened flat cake or bread with salt-water or milk. Spelt was also given to the pigs as fodder.

IV.

L. Kunz has described in details the cultivation of the bushy rye (*Secale cereale* L. var. *multicaule* Ktze.), a biennial rye sort, in Moravia (Javornik Mountains). This plant (German *Staudenroggen*) is mentioned in earlier agricultural literature as Saint John's rye, Russian rye and forest rye. In ethnographical literature, however, its cultivation is mentioned, but most infrequently. According to I. Manninen it was raised by the Estonians, but only few people liked it. Bushy rye actually requires as rich soil, and its cultivation may easily lead to disappointment (Manninen 1933 :29).

In the Javornik Mountains it is raised as follows: The peasants lease a little forest, burn it out and sow the bushy rye in the soil manured with the ashes,

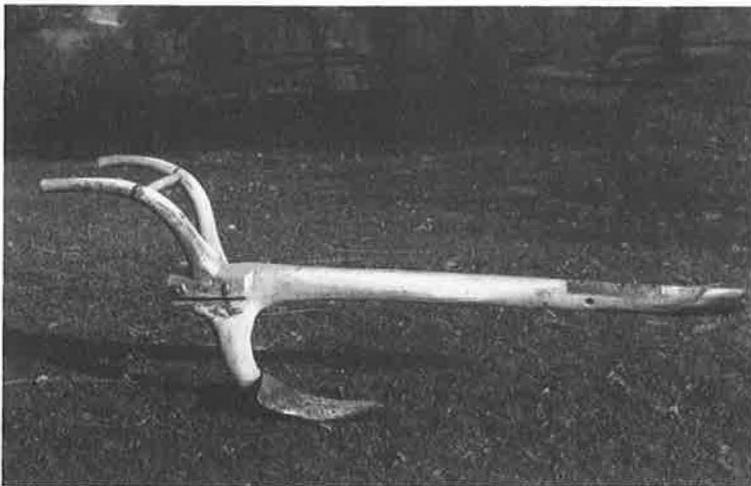


Fig. 2
Primitive hook-plough. Halenkov, Moravia. Photo B. Gunda

towards the end of May. The soil is hoed up or ploughed with a primitive hook-plough (Fig. 1 C, 2, Gunda 1957 : 129-131) while the seed is harrowed with a twig-brush or is trodden into the soil by sheep and oxen driven onto the plot. Early in the autumn the bushy rye is gathered for fodder or is grazed, while the ripe ears will be harvested by the women with sickles at the end of August or the beginning of September of the following year. The sheaves are carried home on sunny days by the men either on their shoulders or in a cart or on a sledge. (In the Carpathians the sledge is used not only in winter, but also in summer on steep, grassy slopes, Gunda 1977 : 121-138). The ears are grasped and hurled against the wall of the barn in order to obtain the grains. In pine-clearings the bushy rye yields a 7-8-fold crop and even more on beech-clearings. Mixed with chaff, its straw is an excellent fodder for horses. Prior to World War One, the grains with high gluten contents were coarsely ground on a hand-mill and so used for making mush or bread. The meal was mixed with that of common rye. After the harvest of the bushy rye the clearing would be reforested. Occasionally the bushy rye is sown together with other plants (trefoil, oats, wheat, buckwheat), which, of course, would be harvested in the first year already. Bushy rye is sown only once in the same soil. Afterwards, the peasants make new burned clearings, i. e. they move together with the tillage. It may also happen that the burned clearing is sown in the first year with potatoes or foxtail millet, in the second year with bushy rye to be gathered for fodder, in the third year the ripe ears are harvested and in the fourth year the clearing will be reforested (Kunz 1969 : 379-385; Štastný 1971 : 97-98). A black, sour bread was baked out of bushy rye (Štika 1980 : 40). Bushy rye was cultivated in a similar way in the northern and eastern part of Slovakia (Orava-, Bystrica-, Snina-, Humenné-region, – Urbancová 1965 : 27-28; Podolák 1972 a : 150, 152, 160; Kühn-Hammer-Hanelt 1976 : 293; Hammer 1978 : 265; Kühn-Hammer 1979 : 171). In Orava and Trenčín the plots tilled with the hoe cover the area of the so called Vlach settlement, where sheepbreeding was the main occupation, while tillage was only of secondary importance.³ The steep slopes of the hillsides could not be ploughed, but social factors also contributed to the survival of hoe-culture, as shown by the following instructive example: In the village of Huty near Liptovský Mikuláš in Northern Slovakia a glass-works was founded in the 16th century. The men worked there, and when the glass-works failed, they earned their living as itinerant glaziers, hawking also linen and linseed oil. In spring and summer they were absent, and so tillage was the job of the women who worked more easily with the hoe than with the plough. In teams of 10-15 the women dug up the soil and with a wooden hammer broke the clods (Fig. 3). They sowed the grain and harvested with the sickle. The women carried the

³ The Vlachs were Rumanian, Polish, Slovak, Carpathian Ukrainian and Hungarian wandering shepherds who settled down permanently in the 15-17th centuries in the Northern Carpathians.



Fig. 3
Wooden hammer for clod-breaking, Liptovská Lužna, Slovakia, Photo B. Gunda

sheaves on their back into the barn. In winter the men threshed. Wealthy women hired men as farmhands from the poor village of Orava. This labour organisation was gradually abolished after 1920 only (Urbancová 1960:259-267; Podolák 1972b:17; Fényes 1951:127, Vol. II). In Orava the bushy rye was sown together with barley (1/4 rye, 3/4 barley). Of course, barley ripened already in the first year (Fényes 1843:74, Vol. II). Today the Slovaks use the milling stone (Fig. 4) mainly for crushing salt, barley and oats, but formerly it was also used for grinding the grains of bushy rye (Gunda 1961:46).

Relying upon an earlier publication (1804), Slovak ethnographers are of the opinion that bushy rye was introduced from Moravia at the end of the 18th century into the region of Orava, Northern Trenčín (Kysuca) (Csapolics 1821:362-363; Urbancová 1975:767), where its cultivation was discontinued, as in Moravia, only after World War Two. This however, is obviously an error.

Bushy rye was actually cultivated extensively in the western part of the Carpathian area towards the end of the 18th and the beginning of the 19th century. Thus, it was used as food plant in County Sopron (village of Iván) and as fodder for cows in Csákvár (County Fejér) in the Esterházy-domain famous for its high-level farming (Gaál 1978:293, 546). In 1821 J. Nagyváthy writes clearly that bushy rye owes its name (Saint John's rye) to the fact of being sown at the end of June. At the end of August and the beginning of September it is cut for fodder, while the increment is left for the next year's grain crop. At the beginning of the 19th century it was sown in several regions of Hungary (Nagyváthy 1821:56-57).



Fig. 4: Slovak girl with milling stone. Terchova, Slovakia. Photo B. Gunda

Bushy rye is also raised in the Polish Carpathians. On the burned clearing it is sown on St. John's Day (June 26) immediately into the ashes, then it is hoed in and harrowed. In the second year it is harvested for its grain. The plots sown with bushy rye are rather small and of irregular shape. The Poles often plant potatoes in

the burned clearing and sow it only in the next year with bushy rye. Its meal is used for baking bread and for making dumplings. It is also used as fodder for horses. It was also cultivated on the Polish Flatland, but was supplanted already in the 19th century by improved ryes (Lewicka 1972 :136-140; Hanelt-Schultze-Motel 1979 :159-161). The cultivation of bushy rye can be followed as far as to the Don region, the former province of Stavropol (Maurizio 1927 :203).

In Moravian and Czech bushy rye is named *křibica*, in Slovak *ikrica*, *krivica*, *škripica*, in Polish *ikrzyca*, *krzyca*, *skrzyca*. These are obviously cognate terms meaning: "growing in bush-like form" (Kunz 1961 :379; Machek 1954 :284; Podolák 1972 b :17; Lewicka 1972 :136).

V.

The foxtail millet *Setaria italica* is an ancient cultivated plant in both the Old and the New World. The presumed progenitor of *Setaria italica* is *Setaria viridis*, a weed ubiquitous from Japan to England and now widespread in North America and elsewhere (Harlan 1977 :380). The examination of its cultivation in the New World is beyond the limits of the present paper (cf. Rominger 1962; Callen 1967 :535-538). In the Old World it was known already in the Neolithic Yang-Shao times (China) about 6000 years ago, but was raised at the same time in Europe as well. For this reason, it is difficult to find out the original centre of its domestication (Harlan 1977 :380; Ping-ti Ho 1977 :438). Probably it was domesticated more than once. In archaeological finds of the Carpathian area the *Setaria italica* occurs only rarely. We know it from the Neolithic Age (Lengyel, County Somogy, Hungary) and from the Roman Barbaricum (Arka, County Zemplén, Hungary). In Transdanubia (Pogányzentpéter, County Somogy) it appears also in the Middle Ages (Hartyányi-Nováki 1975 :64). In the Northern Carpathians (Očkov, Devín in Slovakia) it is known from the 3rd century B.C. (Tempír 1969 :26; Hajnalová 1975 :240-241).

In the Slavic languages *Setaria italica* is known by the name *bar*, *ber*. The terminology was known by the Slavs already when they were living together and they actually cultivated foxtail millet. According to K. Moszyński it is raised in Poland, Polesia, White Russia, in the Ukraine, by the Balkan Slavs and also in Hungary (Moszyński 1929 :22; Obrebski 1931 :B 27; Kwaśniewski 1960 :203-222). In the Velebit Mountains the Croats still raise it in some places and bake bread of it, which crunches under the teeth when eaten (Degen 1936 :345. Vol. I). In Minor Poland foxtail millet is used for making a mush with water or milk. Christmas Eve the mush is eaten with dried apples and pears. In Volhynia it is put into pastry or stuffed cabbages (Kwaśniewski 1960 :214-216). In scanty years the

Rumanians also used *Setaria italica* as a food plant (in the 17th century and certainly in the following period too). It was cultivated with the hoe on clearings in the forest (Neamțu 1975:219).

K. Moszyński is correct: foxtail millet is indeed a well-known food-plant in Hungary. In 1825 a Hungarian agricultural periodical wrote as follows: "Nowhere in the world is it cultivated as abundantly as in Transdanubia", where it was still sown to decades ago. It was mainly the food-plant of the Hungarian and Slovene population of the counties Vas and Zala. *Setaria italica* was sown in the clearing at the end of April and the beginning of May, the trees having been burned already in the previous autumn. Eventually the clearing was used for 1-2 years as pasture. The soil was tilled with the plough or the hoe. Foxtail millet is always sown in small, remote plots. It is sown thinly and is weeded by hand or with a digging-stick. It is cut off with the sickle, and the standing sheaves are left to dry on the stubble for 1-2 weeks, before being hurled against a chair or a bench to obtain the grain. The straw serves as fodder. The grains are hulled in a mortar or a wooden hand-mill. They are put into soup, or a milky mush is made of them. If there is no milk in the house, the grains are boiled in water, and some lard with garlic is put on the top of the mush. Mixed with milk, foxtail millet is also used for an unleavened flat-bread. Dumplings can be made of its meal mixed with wheat flour (Takács 1968:333-352; Pável 1927:135). In Transdanubia (Hungary) the cultivation of foxtail millet evidently correlates with its raising in Styria and Slovenia, where its cultivation and consumption are similar to those in Western Transdanubia (Gamerith 1956:97-112; Novak 1947:41; Novak 1960:44). In Hungarian foxtail millet is named *mohar*, *muhar*, a word of Serbo-Croatian origin, but in earlier times another term (*köles* 'millet') was also used.

According to L. Takács the raising of *Setaria italica* is evidence for the Mediterranean-Alpine contacts of Hungarian agriculture (Takács 1968:351), but this seems to be rather doubtful, since the cultivation of foxtail millet is wide-spread in the northern regions of the Carpathian area as well. In the Hungarian villages of the Zemplén Mountains (Telkibánya, Pányok, Nagybózsva) *Setaria italica* was still sown as a food- and fodder-plant some 40-50 years ago. The green sowing was weeded out by a digging-stick (Fig. 1 E). The grains were hulled in a hand-mill and eaten as mush. In those times the mush made of foxtail millet was also known in the Nyírség region (Eastern Hungary). Moravians cultivate the plant in the North-Western Carpathians (Javornik-Mountains), where the grains are sown in burned clearings. The women often loosen the soil only with a hoe (Fig. 1 C). Foxtail millet is rarely included in the crop rotation. In proper soil it is sown after bushy rye. *Setaria italica* is sown two or three years in the same soil, then a new clearing is made. Harvested with the sickle, foxtail millet is bound in small sheaves which are dried on the oven and then threshed with a thick-stick. The

grains are hulled in a wooden hand-mill (Fig. 1 A) and then in a mortar. They are ground as coarse-meal and eaten as mush (Kunz 1961:369-378; Štika 1980:15, 63). In the last decades *Setaria italica* was wide-spread among the Slovaks and the Carpathian Ukrainians in Eastern Slovakia, where it was raised for 3-4 years on burned clearings, afterwards new clearings were made for its cultivation (Urbancová 1965:27-28; Podolák 1972a:164; Podolák 1972b:17; Kühn-Hammer 1979:167-170).

In the above mentioned Hungarian villages of the Zemplén Mountains the redomestication of *Setaria italica* was still known at the beginning of this century. The grains of foxtail millet "escaped" from cultivation and growing on the edge of tillage, on the roadside and on the bank of ditches, were gathered and sown. Such plants yield a rich crop even on a poor soil and are highly resistant to frost, heat and drought. A similar redomestication was also practised with panic-millet (Tiszaigar, Tiszacsege, County Hajdu).

VI.

Like foxtail millet, panic-millet (*Panicum miliaceum*) was probably also cultivated at first in China some 7000 years ago. Its original cultivation area includes the loess highland of the Shensi, Shansi and Honan territories. Panic-millet remains found in Greece (Argissa, about 7500 B.C.) are about of the same age (Renfrew 1969:168; Harlan 1977:380; Ping-ti Ho 1977:438-439). Panic-millet was probably also domesticated in more than one place, but a very long time ago. In Neolithic times it was raised in many parts of Europe. It was a most important plant of the Tripolie civilization (Ukraine) which flourished from 5800 to 3900 B.C. (Harlan 1977:380; Bertsch 1949:90-92). In the Carpathian area (Hungary, Slovakia) its cultivation is also known from the Neolithic times and the Early Bronze Age (Tempír 1969:37; Hartyányi-Nováki 1973:62; Hajnalová 1975:227-254). Significant panic-millet remains were discovered in Hungarian archaeological finds of the 10th-13th century (Kardoskut, Tiszaörvény, Győr), which proves that it played an important role in the nourishment of the conquering Hungarians. The Hungarian name of panic-millet (*köles*) is of Ugrian origin. Since the plant also grows wild and escapes from culture, and thus also occurs on uncultivated land, the Hungarians may have obtained it already in their earliest economic period by means of gathering.

Up to the latest decades panic-millet was cultivated in every part of the Hungarian territory and is still raised in some places. Hungarian peasants usually sow it on fallow land, tilled grass-plots, stubbles and flooded fields. If the young wheat-crop is destroyed by frost, flood or drought, it will be replaced by panic-

millet which ripens within 80 - 120 days. Minor plots of panic-millet are broken up only with the spade or the hoe before sowing. In the Great Hungarian Plain the grains were often strewn on the soil and then ploughed in. An ancient method of sowing still exists on the shores of the river Tisza. After the spring floods have passed, the muddy soil is sown with panic-millet without previous ploughing. By the time the soil surface becomes dry, the panic-millet also grow (Bellon 1981 : 238). In the eastern part of the Great Hungarian Plain (Great Sárét) the soil was rooted by pigs and then sown with panic-millet (Takács 1982 : 156 - 157). It also happened that the grain was sown in the soil trampled down by a herd of cattle. Panic-millet is rarely reaped with the scythe or the sickle; the women rather break the ears off by hand or cut them off with a knife (Fig. 1 D). When this is done, the straw is reaped. Occasionally the plant was uprooted (Bellon 1981 : 244). The ears were threshed or trodden out by a horse only in the case of a large quantity. Usually the grain was beaten out with a stick or a washing beater, or the ears, laid out on a canvas, were trodden out by women and children (Bellon 1981 : 246). The White Russians and Poles also tread out the grain with their feet. In Switzerland panic-millet is trodden out in dance-steps (Zelenin 1927 : 48; Moszyński 1926 : 150; Moszyński 1929 : 199; Haberlandt 1926 : 354; Rüttimeyer 1924 : 211). The memory of crop-treading is conserved by the "treading-dance" in Pinzgau (Austria, Wolfram 1936 : 1 - 15). The Estonians and Latvians tread out the rye with their feet (Manninen 1933 : 106 - 107).

Before being prepared for eating, panic-millet was hulled in a mortar, a foot-pestle (Fig. 5) or a hand-mill. Up to recent times it was an important food of the Hungarians. Already in 1805 it was written that the agricultural workers in the Great Hungarian Plain ate millet-mush everyday - from Sunday evening to Saturday evening (Pethe 1805 : 458). The mush is prepared by the Hungarians with water, milk, fat, mutton etc. In County Szolnok there are as many as thirteen different kind of millet-mush made. The millet can be put into sausages and soups, and is also used for baking bread and an unleavened flat cake. Not only the women, but also the men (especially the herdsman) are proficient in preparing millet-mush. In the last century the payment in kind of Hungarian herdsman included panic-millet. With the decrease of millet production, millet-mush was replaced among the Hungarians by a mush-like meal made of dry noodles and pastas, with a variable cooking technique and terminology. Even today millet-mush is a ritual meal: it is offered to the bride and the bridgroom before their wedding, and to the retiring farm-hand on the last day of his service. Since the end of the 18th century, the cultivation of maize and potatoes contributed to the regression of millet raising among the Hungarians, Rumanians and Slovaks.

Besides the Hungarians it is also characteristic of Southern Slav peoples to raise millet and to eat millet-mush. According to J. Csaplovics the millet-bread of the

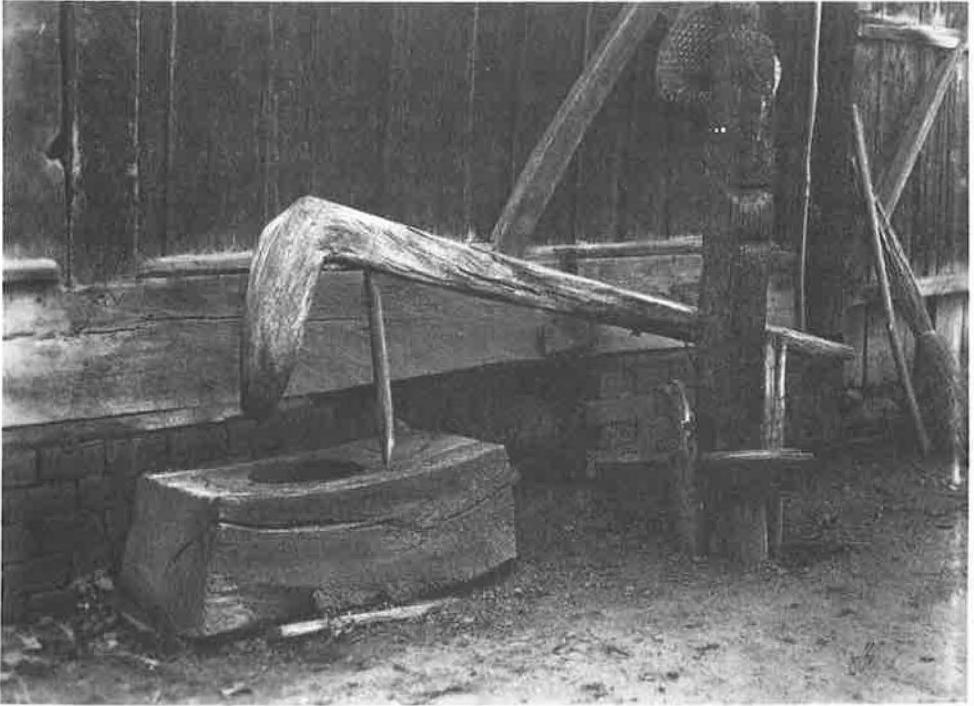


Fig. 5

Foot-pestle for husking panic-millet and buckwheat. Sósvertike, County Baranya, Hungary. Photo B. Gunda

Croatians looked like a mass of swan-shot kneaded together with bird-lime (Csaplovics 1819:114-115. Vol. I). Cultivated but rarely by the White Russians, panic-millet is wide-spread among the Ukrainians, the Poles and in southern Slovak regions (Moszyński 1929:211; Obrebski 1931:B 27). There exists a common Slav word (*proso*) for designating millet (Vasmer 1953-1958:443. Vol. II). It is also rather significant in the nourishment of the Rumanians, whose millet-bread is often mentioned (Claudian 1939:778, 104; Butură 1978:155-156; Neamțu 1975:218). Its earlier importance is demonstrated by the role it plays in Rumanian folk healing and witchcraft. Among the Hungarians it is also an important plant of enchantment. The witch can be kept from the animals by strewing millet grains around the stable. If somebody is pursued by witches, sprinkles panic-millet behind. While the witches gather the millet, the pursued can run away or hide. There are actually several variants of such enchantments (Bellon 1981:253).

VII.

Buckwheat is the only bread- and mush-plant which belongs not to the cereals but to the *Polygonaceae*. Two of its species are cultivated in the Carpathian area: *Fagopyrum esculentum* and *Fagopyrum tataricum*. Both were at first raised in the mountainous regions of Western and Central China together with the adjacent lowlands (Vavilov 1951 : 21). However, we have no exact knowledge of the beginnings of their cultivation. It is also suggested that the original home of the buckwheat reaches from Turkestan to Manchuria and that the plant was introduced into China and Japan from Manchuria in the 5th century B.C. (Bertsch 1949 : 232). Since buckwheat also grows wild and thus occurs as weed, I think it was included in cultivated plants independently at several times and places. This hypothesis is supported by the fact, that the Siberian Tatars partly cultivate Tatar buckwheat (*Fagopyrum tataricum*) within the range of their primitive agriculture and partly gather it as weeds (Hehn 1911 : 514).

In Western Europe – apart from a find of the Bronze Age (Brandenburg, La Baume 1961 : 40) – buckwheat appears only in the 14th century. In Nuremberg it is mentioned in 1396, in Mecklenburg in 1436. In his work published in 1536 J. Ruellius mentions it by the name of *turcicum frumentum*. On German territory its cultivation culminated in the 17-18th century (Bertsch 1949 : 232-233). In botanical literature it is also mentioned as Tatar, Turkish, Negro, Greek crop or millet. In Russian it is named *greča, grečucha*, leading M. Vasmer to the conclusion, that buckwheat came to the Russians via the Greeks (Vasmer 1953-1958 : 307-308, Vol. I). It is certainly possible that Greek merchants played a role in the propagation of buckwheat, but it cannot be ignored, that in Polish, Russian and Ukrainian this cultivated plant is named *tataraka* 'Tatar crop'. (Buckwheat is mainly cultivated in the Ukraine, in Volhynia and the Wolga region. Engelbrecht 1916 : 24-25.) This refers to the possibility, that its species *Fagopyrum tataricum* was introduced into the Southern Ukraine by the Tatar peoples. In my opinion it may be assumed that the term *tataraka* 'buckwheat' was introduced together with the plant itself by Vlach settlers into Moravia and Slovakia, who may have got to know it in the Ukrainian North Eastern Carpathians (as for the Moravian and Slovak terminology of *tataraka* cf. Machek 1954 : 88; Štastný 1971 : 98).

Fagopyrum esculentum was introduced by trade from the northern shores of the Black Sea into Venice, Lombardy and the Alps, where it is a cultivated plant of the higher mountainous regions. In the lower valleys it is sown only after the rye was reaped, just as in Hungary, where it comes after the wheat harvest. *Fagopyrum esculentum* arrived through maritime trade to Amsterdam and Antwerp and from there to Germany (Bertsch 1949 : 232). However, the route Black Sea-Venice-Alps-Amsterdam-Germany is obviously most uncertain and sinuous, and must

be regarded as the *secondary* route of naturalization of *Fagopyrum esculentum*, if the above-mentioned find of the Bronze Age (Brandenburg) is taken into consideration. Tatar buckwheat probably reached the Poles through the Southern Ukraine already in the 12-13th centuries (or even earlier). This is suggested by buckwheat finds discovered in grain-pits (11-12th centuries) which have been opened up near Charkow (Hensel 1965:50). The Poles often sow the two *Fagopyrum* species together, because Tatar buckwheat is less sensitive to frost. The latter grows also as a weed and would oppress the common buckwheat on the field (Galicia). In the sandy region of Tuchola (German *Tuchel*) the Poles cultivate *Fagopyrum tataricum*, gather and consume wild buckwheat as well. It is remarkable, that the Kashubs (a northern Polish ethnic group) peddled buckwheat-groats in the 19th century as far as Kraków (Maurizio 1927:136, 213).

Let us now glance at the terminology of buckwheat. North German *Tadder*, *Tarre* (Middle-High German *Tattelkorn*, *Tatterkorn*) is an adoption of the Polish *tatarka* (Kluge 1934:83; Vasmer 1953-1958:81. Vol. III). Polish *greczka* is Ukrainian, Russian loan-word (cf. Berneker 1924:359), just like Polish *tatarka*. Bavarian and Tyrolian *Blende*, *Plent* can be a reduced form of Italian *polenta* (Kluge 1934:83). Rumanian ethnographers also mention frequently the cultivation and consumption of buckwheat. In Bucovina and Moldavia it is used for baking bread (Pamfile 1913:196; Neamțu 1975:219). The Rumanian sources do not permit us to establish exactly which of the two species is typically cultivated in peasant farms, but in the first place it can only be the Tatar buckwheat, the Rumanian terms for which – *hrișcă*, *tătarcă* – can only be of Ukrainian origin, in spite of any different opinion (Cioranescu 1958-1961:406; 828). Towards the middle of the last century the raising of buckwheat was still widespread among the Slovaks (mainly in the South), whereas it was not cultivated at all in the Great Hungarian Plain.

Remains of *Fagopyrum sp.* from the 10-13th century have been brought to the surface in Hungary next to Lake Balaton (Hartyányi-Nováki 1975:43; Árendás 1982:35). It is possible, that buckwheat was brought already before this into the Carpathian basin by the peoples coming from the Southern Ukrainian steppe, but its cultivation was driven into the background. As proved by linguistic evidence, buckwheat was introduced later into Hungarian territory from several directions in more than one wave. One of its Hungarian names (*hajdina*, first record 1495) is known in Transdanubia. It is a loan-word of Croatian origin. Today it is still cultivated in the western part of Transdanubia, but in the past century its cultivation still reached eastwards to the Danube line. Its cultivation in Transdanubia correlates with that in the Croatian, Slovene and Styrian regions. The term *haricska* 'buckwheat' is known in Transylvania since 1614; it is a loan-word of Rumanian origin, but may have been adopted in the northern part of Transylvania from the

Ukrainian as well. *Pohánka* 'buckwheat' (first record 1494) is a word of Slovak origin, current in the northern Hungarian dialects. The original meaning of *pohánka* is 'pagan crop' (Hungarian *pogány gabona*). Among North Eastern Hungarian ethnical groups the name of *Fagopyrum tataricum* is *tatárka* 'Tatar buckwheat' (first record 1533), an Ukrainian loan-word. At the beginning of the last century, in Transylvania, buckwheat was also known by the name *kruppa* (first record 1683), a Rumanian loan-word (Bakos 1982 :237). The etymology of the Hungarian words *hajdina*, *pohánka*, *haricska*, *tatárka* and *kruppa* 'Fagopyrum sp.' also demonstrates the complicated history of this food-plant. Taking into account the archaeological finds as well, it must have penetrated the Carpathian area on several occasions and from different directions. The above-mentioned loan-words have obviously supplanted some ancient Hungarian terminology, since *Fagopyrum* remains from the 10-13th centuries have been discovered in Transdanubia. *Fagopyrum tataricum* was (or still is) cultivated by the Hungarians in the North East, in the northern part of Transylvania, by the Slovaks and the Carpathian Ukrainians in the North Eastern Carpathians. The latter are known to deforest some plots early in the spring (Zemplén region). By the month of June the trees and bushes dry up and are then set on fire. The remaining ashes are used for manuring the soil, which is sown with buckwheat (*Fagopyrum esculentum* and *F. tataricum*) or foxtail millet. In recent times, however, the burned clearings have been sown with potatoes, oats, rye or eventually with panic-millet. The plot is used for 3-4 years, then it is abandoned and a new clearing is burned (Gunda 1969 :106-107; Podolák 1972 a :164; Hammer 1978 :264-265). Under Ukrainian influence, the Rumanian peasants also use mainly *Fagopyrum tataricum* as food-plant. As shown by historic evidence, it was most important food-plant of the 17th century in the North Eastern Carpathians (Makkai 1954 :124, 126, 142, 143 etc.). In the western part of the Carpathian area (Transdanubia) the species *Fagopyrum esculentum* is known as food-plant. In my opinion Tatar buckwheat is a later cultivated plant in the Carpathian area than the other species. In any case the history of *Fagopyrum* must still be examined in detail.

Within the Carpathian area the largest quantity of buckwheat is cultivated today in the western part of Transdanubia by Hungarians, Croats and Slovenes. This cultivation area is closely connected with the Styrian and Slovene buckwheat region of the Eastern Alps.

In Western Transdanubia, County Somogy, County Baranya (Ormánság region) buckwheat is raised and consumed in the same way as described in the agricultural literature of the beginning of the last century. At the end of June or in July it is sown in the ploughed up stubble after the winter crop has been harvested. It was also sown in burned clearings. A negative selection can now be observed: the sound grains are consumed, while those of poor quality are sown.

By the beginning of October the buckwheat is ripe and is then reaped with the sickle. In County Baranya the few plants growing on the plots were also uprooted. The sheaves are kept standing for a few days thoroughly dry. They are threshed with a flail. Before being cooked, the grains are slightly boiled to have the seed-coat broken, and are then dried in the oven. After drying, the grains are moistened and hulled in a mortar, a foot-pestle (Fig. 5) or a wooden hand-mill. They are also put into a wooden vessel and trodden with naked feet until they are hulled. Buckwheat is used for making soup or mush, it is put into sausages or mixed with milk and thus used for baking a flat cake or bread. A typical buckwheat meal in Transdanubia is called *sterc* (from Austrian, Bavarian *Sterz*); it is made of coarse meal, put in a pan with hot water and roasted, while being constantly stirred, and



Fig. 6
Roumanians husking Tatar buckwheat. Rogoz, Country of Szolnok-Doboka, Transylvania. Photo B. Gunda

finally flavoured with hot lard (Bödei 1937:445-450; Kardos 1943:58-60). In the Ormánság region hulled buckwheat is mixed with hulled barley and eaten as mush. In Transylvania it was mentioned already at the end of the 18th century, that the Hungarians ate a thick buckwheat-mush with milk and curd. The stiff mush was eventually cut into thin slices and sprinkled with honeyed water and poppy seeds (K. Mátyus 1787:153. Vol. II; Teleki 1796:94). Unfortunately we have no detailed informations on the buckwheat meals of the Rumanians, the Ukrainians and the Slovaks. In Moravia buckwheat is used for making bread or mush (Štika 1980:40, 62, 63).

On field-work in Rumanian villages of the Szolnok-Doboka and Máramaros regions (Transylvania) I have observed, that Tatar buckwheat was sown in burned clearings in a two-course rotation system (buckwheat-potato or maize-fallow plot). In 1940-50 it was cultivated only in small plots tilled with the hoe and left to lie fallow for several years. The authorities registered such plots as barren ground. The grains were slightly moistened and then hulled in a wooden



Fig. 7
Roumanian young man husking Tatar buckwheat with foot-pestle. Rohi, Country of Szolnok-Doboka, Transylvania. Photo B. Gunda

mortar (Fig. 6) or a foot-pestle (Fig. 7). Tatar buckwheat was used for making a mush. In the northern part of the Szolnok-Doboka region the Hungarians also cultivated this plant in the same years. It was sown at full moon after May 15 in a clearing burned out 50-60 years before. These plots were sited in the mountains about 8-10 km from the village. The soil was tilled with the hoe. The buckwheat was reaped by the women with a sickle, and the sheaves were threshed with a stick on the plot itself. The straw was set aflame and the ashes were thrown over the plot. After the buckwheat the plots were sometimes sown with maize and oats. The Hungarians used the clearing for 2-3 years. In the first year they sowed buckwheat, in the second maize or potato and in the third oats, but it also happened that only Tatar buckwheat was cultivated in the plot for two or three years. After this the plot was used as sheep-run for 5-6 years. In this century no new clearings were burned out.

VIII. CONCLUSIONS

In the Carpathian area the cultivation of einkorn, emmer, spelt, bushy rye, foxtail millet, buckwheat survived as recently as the middle of the present century, even nowadays can be found. With their cultivation and consumption these plants represent a characteristic marginal culture. In prehistoric times, in antiquity and in the Middle Ages, and even in the 18-19th centuries some species were also raised in the lowlands (for instance, einkorn in County Bihar, emmer in the Bodrogeköz and Rétköz regions). However, their cultivation became gradually limited to the mountainous territories (e.g. bushy rye to the Javornik Mountains, Orava, emmer to Slovakia, einkorn to Transylvania). In Transdanubia buckwheat also retired towards the Bakony Mountains and Styria. Within the Carpathian area the mountainous districts are regions of refuge not only for the implements and customs, but also for the cultivated plants.

By the 20th century only panic-millet remained as a typical plant of the lowlands; it was sown in a most primitive way in grass-plots or after the flood in the muddy soil (the grains were strewn without ploughing on the muddy ground or trodden into the soil by the animals, e.g. along the river Tisza, in the Great-Sárrét region).

The sowing of buckwheat was still marked by a negative selection (Transdanubia), as could be observed at the beginning of plant cultivation in the New World, for instance in the case of maize (Gunda 1968b:11).

Einkorn, emmer, spelt, foxtail millet, buckwheat and bushy rye are usually cultivated on small plots far away from the villages. The plots are cleared by

means of fire with no rotation of crops, or just a most primitive one. It is not the crops but the fields, that are rotated. The cleared plots are scarcely manured or not at all. The ashes of the burned vegetation serve as manure. Animal work is quite insignificant. The plough is seldom used; in the Javornik Mountains it is most primitive. The soil is tilled by means of spade and hoe; the women play a major role in both the soil tillage and the harvest. Eventually the soil is tilled jointly by the women, as demonstrated by the cultivation of bushy rye in the Javornik Mountains, in Orava and by that of emmer in Slovakia. The ripe plants are often pulled up by the women, or the ears are broken off or cut off with a reaping knife (see the cultivation of panic-millet in the Great Hungarian Plain). In the Zemplén Mountains the women cut off *Triticum spelta* with the sickle immediately under the ear, because the stalk can be more easily cut through at the top than at the root, where it is stronger; furthermore, the harvester has to bend and thus the work is more strenuous. Therefore a high stubble was left and then set aflame. This problem of reaping was already pointed out by A. Steensberg (Steensberg 1943:129). Often a simple stick was used for threshing. The grains are also rubbed out of the ear with the hands (einkorn, Transylvania) or trodden out (panic-millet, Great Hungarian Plain). Often the ears are grasped and hurled against the wall of the barn in order to obtain the grains (bushy rye, Javornik Mountains).

The grains are hulled with ancient implements (wooden hand-mill, foot-pestle, mortar) and used for making mush or baking an unleavened flat bread. These plants have actually conserved an ancient period of mush and unleavened bread representative also of Europe's prehistoric forms of nourishment. In the Carpathian area these cultivated plants were gradually supplanted from the beginning of the 19th century by maize and potato. In the Great Hungarian Plain panic millet-mush was replaced by different dry noodles made of wheat-meal which are cooked in a mush-like way and have often different names in single villages (*öhön, slambuc, galaburgyi, tyerászka, dzsamé, tarhonya*, etc.). This proves that they are new in the rural food-culture.

Some ancient implements used for processing the buckwheat, emmer, panic-millet or foxtail millet were adopted by recent plant cultures. Thus the footpestle is used by the Hungarians for crushing paprika or for hulling pumpkin seeds (Wildhaber 1948:192), and by the Rumanians also for hulling pumpkin seeds.

The peasants are unwilling to cultivate einkorn, emmer, spelt, bushy rye, buckwheat and foxtail millet according to the principles of modern agriculture. In fact, they are most conservative as far as these plants are concerned. They try to obtain improved grain for bread-wheat and common rye and interchange the seed-grain among themselves. The wheat is sown with the sowing-machine and

threshed with the thresher. Wheat-culture has reached a high stage of development on the peasant farm. On the other hand, einkorn and the others are stepchildren of agriculture, vegetating on burned clearings and barren plots. In Kalotaszeg (Transylvania) the peasant working in the co-operative farm often still raises einkorn on his small plot in the forest. Not even the neighbours would know about the cultivation of einkorn, emmer, bushy rye etc. Thus, the emmer and all these other plants must be regarded increasingly as family plants. The small plots are not filed by the authorities who do not even know of these plants. The crops are not put on the market, except some rare cases when panic-millet is offered on Hungarian markets and *alakor* appears on Transylvanian markets.

Statistically the production of the above mentioned plants can be quantified only approximately or not at all. Hungarian statistical data are available from the beginning of this century on panic-millet, buckwheat and spelt, but are not reliable.⁴ It is a major difficulty that we are unable to find out from documents, statistical works and vernacular publications, exactly which of these cultivated plants is meant. When ancient sources mention, for instance, the Hungarian *alakor* or Rumanian *alac*, these terms can mean *Triticum monococcum* just as well as *Triticum dicoccum* or *Triticum spelta*. The botanical definition of Rumanian dialect plant names is especially difficult. The Latin *spelta* as written in documents cannot always be identified either with *Triticum spelta*.

In the Carpathian area the cultivation of these plants – apart from panic-millet – is mainly characteristic of slash-and-burn or swidden agriculture. This kind of tillage and plant cultivation is well known from the northern and eastern parts of Europe (Steensberg 1955 : 65 - 130; Linnard 1970 : 192 - 197) and from the extra-European continents (Conklin 1961 : 27 - 61; Conklin 1965; Vayda 1969). Slash-and-burn agriculture has innumerable local types within the Carpathian area. The types depend on the socio-economic and geographical conditions and mainly on the present or past proprietorship of the forests. Today the peasants are not allowed any more to avail themselves of such a form of deforestation . Different types are created on burned clearings by the application of various crop rotations, leading finally to the end of the slash-and-burn system. Of course, it must also be said, that the slash-and-burn system within the Carpathian area has

⁴ Without being able to offer here a detailed specification of the data, I should merely like to mention that in the years 1901 - 15 the total area sown with buckwheat corresponded to an annual average of 8212 cadastral yokes (1 c. y. = 0,57 hectare). The statistical data do not reveal, whether the foxtail millet is raised for food or for fodder. In statistics *spelt* does not always mean *Triticum spelta*.

not yet been examined in detail.⁵ But it might be sufficiently clear by what has been said so far, that the components of the geographical and social environment and their interrelationship with the cultivated plants, human labour, the working implements and the utilization of crops represent a specific ecological complex within culture as a whole. In the geographical and social respect this cultural ecological complex is sited in the marginal areas. There is an archaic and local slash-and-burn culture surviving in the many-sided, up-to-date agrarian cultures, together with the archaic cultivation of panic-millet in the lowlands.

It should be pointed out emphatically, that in the slash-and-burn system practised in the Carpathian area the wild fruit-trees of the forests (crab-, pear-, cornel-, sorb-trees etc.) are spared. They are neither felled nor burned, but their fruits are gathered and utilized. On tillage areas, grazings or hayfields we can often see a solitary crab-tree or a wild pear-tree, reminding us of former slash-and-burn tillage. If these trees grow old and begin to decay, the hollow will be occupied by a swarm of bees, the honey of which is still gathered by the bee-hunters. The hollow trunk is often cut out with a saw and taken home together with the swarm of bees (Gunda 1968 a : 1 - 62).

The traits of slash-and-burn tillage in the Carpathian area lead us to remote regions in time and space. These traits include in the first place the cultivated plants. Hoe-culture can be followed not only as far as Africa, but back to the Neolithic Age as well. The use of clod-breaking hammers and clubs is evidently very ancient. In Egypt, for instance, they were used before the harrow. Such implements are known from East India and Tibet to France. In Switzerland (Maraviglia) pictographs from the Bronze Age represent men with clod-breaking hammers (Rütimeyer 1924 : 288; Leser 1928 : 480). They were also known in the Carpathian area in the lowlands and the hilly regions (Takács 1963 : 419 - 425), but have survived only in the slash-and-burn tillage of the highlands (e.g. in Orava, Nagy 1891 : 129 - 130). The pulling of the cultivated plants and the cutting of the ears with a knife are characteristic of the beginnings of plant cultivation (Steensberg 1943 - 122 - 126; Bohrer 1972 : 145 - 156). The treading of the grains from the ears or their rubbing with the hand as well as the eating of unripe grains obviously also belong to these traits (cf. the consumption of emmer by the Slovaks). The consumption of unripe, roasted grains proves, that these cultivated plants are ancient not only in the botanical sense, but also in the cultural ecolo-

⁵ In his book L. Takács deals mainly with the clearings of Transdanubia, but without paying attention to the correlation existing between einkorn, emmer, spelt, bushy rye etc. and the slash-and-burn system (Takács 1980). It is worthy of note that slash-and-burn agriculture was recently filmed in Styria (H. Frühwald, Mitteleuropa-Steiermark, Brandwirtschaft I - III. Film C 1734/I - III der BHWK. Bundesstaatliche Hauptstelle für Wissenschaftliche Kinematographie, Wien 1982).

gical respect. Already J. G. D. Clark has called our attention to the fact, that the consumption of half ripe, scorched grains has been known since the Neolithic Age (Clark 1952 : 112). The Poles dry the half ripe rye in the oven, grind it in a handmill and then eat it. In Württemberg the dried grains of spelt (German *Grünkern*), together with half ripe grains of einkorn, emmer and spelt were still used at the beginning of this century for cooling a soup (Maurizio 1929 : 141). The Shors (Altay Mountains) scorched the ears on an open fire before threshing them (Levin-Potopov 1964 : 452).

One of the implements for removing the hull of emmer, panic-millet and buckwheat is the foot-pestle. It is as wide-spread all over Japan, China, the Altay Mountains, Afghanistan, the Caucasus, Eastern and Central Europe, the Alps, France and Portugal as panic-millet itself (Vavilov-Bukinich 1929 : 205; Meynen 1927 : 95-100; Leser 1929 : 468-469, 484; Dias 1954 : 437-451; Gamerith 1965 : 107). J. Dias pointed out the correlation between the cultivation of the panic-millet and the use of the foot-pestle (Dias 1954 : 445-446). I should like to complete his opinion with the observation, that the use of the foot-pestle correlates in the Carpathian area not only with the cultivation of panic-millet, but also with that of emmer, buckwheat and foxtail millet. This applies also to the wooden hand-mill, the use of which extends from the Eastern Alps over Carpathian Europe to the Wolga region, Northern Russia and the Caucasus. According to I. Manninen such a husking and grinding wooden hand-mill is used by the Vepsians, the Zyryans, the Votyaks, the Cheremisses, the Voguls and is not unknown by the Turkish-Tatar peoples (Chuvash, Bashkir, Kirghiz, in Siberia the Tatars of the Minussinsk region) either (Manninen 1932 : 80-81; Rudenko 1955 : 120; Gamerith 1956 : 100; Kunz 1961 : 376). The wooden hand-mill and the foot-pestle are index fossils of ancient cultures just as much as einkorn and the other above mentioned plants.

The author hopes to have called attention here to several problems of the cultivation and consumption of some old cultivated plants. In our days, when European ethnology tries to find its way, experiments with structuralism and semiotics, attempts to amalgamate with sociology, knocks at the door of citizens, collects political slogans daubed on fences and obscenities smeared on the wall of lavatories, – we should not forget the still extant survivals of ancient European folk-culture, the investigation of which is one of our most urgent tasks. Still living today and functioning on the social level as well, these relics are certainly not going to be brought to light a thousand years from now by the spade of the archaeologist.

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