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THE MESOLITHIC SETTLEMENT IN THE REGION OF POLOMENÉ MTS. (NORTH BOHEMIA)

It is assumed that during the Mesolithic period the groups of hunters and fishers were not too mobile (Vencl, 1965, 166; Kozlowski, 1972, 12), and some places were cyclically resettled (Schild — Marczak — Królik 1975, 126). It is therefore important to study the Mesolithic settlement of small, geomorphologically and hydrologically closed regions. The territory studied in this work is a good example of such a region.

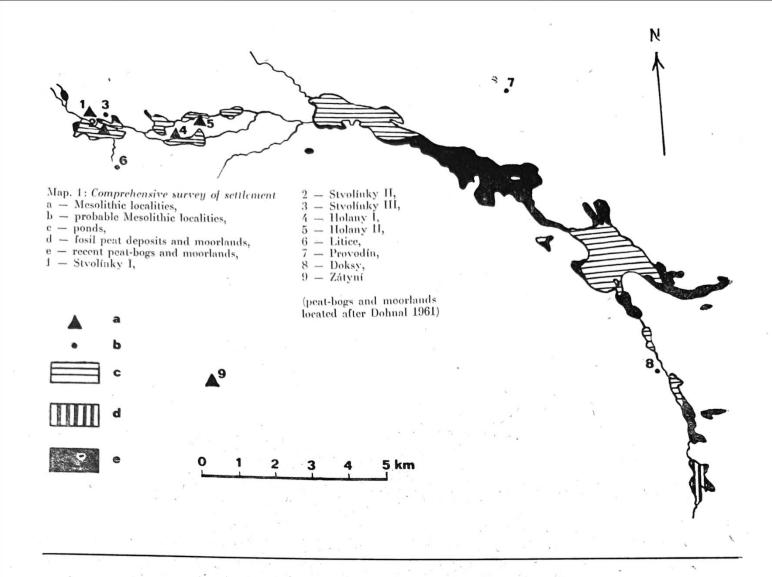
The Polomené Mts. ("Broken Mts." in Czech) region is a hill country formed by a sandstone tableland furrowed with numerous canyons, today most of them without water. The highest elevation of the hills is the phonolitic Vlhošť (610 m). Along the northern and eastern fringes of the Polomené Mts. there is a bow-shaped depression, hydrologically forming part of the Ploučnice River Basin (Map 1). Its western part drained by Bobří potok ("Beaver Creek") is called the Holany Depression and its south-eastern part is called the Jestřebí Depression. At present there is a chain of fish-ponds on the territory of the above-mentioned depressions. It has not been found out whether the depressions were filled with lakes also in the early Holocene (the morphology of the terrain is very suitable for their formation). Most peat-bogs arose in this territory after the artificial elevation of the water-level, some of them in natural way as valley deposits along the creeks. An ancient lake has been located east of the village Okna, at the south-eastern tip of the Jestřebí Depression (Dohnal 1961, 249).

The systematic study of the Holany Depression began in the late twenties when K. Stellwag started the collection of finds around Stvolínky (1930), calling also the attention of L. Franz to this region. In 1929—31 L. Franz excavated a hut containing Neolithic pottery on the eastern slopes of Ronov (Franz 1931, 1935) and in the

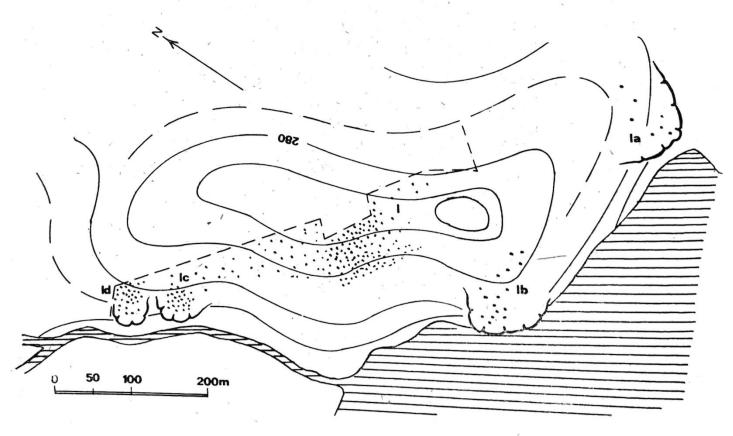
years 1932—33 he concentrated on the research of the site called Stvolínky I. In the post-war period F. Prošek and V. Ložek studied some of the abris in the interior of the Polomené hory; a Mesolithic settlement was detected under an abri near Zátyní and the materials were published about it (Prošek—Ložek 1952). Further Mesolithic sites were discovered during the research of the moorlands and peat-bogs in 1957—1958— they are mentioned in the publication of Z. Dohnal (1961). In 1971 the surface research of the Mesolithic settlement was started in the area—its results are presented in this study.

The biggest concentration of finds was detected in the area of the Holany Depression (Stvolínky, Holany, Litice); while the finds of stone artifacts from the Jestřebí Depression (Provodín, Doksy) are quite sporadic. A further Mesolithic locality was discovered on the south-western fringes of the Polomené Mts. in the basin enclosing the city of Uštěk. The literature and the reports of the Archaeological Institute of the Czechoslovak Academy of Sciences mention some further sporadic finds of artifacts, not authenticated by further research.

Stvolinky I. The site is on a protracted elevation on the left bank of the Bobii potok and north of the Dolenský Pond at 280 m above sea-level (Map 2). The subsoil is formed by sands. The presence of stone artifacts was established by K. Stellwag and the excavations were realized by L. Franz. The Mesolithic industry was found in the topsoil, in some cases it reached to the depth of 0.15 m to the sandy subsoil. L. Franz first dated the finds to the Tardenoisian (Franz 1933a), but later he changed his view and considered them as Neolithic. He claimed that there was connection between these finds and between the Neolithic hut discovered some 1,5 km from here. He explained the differences in



Map 2: The settlement of the Stvolinky I locality



the material by presuming that the Stvolinky site was only a seasonal settlement or camping site for

hunting activity (Franz 1934, 1935).

The surface research started in 1971 resulted in the acquisition of 417 artifact over a large area on the southern and south-western slopes of the elevation. The highest accumulation of these artifacts occurred at the centre of the area, and some smaller collections come from isolated marginal spots. These small locations are on sandstone rocklets, either above the Dolenský Pond or above the Bobří Creek and they are marked with letters Ia - d. The distance between sites a. and d. is about 700 m.

SURVEY OF THE INDUSTRY:

A - Cores:

1. 2 cores in the initial phase of fabrication

II. single platform cores:

a) 11 cores without prepared platform

5 cores with prepared platform (Fig. 2:6)

1 pyramidal core (Fig. 1:3) III. double-platform cores:

a) 1 core without prepared platform

1 core with both platforms prepared (Fig. 1:7) 6 cores with changed orientation (Fig. 1:1, 2, 4, 2:9)

VI. 3 three-platform cores (Figs. 1:6, 2:7)

V. 1 flat multi-platform core - disk (Fig 2:10)

VI. 3 damaged cores

VII. 5 core residues VIII. 7 atypical cores

B-Tools:

I. points:

a) 1 microlithic backed point (Fig. 5:1) b) 1 atypical point with lateral notch

II. 1 massive multiple burin

III. 3 end scrapers (Fig. 5:2, 3)

IV. 1 backed implement - fragment (Fig. 5:4)

V. 1 denticulated implement

IV. 2 artifacts with notches (Fig. 5:5)

C-I. Blades:

a) 43 blades

3 blades from core edge b)

c) 1 blade from core platform

II. Flakes:

a) 189 flakes

b) 13 massive flakes

6 retouched flakes

d) 1 core edge flake

3 flakes from core platform (Fig. 1:5)

III. Fragments:

a) 19 large fragments

b) 70 small fragments

1 retouched fragment

D - I. 11 pieces of non processed raw material II. 1 hammer (Fig. 6)

Among the stone artifacts occur some later, obviously Encolithic specimens (bifacialy retouched point). Primitive Acheuloid industry made of local quartzites was also discovered (Svoboda, in print), alongside with some atypical prehistoric sherds and medieval pottery. The research carried out by L. Franz (1933b) made sure that the area was settled in the Roman period.

Locality Ia. lies on a sandstone rocklet above -the Dolenský pond on the south-eastern part of the ridge. It was discovered in 1972 and since then 7 artifacts have been gathered here (2 single platform cores in the initial phase of fabrication, 1 flake, 2 fragments, 1 retouched fragment and piece of partially hammered raw material).

Locality Ib. was discovered in 1972 on a sand-stone rock adjoining the southern part of the ridge and reaching to the Dolenský Pond. 18 artifacts have been gathered here (1 single-platform core without pre-paration, 1 pyramidal core, Fig. 2:8, 1 atypical core, 1 burin, a high end scraper damaged by fire, 2 blades,

1 blade from core edge, 5 flakes, 5 fragments).

Locality Ic is situated on a very small sandstone rocklet in the north-western part of the ridge above the Bobří Creek. It was discovered in 1974. Altogether 31 artifacts were collected here (1 double platform micro-core, 1 micro-core with changed orientation, Fig. 2:5, 4 blades, 15 flakes, 10 fragments).

Locality Id was discovered in 1972 on a small rocklet in the very vicinity of locality Ic and is separated from it by a small and narrow gorge. Altogether 47 artifacts were collected here (1 flat pyramidal core, Fig. 2:4, 1 atypical single-platform core, 6 blades, 26 flakes and 13 fragments).

Stvolinky II. This locality is on a narrow, about 600 m long sandstone ridge separating the present day Dolenský and Milčanský ponds at 270 m above the sea-level. The subsoil is formed by eluvial sands. The locality was discovered by J. Soukup, who handed over his finds to K. Zebera. The collecting of surface finds after 1971 resulted in 418 artifacts. They were concentrated in the eastern and central part of the locality and towards west the number of finds rapidly decreased. A small collection was gathered in the westernmost part of the ridge and marked as position IIa.

SURVEY OF THE INDUSTRY:

A - Cores:

I. 1 core in the initial stage of fabrication

II. single platform cores:

a) 9 cores without prepared platform (Fig. 2:2)

b) 2 cores with prepared platform

c) 2 pyramidal cores (Fig. 3:2, 5) and a flat derivative (Fig. 3:4)

III. double-platform cores:

a) 6 cores without prepared platform (Fig. 3:3) b) 2 cores with one prepared platform (Fig. 3:1)

c) 4 cores with changed orientation (Fig. 2:1)

IV. 2 multi-platform cores (Fig. 3:7)

V. 3 flat multi-platform cores - disks (Fig. 3:6, 8, 9)

VI. 7 damaged cores

VII. 4 core residues

VIII. 3 atypical cores

B - Tools:

I. points:

a) 1 microlithic backed point (Fig. 4:1)

b) 2 points with retouched bow-shaped side (Fig. 4:2, 3)

c) 2 points alternatively retouched at the base (Fig. 4:4, 5)

d) 1 atypical point with a lateral notch

II. 4 burins (convexe truncated micro burin, Fig. 4:12, massive angle spalled burin, massive double-angle spalled burin, Fig. 4:14, burin Fig. 4:13)
III. 5 end scrapers (Fig. 4:6, 9, 10, 11)

IV. 3 micro-side-scarpers (Fig. 4:7, 8) V. 2 borers (Fig. 4:16, 17)

VI. 4 artifacts with notches (Fig. 4:15, 20)

C - I. Blades:

a) 27 blades

b) 1 retouched blade (Fig. 4:19) 1 blade from core edge

H. Flakes:

a) 181 flakes

b) 23 massive flakes

5 retouched flakes (Fig. 4:18)

III. Fragments:

a) 63 large fragments

b) 31 small fragments

c) 3 retouched fragments

D-1. 9 non-processed pieces of raw material

II. 4 stone percutors

From the same locality come various finds of Palaeolithic industry of archaic type, La Téne, atypical prehistoric and medival sherds.

Locality IIa was discovered on the westernmost part of the ridge between the Dolenský Pond and Milčanský Pond. 8 artifacts were collected here in 1972 (1 double-

platform micro-core, Fig. 2:3, 1 blade, 6 flakes).

Stvolinky III. This locality lies on the northern shore of the Milčanský Pond, separating it from locality II. It was discovered in 1958 by Z. Dohnal (1961, 267). The 1973 surface research resulted in the collection of 7 stone artifacts (1 atypical core, two flakes of roughly oblong shape, 1 blade, 2 fragments, 1 fragments damaged by fire).

Holany I. The locality is on a low ridge separating the Oslovický Pond from the Holanský Pond. The subsoil is sandy. The locality was discovered during a research realized in the area by Z. Dohnal (1961, 267, compare also Vencl 1971, 172). The superficial collections organized after 1971 resulted in gathering 204 various artifacts.

SURVEY OF THE INDUSTRY:

A - Cores:

I. single-platform cores:

a) 4 cores without prepared platform

b) 1 core with prepared platform

c) 1 flat pyramidal core (Fig. 5:15)

II. 1 double-platform core

III. 1 three-platform core (Fig. 5:13)

IV. 2 multi-platform cores

V. 1 damaged core

VI. 1 core residue

VII. 1 atypical core

B - Tools:

a) 1 microlithic triangular point (Fig. 5:7)

b) 1 microlithic backed point (Fig. 5:8)

c) 1 retouched point with notch (Fig. 5:12)

d) 1 atypical point with retouched base II. 3 scrapers (end-type, Fig. 5:10, blade-type, 5:16, rounded, Fig. 5:14)

III. 1 micro-side-scraper (Fig. 5:11)

IV. tools with notches:

a) 1 blade with notch

b) 1 microlith with notch (Fig. 5:9)

C-I. Blades:

a) 11 blades

2 retouched blades

3 blades from core edges

II. Flakes:

a) 92 flakes

5 massive flakes 4 big flakes from the local quartzite

d) 3 retouched flakes

III. Fragments:

a) 37 small fragments

b) 22 large fragments

1 retouched fragment

D = I, 1 hammer

A partially polished flint axe and some atypical prehistoric shreds were also found at this locality. It is necessary to count therefore with a younger. perhaps Encolithic settlement and we cannot exclude the presence of later intrusions in the stone industry.

Holany II. This locality is situated on a slight elevation with sandy subsoil above the Nohavice Pond and it was discovered by Z. Dohnal in 1957 (1961, 267). Recent surface research did not result in gathering enough material; in 1974 only a micro-burin was found (Fig. 5:17), indicating that the settlement comes obviously from the

Mesolithic Age. Litice. 2 flint flakes were found on the northern slopes of the Vlhost in 1973-74, one of them burnt in fire. It is quite problematic to date these finds to the Mesolithic Age (unusual position for the Mesolithic period and the vicinity of a Neolithic settlement on the eastern slopes of

the Ronov Hill).

Provodin. 2 flint artifacts were found in 1974 at the remarkable basalt stack of Lysá skála ("The Bare-Rock") (420 m). The site is of suitable position (an important landmark). Mesolithic dating is possible.

Doksy. 8 stone artifacts appeared on the western shore of the Oborský Pond in 1974-76. The finds are not typical enough; one of them is a flake from the platform

of a core. Mesolithic dating is possible.

Uštěk. The locality is on the southern slope of a protracted elevation sloping towards the Uštěcký Pond. In 1975 4 flint artifacts were discovered here — 1 double-platform core (Fig. 5:19), 1 end scraper (Fig. 5:18), 1 microblade and 1 massive flake. The locality can be dated probably to the Mesolithic Period.

THE RAW MATERIALS _ (T A B. 1)

The raw materials used in the above-mentioned localities can be divided into three groups: 1. Silicites (flints, hornstones), 2. Quartzites and 3. other raw materials. Silicites were used most frequently and almost all of them come from the north. Though there are some flint pebbles in the Ploučnice River Terraces too (and they appear also in the localities dealt with in this article) it is not sure whether they could serve as suitable sources. of raw material.

Among the quartzites we can find both local varieties and quartzites coming from the Central Bohemian Mountains (České středohoří). Local quartzites are quite frequent in the area of Stvolinky. We can find fragments and square pieces of quartzites of large dimensions there. They are coarse-grained and thus not suitable for the manufacture of fine tools, but they can as coarser stone industry components. They are mostly of saturated yellow or ochre yellow hue, lessfrequent are the white, red and violet. The local

Table 1. Survey of raw materials	Silicites		Various Dinas quartzites		Becov-type-quartzite		Chanov-type quartzite		Local quartzites		Silurian hornstone		Porcelanite		Agate		Calcedony		Other		Total	With slight patination	Burt in fire
	n	%	ņ	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	Ţ	>	<u>B</u>
Stvolínky I Ia Ib Ic Id Stvolínky II IIa Stvolínky III	236 6 14 21 30 323 4 7	56,7 63,8 77,1	50 1 5 2 16 2	11,98 4,26 3.83	1 3 10 54	20,02 21,3 12,91	1	0,24	41 1 2 2 5 22	9,82 10,31 5,26	1	0,24	1	0,24	1	0.24			3	0,72	417 7 18 31 47 418 8 7	4	35 10 4 38
Holany I Holany II Litice Provodín Doksy Úštěk	149 1 2 2 7 4	73,1	8	3,92	36	17,33			10	4,91	18.						1	0,49			204 1 2 2 8 4	1	1 44

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		4 1	4 1 1	9 2 3 6 4 1 1 1	11 5 1 1 9 2 3 6 2 4 1 1 1			

Table 3. Typologičal Survey		4	0	0	0			0			C	\bigcirc	
Stvolinky I	1	Į.					3				1		
Stvolínky II	1		1	1	,	2	5			3	4	2	1
Holany I	1	1			1		1	1	1	1			
Zátyní	1		1						1				

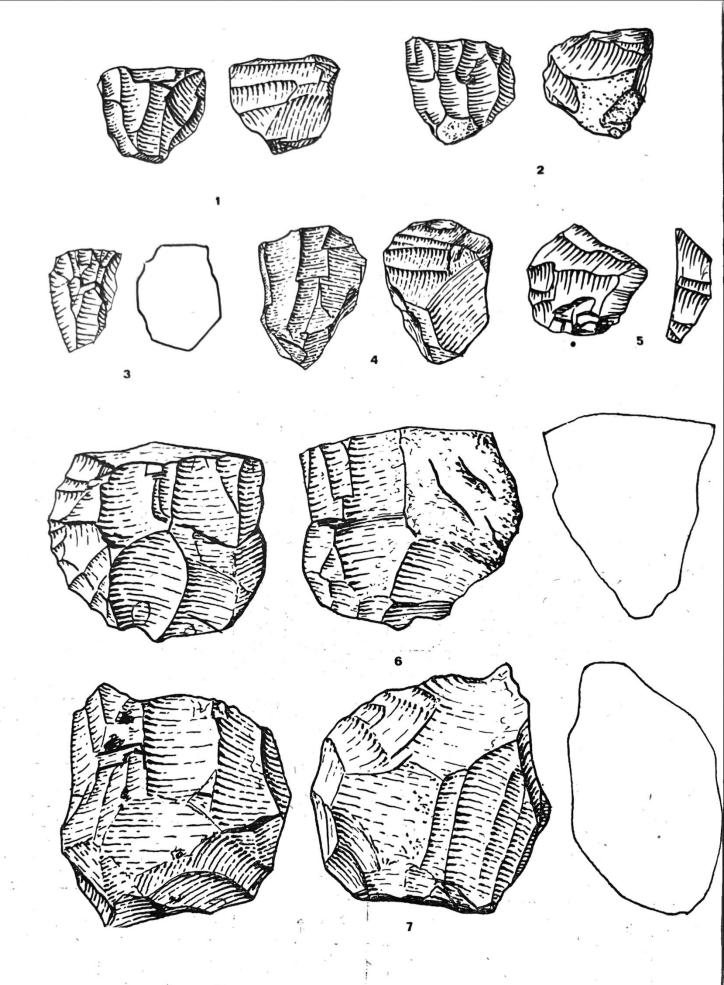


FIG. 1.

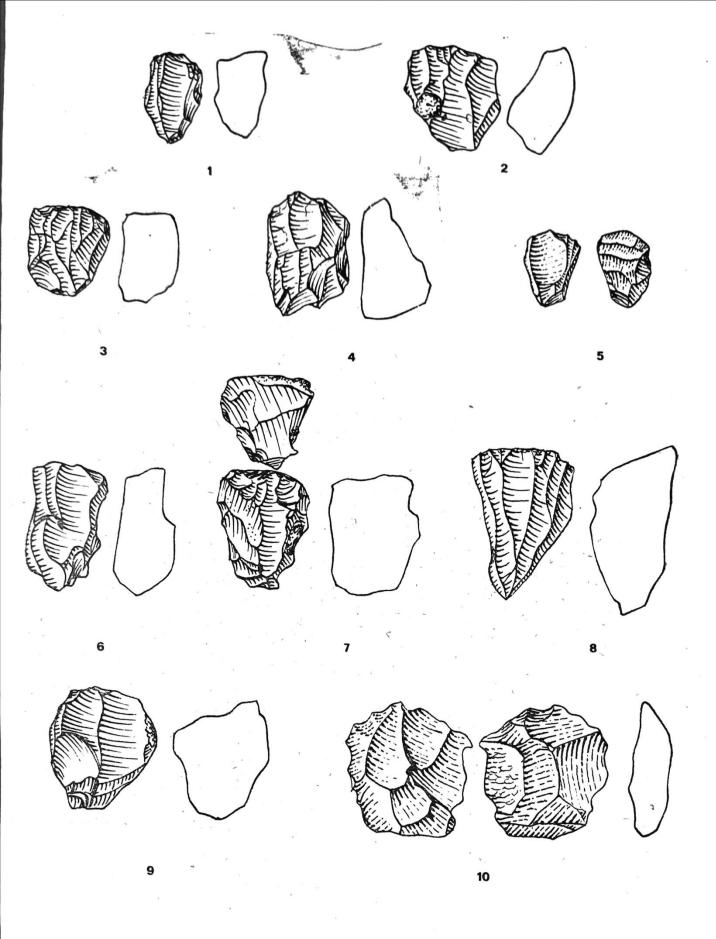
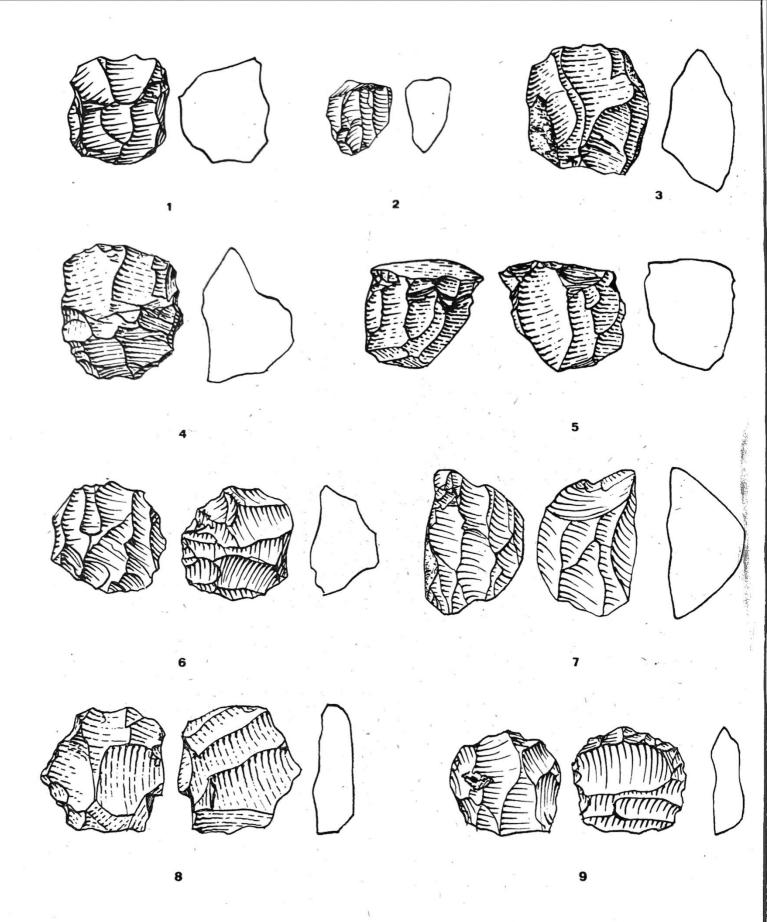


FIG. 2. 1-2: Stvolinky II, 3: Stvolinky IIa, 4: Stvolinky Id, 5: Stvolinky Ic, 8: Stvolinky Ib, 6-7-9-10 Stvolinky I.



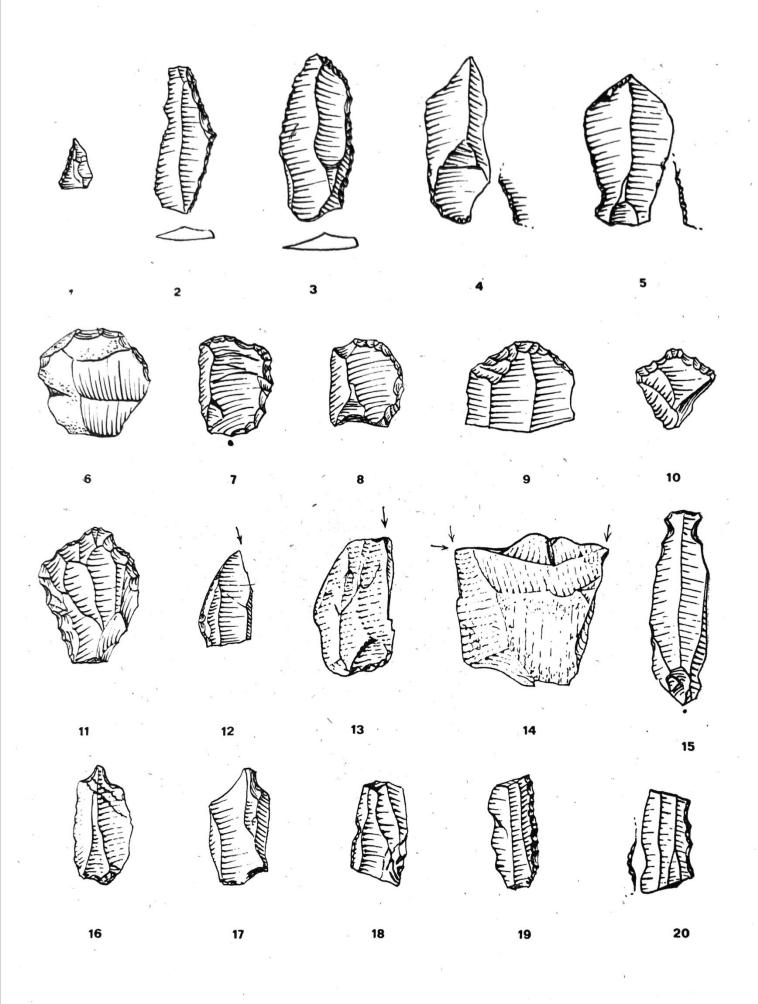


FIG. 4.

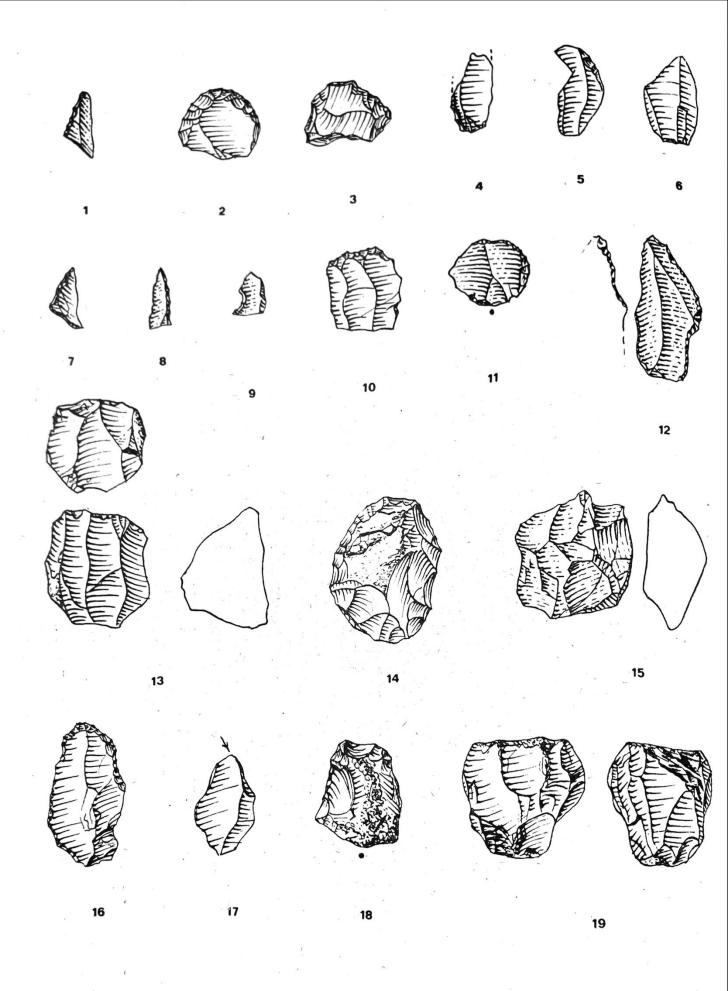
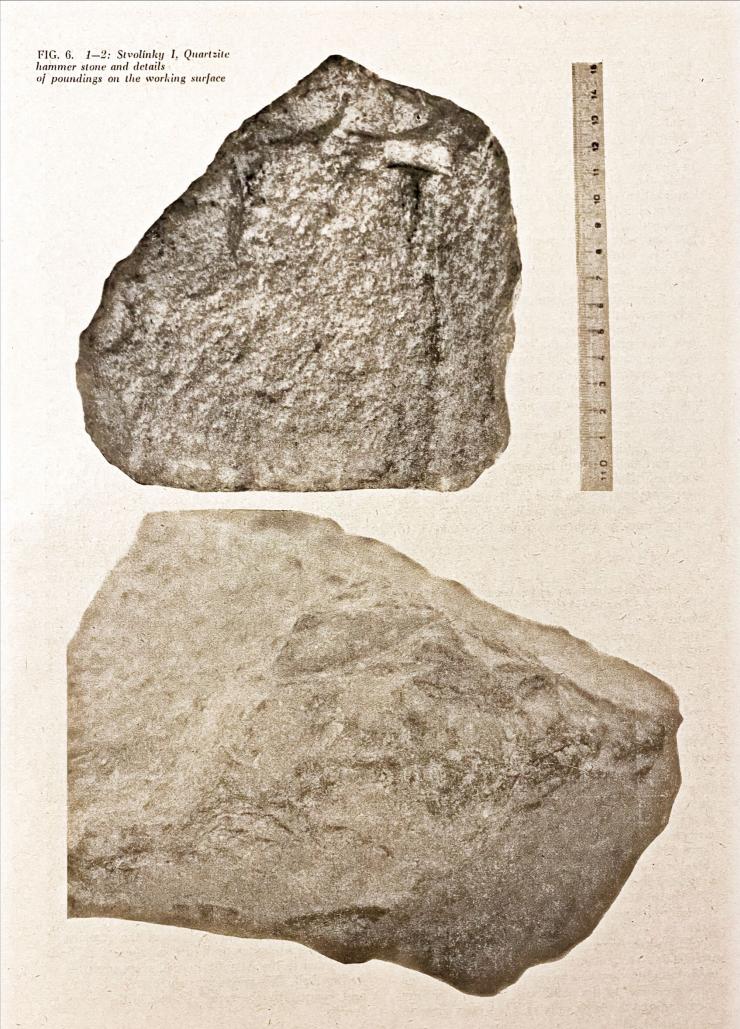


FIG. 5.



white quartzites are very similar to the coarsegrained forms of quartzites of Bečov type (Vencl 1970a, 8). They appear mostly in the surroundings of the Stvolinky I. site, where they had been in use as early as the Palaeolithic Period (Svoboda, in print). The existence of local sources of quartzites had probably caused that compared with other localities we can see a drop in the share of silicites used in Stvolínky I. The share of silicites is only 56,7 %, while that of the local quartzites 9,82 %. The exploitation of raw materials on this site is documented also by the find of a large quartzite fragment with traces of poundling on its working surface and with smaller poundings on all its edges (Fig. 6). Probably it served as a hammer for smashing large pieces of quartzite. Besides this the Stvolínky I, collection contains also a number of large fragments of the local raw material in the initial stage of fabrication.

The dinas quartzites brought from the west have finer grains than the local ones and some of them are macroscopically amorphous. We can find a large number of types among them, but their places of origin are not always known. The Bečovtype quartzite forms a comparatively large part of

all these finds.

Other raw materials appear only sporadically. The porcelanite (Stvolínky I, II) comes probably from East Bohemia and the agate (Stvolínky I) and calcedony (Holany I) come from Kozákov. Besides these materials we can find in Stvolínky also Silurian hornstone of inferior quality (V e n c l 1970b), coming from the Bohemian Karst (Stvolínky I, II).

TECHNOLOGY (TAB. 2)

The stone artefacts have been divided (similarly as Z. Bagniewski did it in 1976) into four groups (A-D). The four groups are: cores (A), tools (B), semi-finished products and refuse (C), implements for the fabrication of stone and non-

processed pieces of raw material (D).

The classification of cores is connected with basical technological problems. Two criteria were used: 1. The number of platforms and 2. their preparation. 1. Among single platform cores belong also the pyramidal cores whose flattened derivates, usualy arising during exploitation, are sometimes disk-shaped, but they are always used from one side only (Fig. 2:4, 3:4, 5:15). Among double-platform cores (in the classical sense the platforms are situated opposite each-other) belong also the cores with one change of orientation, often in the 90° direction. Cores with several changes of orientation are called three or multi-platform cores — the exploited flat forms are disk-shaped cores (Figs. 2:10, 3:6, 8, 9).

The position of the core could be many times changed during its use, so as to suit the given operation in the best way. As a rule the traces of the whole working process are not perceptible on the artefact i.e. we cannot reconstruct all the positions used during the working process. On classifying the cores according to the number of platforms we are documenting the reality only as it has been preserv-

ed. 2. A further criterion, the preparation of the platforms has its specific problems too. On turning the core it often happened that negatives after previous knocking were used as new platform (Figs. 1:1, 2, 4, 2:5). Thus one phase of exploitation may become part of the preparation for a further phase. The rejuvenation of the platform was sometimes realized by removing a flake from it. Such flakes apear among the finds (Fig. 1:5) and they document together with the blades and flakes from the core edges the whole technology of preparation of cores.

Most cores might be used for knocking of both blades and flakes. The share of blades, however, is not too high in the localities we are studying (Stvolínky I: 0,18; Stvolínky II: 0,12; Holany I: 0,13).

TYPOLOGY (TAB. 3)

It is important from the typological point of view that microlithic backed points (Fig. 4:1,5:1,8) appeared in all localities (Stvolinky I, II, Holany I) At site Holany I a triangular microlithic point was also found (Fig. 5:7), and the discovery of two similar artefacts in Stvolinky I was published by L. Franz (1935, Abb. 45:9, 10). A further type is represented by two points with arched steep lateral retouch (Fig. 4:2, 3; in one case the retouch is broken) at locality Stvolinky II From the other points we could mention a point with lateral notch (shouldered point) from Holany I (Fig. 5:12) and points alternatively retouched at bases from Stvolinky II (Fig. 4:4, 5). At the base of some points we can see a small notch (facilitating its attaching to the handle?). The collections contain also a series of other point-shaped flakes and blades (Fig. 5:6), used probably as arrow-points. Due to the absence of retouch (appearing only in two other cases in atypical form) they have no typological importance, but they indicate that the settlement had a hunting character. The presence of other types (end scrapers, round scrapers, bladescrapers, micro-side scrapers, various types of burins, borers) has been summed up in Table 3.

DISCUSSION

All the studied localities had been subjected to surface research only, thus we cannot draw any stratigraphic conclusions. The only stratified, though not very expressive set of finds was excavated under the abri near Zátyní in the interior of Polomené hory (Prošek – Ložek 1952). Already F. Prošek had mentioned the existence of relations between Stvolínky and Zátyní. From Zátyní comes a microlithic point (o.c. Fig. 4:1) a point with sharply retouched side (o.c. Fig. 4:4) having its analogy at the Stvolinky II station (Fig. 4:2), a blade-scraper, etc. (for typological relations see Table 3). Through the analysis of the remains of molluscs, vertebrates and carbons the set of finds was dated to the Atlantic Period, most probably to its first half. This period was characterized by a wet and comparatively warm climate, with prevailing forests.

Stations Stvolinky I, II, and Holany I, II can be considered without doubt as Mesolithic. The cores fit the characteristic technology of the Mesolithic Period and the typological elements, above all the points, also support this dating. As to the other localities we cannot exclude that they may come from later periods: from the slopes of the Ronov Hill near Stvolinky we have proofs of a Neolithic settlement and among the stone industry of the larger Mesolithic localities we can see also some later intrusions (Eneolithic ones?). We must accept the fact that the area was settled in the later phases of the Stone Age too. The Mesolithic settlement, however, forms the strongest layer in the entire region and no Neolithic sherds have been found in the stations. The studied localities are in situations typical for the Mcsolithic settlement in general (with the exception of Litice). They are situated mostly on protracted elevations and ridges exposed to the south or to south-west, sloping towards the water sources (no matter whether there were originaly lakes or meandering creeks). Almost all of them are on sandy subsoil, suiting well the wet climate. Morphologicaly favourable loess localities were not settled. The locality on the Provodínské kameny (the Provodín Rocks), which is quite extraordinary, is an example of an exposed hunting station controlling in fact the entire basin around Ceská Lípa.

The close vicinity of the main localities concentrated in the Holany Depression (Map 1) excludes the possibility of their contemporary settlement and the large area covered by the Stvolinky I and II stations shows that they were repeatedly and alternatively settled. At the Svaerdborg I and Holmegaard IV localities excavation has proved that they consist of a chain or network of minute settlement units and it is well imaginable that there was similar situation also in other Mesolithic stations. J. Brønsted (1960, 73) holds that each of these units arose during a short stay of a small group at the station. On returning to the same area the groups might set up a settlement on the same spot or also a few metres aside (compare Gramsch 1973, 13). The centre of the area at the Stvolinky I station (Map 2) was obviously several times settled, while the outskirts of the area on the small sandstone rocklets (a-d) were rarely, some of them only once, used for settlement. At the Stvolinky II station artefacts were found along the whole length of 600 m, with a conspicuously small cumulation in its westernmost part (IIa). These terrain situations suggest that there was some kind of cyclic movement during which some stations were repeatedly deserted and resettled. We cannot exclude that some of these settlements had seasonal character. There are no clearcut typological identities between the individual localities (typological poverty seems to be so far one of the characteristic features of the Mesolithic Period in Bohemia), but it could be assumed that the whole movement took place within a uniform cultural milieu.

It would be incorrect, on the other hand, to suppose that the region was isolated in the given period. It is formed by a bow connected in the south-east with a group of other possible, but still little-known localities (Skalsko, Lobeč; Filip 1947, Nosálov; Prošek – Ložek 1952) to southwest across the basin around Uštěk to the Elba River near Litoměřice. Already F. Prošek and V. Ložek (1952) underlined that there existed relations between the Mesolithic Culture of the Polomené hory and between the Elbe River Valley group. Especially the analysis of the raw materials and of their places of origin reveals this area's contacts. Though local coarse-grain materials were also used, most raw materials are of foreign origin. The flints and hornstones come from the northern morain area and comparatively smaller is the share of fine-grain dinas quartzites from the west (Central Bohemian Mountains). Occasionally we find also some raw materials of eastern origine (porcelanite, agate, calcedony) and from the south (Silurian hornstone from the Bohemian Karst), The raw material bases of the Polomené hory sites are quite versatile and we can see that the Mesolithic inhabitants of the area did not depend on the local sources, but they imported raw materials from quite distant areas. It has been, however, not explained whether they obtained it through trading or whether they organized special expeditions to get them. The problem of these connections in relation to the supposed more or less settled life of the Mesolithic populations is still to be solved.

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