CHAPTER 6
MAISIÈRES-CANAL: CHAMP DE FOUILLES AND ATELIER DE TAILLE DE LA BERGE NORD-EST

BACKGROUND

Location of site

Maisières-Canal is an open-air site located near Mons in the Hainaut Valley (Fig. 6.1, 6.2, 6.3), near the ancient watercourse of the Haine River (Haesaerts 1978:123). It consists of two separate areas: Champ de Fouilles and Atelier de Taille de la Berge Nord-Est, separated by approximately 100 meters (Fig. 6.4). The occupation probably extended over the silty promontory toward the north slope of the Haine valley but much of this area has been destroyed due to canal work (Haesaerts 1978:123).

The Champ de Fouilles (CDF) concentration covers an area of 95 m². The main occupation horizon (sedimentary units M.G.-M.J.) yielded an abundant *in situ* lithic assemblage (n tools = 1556, n non-tools = 33,106, from the IRSNB excavations, de Heinzelin 1973:26), as well as objects made of bone, ivory and antler. The majority of this material comes from sedimentary unit M.H., with associated material from units below (M.G.) and above (M.I., M.J.). Above the occupation layer, units M.M.-M.O. are disturbed (*couches renversées et fluées*) but also contained archaeological material.

The Atelier de Taille (ATD) concentration (sedimentary unit N.D.C.) is a much smaller lithic assemblage which was found in a section of the talus on the north-east bank of the canal (n tools = 7, n non-tools = 630, de Heinzelin 1973:27). The artifacts appeared to have been redeposited within small water channels although the edges are still fresh (de Heinzelin 1973:25). The artifacts are slightly patinated, in contrast to the CDF assemblage.

Based on both pollen (Bastin 1970) and stratigraphic evidence (Haesaerts 1978; Haesaerts and de Heinzelin 1979:21), both concentrations appear to be part of the same occupation phase (i.e., contemporaneous).

Raw material context

Abundant, very good quality flint is found locally at Maisières-Canal, Obourg flint within 1 km and Spiennes flint within 7 km. The raw material context is therefore Zone 1. There are no pressures imposed on the lithic economy and procurement costs are at a minimum. Under these conditions, there should be no need to economize material. Cores could be discarded when they reached any minimally inconvenient size or shape. Only the most suitable tool blanks needed to be selected from the range of removals. Tools could also be discarded as soon as they became dull or broken, rather than being resharpened. It is also to be expected that blanks, and/or tools, as well as prepared cores, would have been exported, considering the high frequency of cores discarded at Maisières-Canal (137 cores in the sample studied, 293 cores for Champ de Fouilles [de Heinzelin 1973:24, Table VII]).

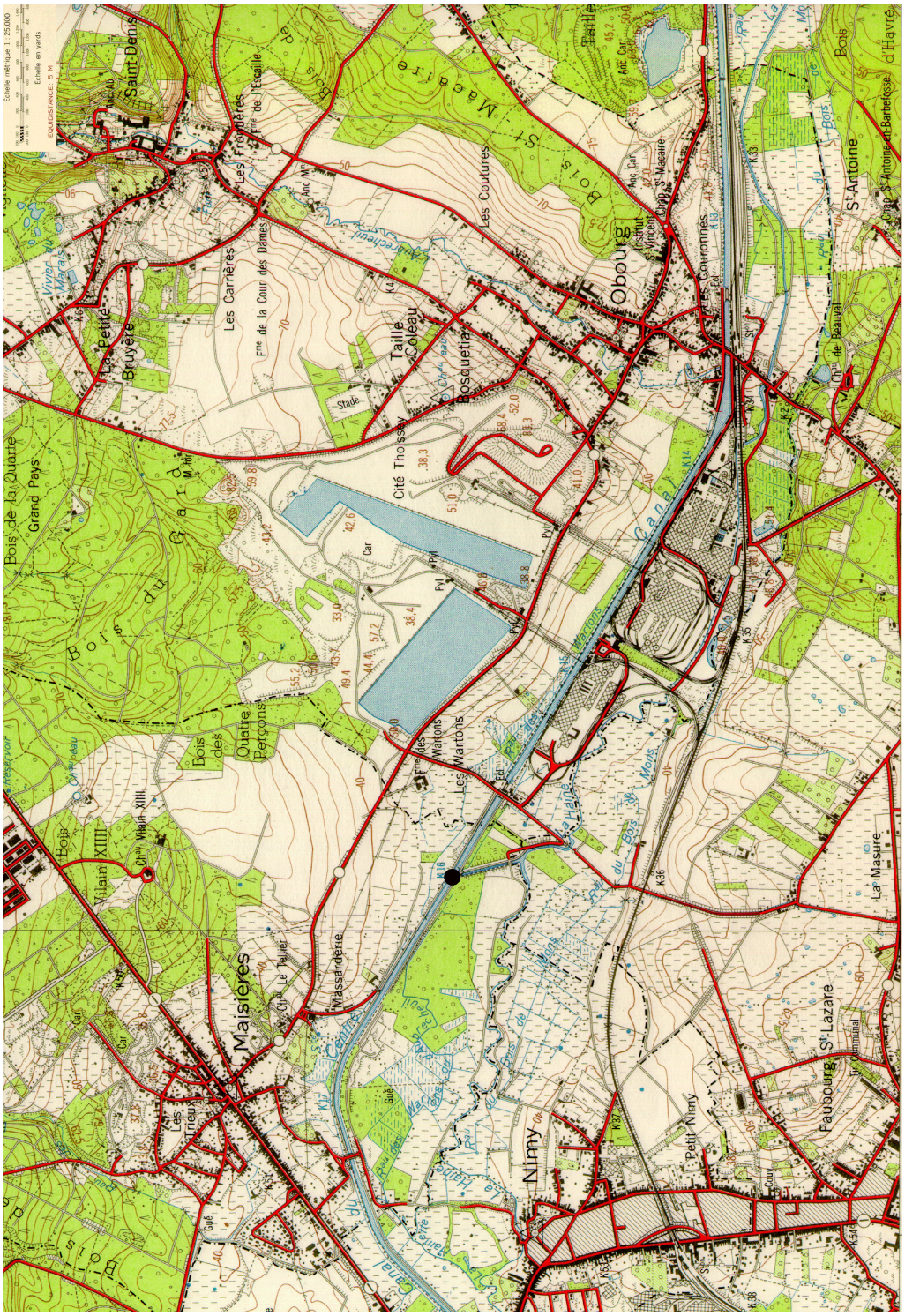

Figure 6.1. Maisières-Canal. Location of site.
(from Institut Géographique Militaire-Bruxelles, map no. 45/3-4, Jurbise-Obourg,; scale: 1:25000).

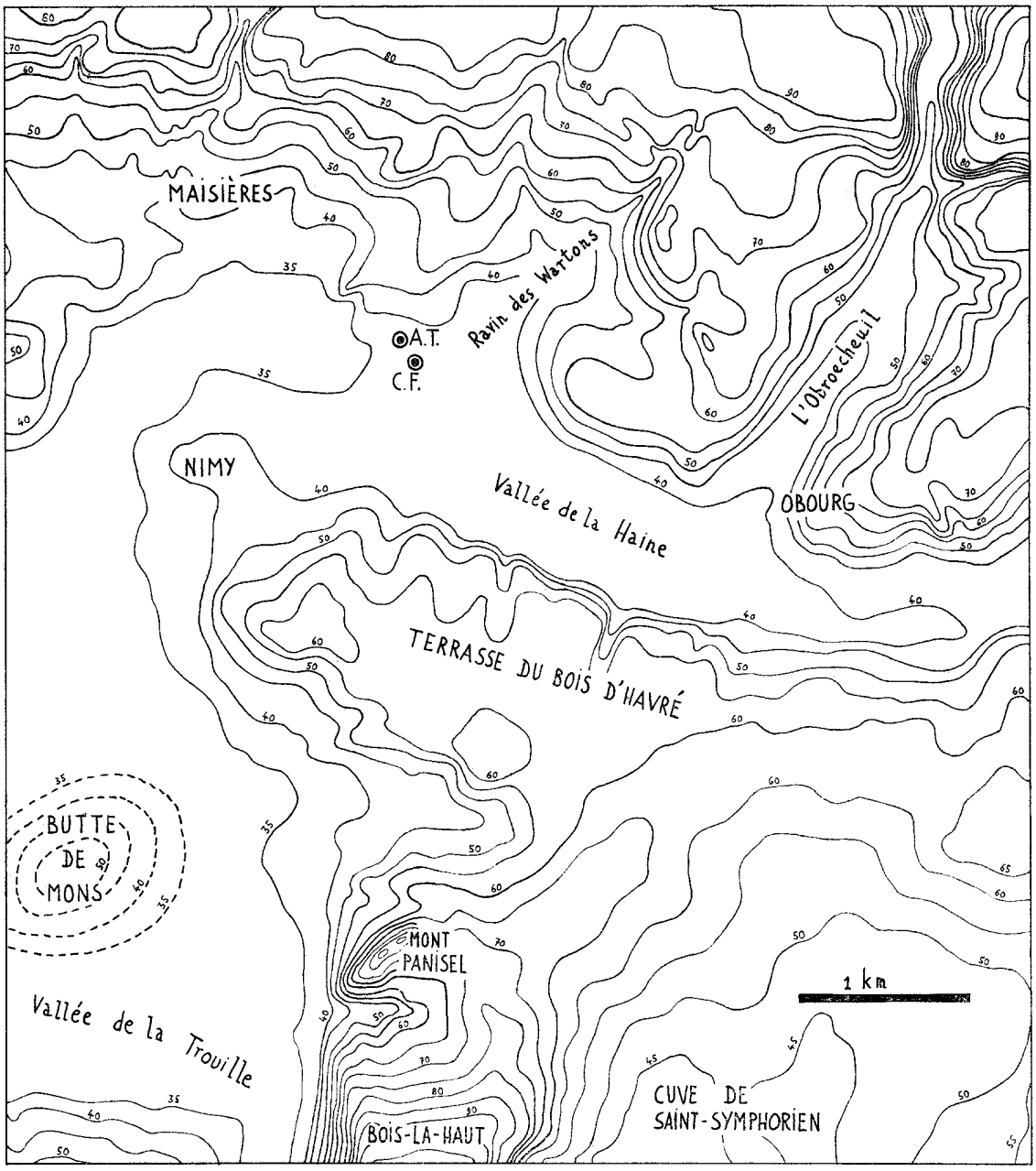

FIG. 13. — Carte hypsométrique complétée d'après la Carte topographique au 1/20.000e. A.T. = Atelier de Taille de la Berge N.E.—C.F. = Champ de Fouilles.

Figure 6.2. Maisières-Canal. Hypsometric map showing location of site. (after de Heinzelin 1973:40, Fig. 13).

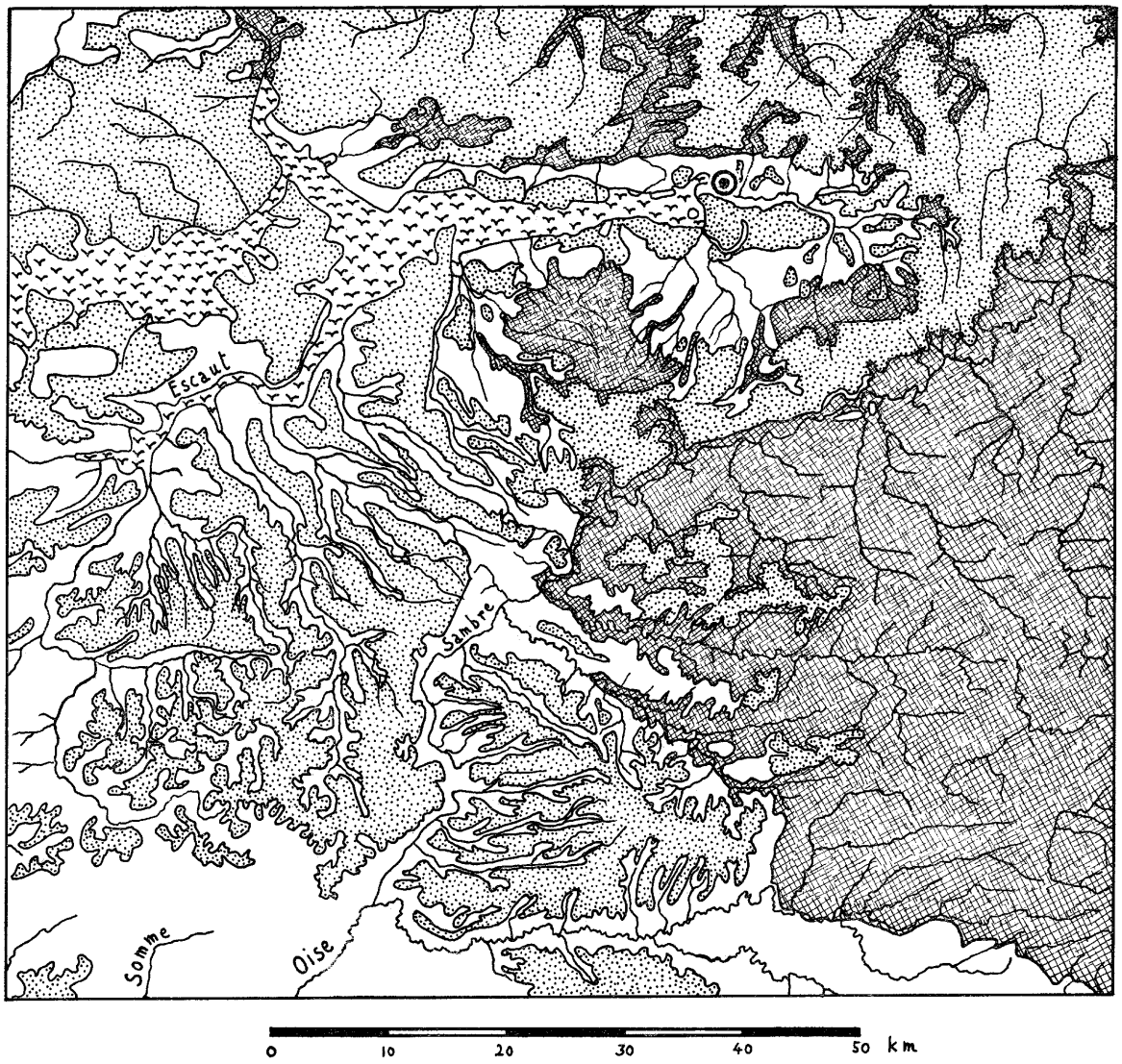

FIG. 14. — Maisières dans son contexte géologique régional.
Grandes unités géologiques, simplifiées d'après DE BÉTHUNE, *Atlas de Belgique*. V=expansions marécageuses. Pointillé=Tertiaire, sables et argiles. — Blanc=Secondaire, dont craie à silex. — Hachures=Primaire du Brabant et de l'Entre-Sambre-et-Meuse.

Figure 6.3. Maisières-Canal. Maisières in regional geological context. (after de Heinzelin 1973:41, Fig. 14)

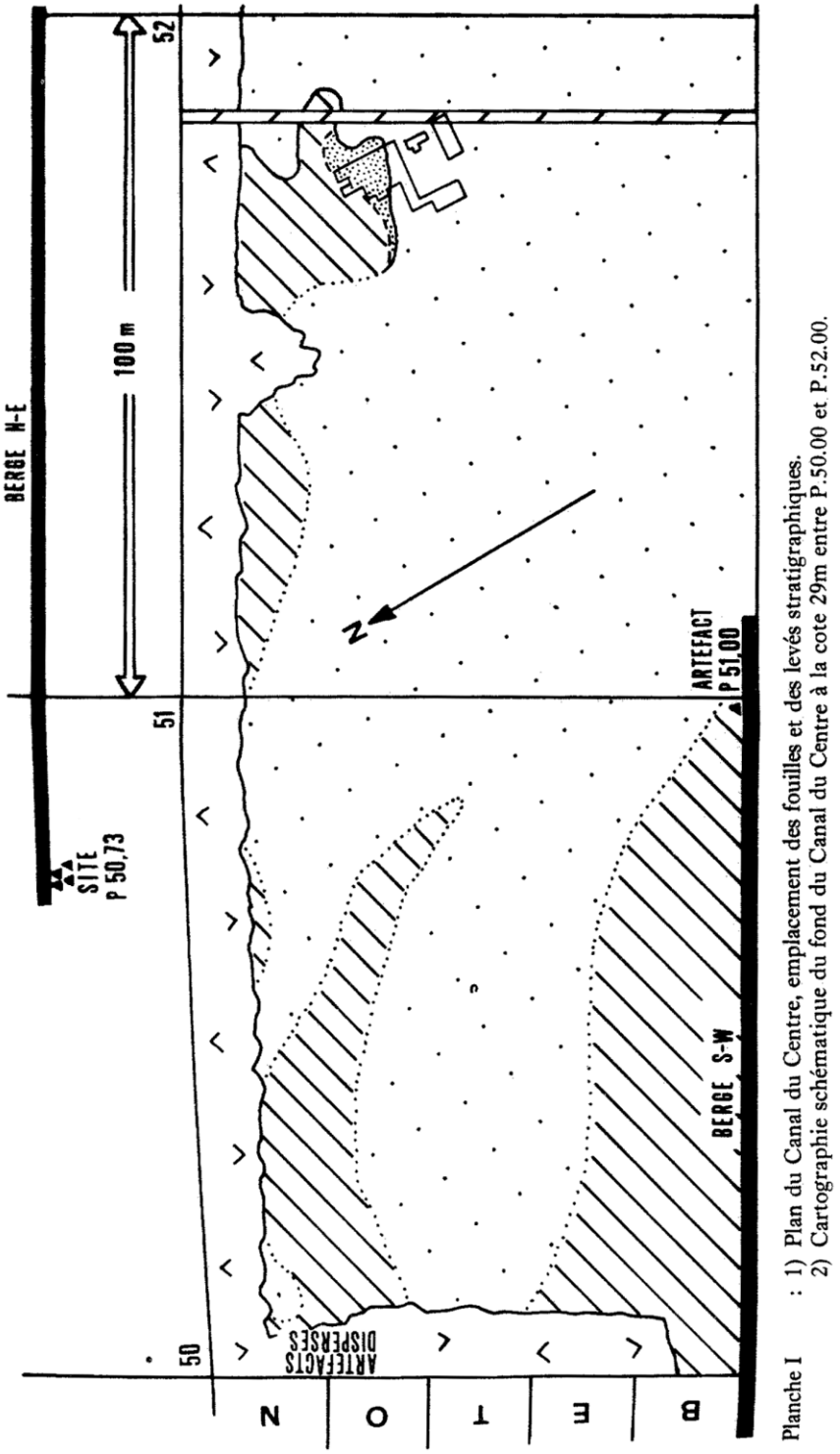

Planche I : 1) Plan du Canal du Centre, emplacement des fouilles et des levés stratigraphiques.
2) Cartographie schématique du fond du Canal du Centre à la cote 29m entre P.50.00 et P.52.00.

Figure 6.4. Maisières-Canal. Plan of excavations at Champ de Fouilles and Atelier de Taille de la Berge Nord-Est. (after de Heinzelin 1973: Planche I)

Excavation history

The site was first discovered by G. Bois d'Enghien in the 1940s and the Champ de Fouilles and Berge Sud-Ouest areas subsequently excavated in June-July 1966 by J. de Heinzelin, of the Institut Royal des Sciences Naturelles de Belgique (IRSNB) as a rescue excavation prior to construction of the canal. The Berge Nord-Est area was also discovered at this time and excavated in November-December 1966 and September-November 1968 by J. de Heinzelin and P. Haesaerts. Pollen columns were collected by B. Bastin and radiocarbon samples were collected (Haesaerts and de Heinzelin 1979:7).

Stratigraphy

P. Haesaerts (Haesaerts 1973, 1974, 1978; Haesaerts and de Heinzelin 1979) made a detailed study of the stratigraphy of Maisières-Canal to determine climatic sequences and to reconstruct environmental conditions and to place Maisières-Canal within a broader northwest European context (Fig. 6.5). The stratigraphy of Champ de Fouilles can be described as follows, from bottom to top (after Haesaerts and de Heinzelin 1979:14-16) (Figs. 6.6 and 6.7):

Champ de Fouilles stratigraphy:

M.C. rocky layer, compact and large-grained toward the base, sandier toward the top, containing phtanite, chalk and rolled flints; fluviatile deposits in cold conditions

M.D. dark gray to black silty sand, fine colluvium; less cold than Unit M.C. (corresponding to the Denekamp interstadial, Haesaerts 1978:120-123), dated to 30,780 ± 400 BP (GrN-5690)

M.E. homogeneous and unstratified clayey silt, representing the slow deposition of fine mud, probably a small pond in a local depression

M.F. gravelly and silty sand incorporating phtanite and chalk fragments, fluviatile deposits in cold conditions

M.G. dark brown-gray silty sand directly underlying the main occupation zone M.H., humiferous silt from M.G. dated to 27,965 ± 260 (GrN-5523), less cold (corresponding to the Paudorf interstadial, Haesaerts 1978:120-123)

M.H. dark gray sandy silt containing the main concentration of archaeological material (lithics and fauna) identified as a variant of Perigordian Va, in an occupation zone several centimeters thick, medium cold and humid climate

M.I. dark brown gray sandy silt overlying the occupation horizon, colluvial deposits

M.J. sandy silt with lenses of humic material, archaeological material common but stratum is not clearly defined, medium cold climate (Note: M.H., M.I., and M.J. are contemporaneous [Haesaerts and de Heinzelin 1979:16])

M.M. heterogeneous complex including both bedded deposits and allochtonous portions deposited en bloc, various facies contain gravels rich in chalk, sand, silt or humic material, corresponds to fluviatile deposits in rigorous conditions, contact between M.M. and underlying horizons is distinct and irregular

M.N. irregularly stratified heterogeneous complex with "tongues" of humic silt containing lithic artifacts, various facies identified, fluviatile deposits in rigorous but drier conditions than for M.M.

M.O. chalky deposits in contact with M.M. and M.N. with which it is at least in part contemporaneous

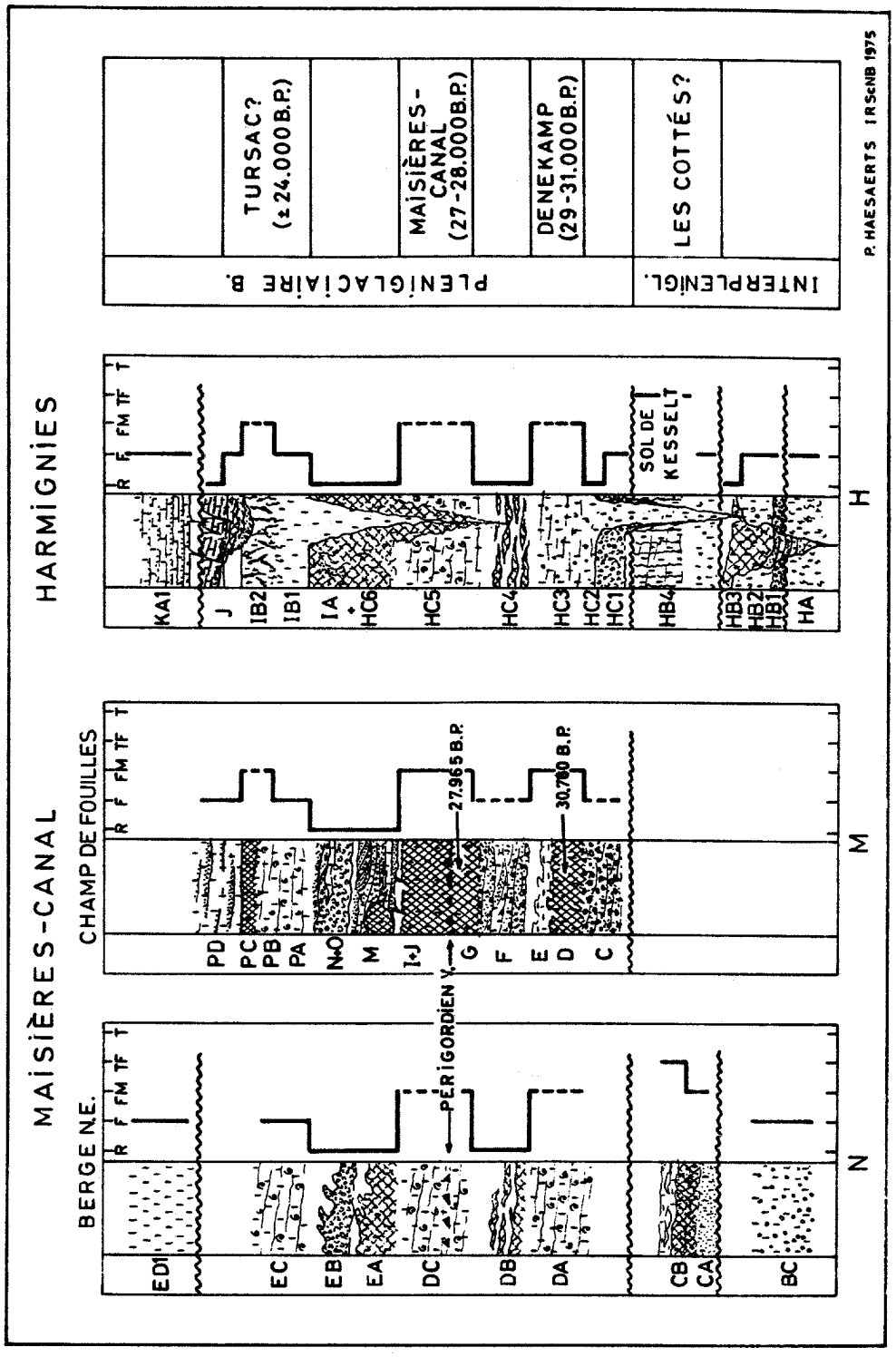

Figure 6.5. Maisières-Canal. Reconstructed climatic sequences for Maisières-Canal and Harmignies. (after Haesaerts 1978:122, Fig. 4)

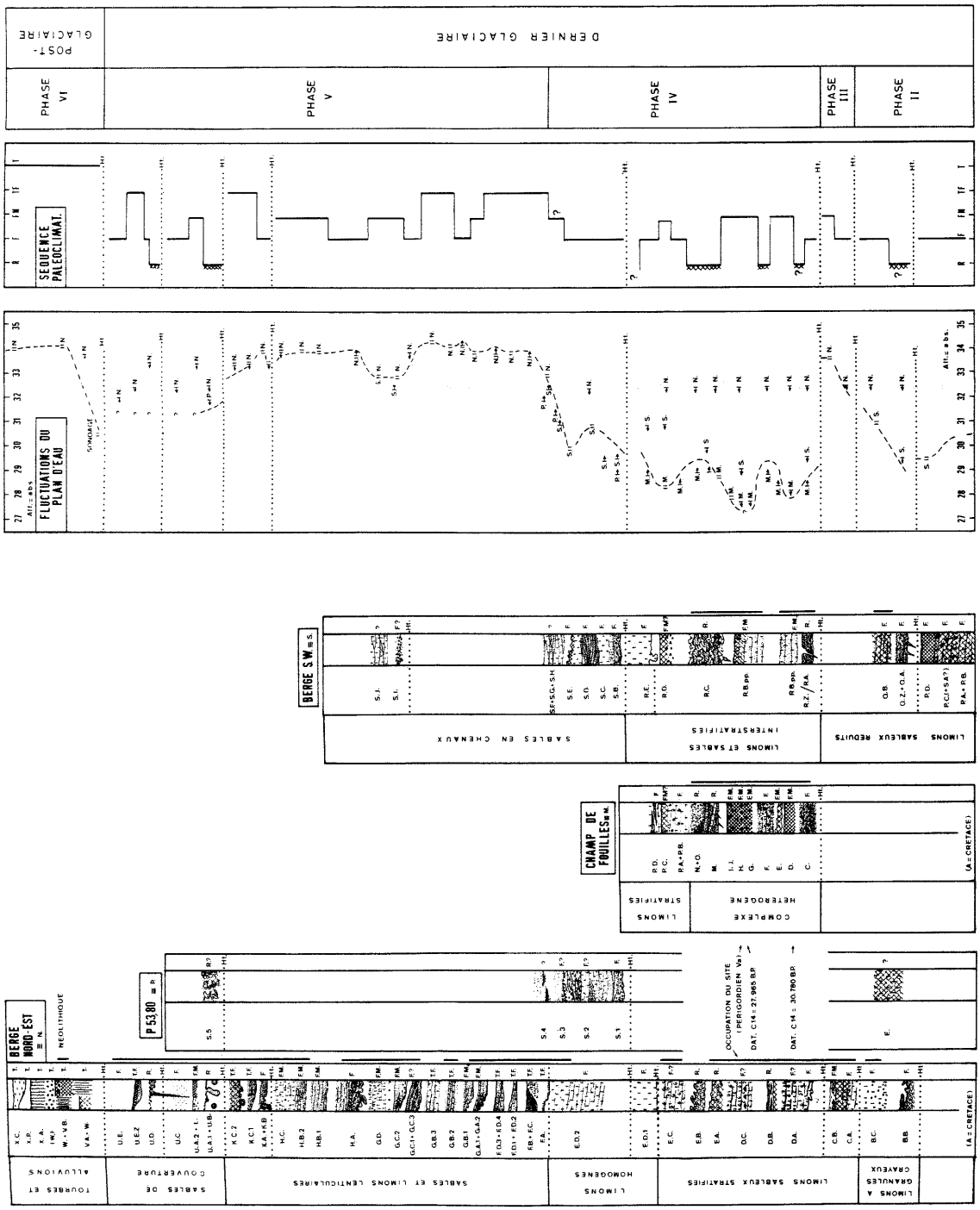

Planche XVII : Corrélations entre profils.

Figure 6.6. Maisières-Canal. Correlation between profiles. (after Haesaerts and de Heinzelin 1979, Planche XVII)

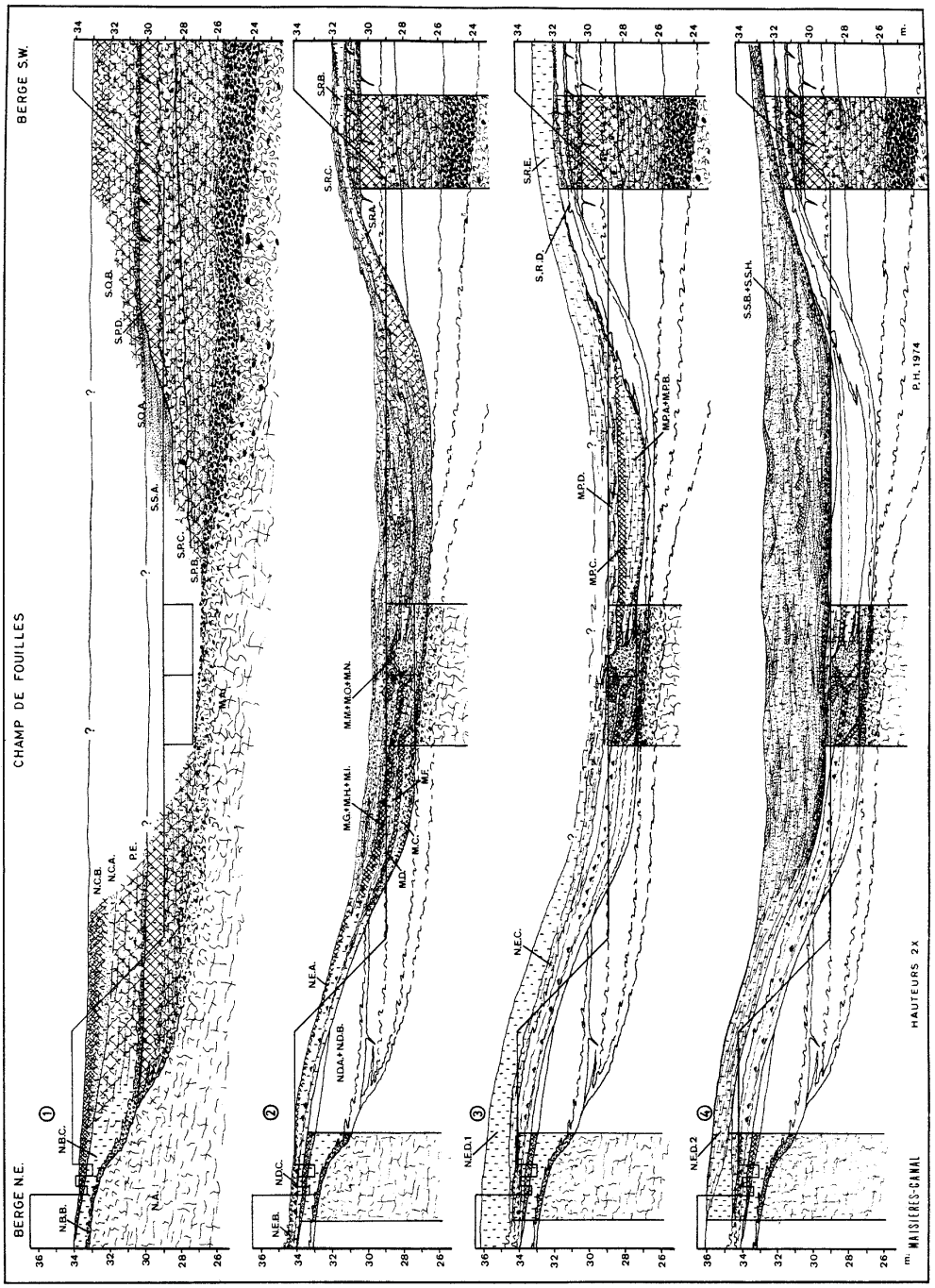

Planche XVIII : Profils synoptiques montrant les phases successives du colmatage de la vallée de la Haine au cours du Pléniglaciaire (Phases II à IV).

Figure 6.7. Maisières-Canal. Synoptic profiles demonstrating the successive phases of deposition in the Haine valley during the Pleniglacial (Phases II-IV). (after Haesaerts and de Heinzelin 1979, Planche XVIII)

At the Atelier de Taille concentration, six lithostratigraphic units were identified, from bottom to top: silt with chalky granules (B.A. to B.C.), stratified sandy silts (C.A. to E.C., and containing the archaeological horizon D.C.), homogeneous silts (E.D.1 to E.D.2), lenticular sands and silts (F.A to K.C.), covering sands (U.A. to U.E.), and peat and alluvion (V.A. to X.P). Only the sedimentary units of the stratified sandy silts are described here, from bottom to top, as the archaeological horizon is found within them (after Haesaerts and de Heinzelin 1979:18-22).

Atelier de Taille stratigraphy:

N.C.A/N.C.B. olive-colored sandy silt with interstratified beds of sand, colluvial deposits in a cold, relatively humid climate

N.D.A. light gray olive colored sandy silt with subangular fragments of phtanite, chalk and flint, colluvial deposits following an erosion episode, cold climate within a well-drained steppic environment

N.D.B. thin, subhorizontal bands of olive-gray sandy silt, iron content reduced due to solifluction of the upper part of a pergelisol along the slope of the depression during the reprise of colluvial deposition of overlying N.D.C., rigorous climate

N.D.C. well stratified sandy silt, similar to N.D.A., containing numerous fragments of flint, phtanite and chalk; at least two concentrations of artifacts are found within this unit, with the majority of lithic artifacts lying horizontal at the top of an olive-gray sandy silt layer, associated with a large quantity of small calcined bone fragments, slight amelioration of climate in comparison to the rigorous conditions of N.D.B. but cold and relatively humid; the iron-reduced summit of N.D.C evidences a stabilization episode of the topographic surface following the development of a pergelisol

N.E.A. olive gray sandy silt similar to N.D.C.

N.E.B. chalky packets mixed with silt and containing subangular chalk fragments and rare phtanite, deposited at the base of Cretaceous outcrops during the preceding rigorous climate of N.E.A. and then moved by solifluction along a small lateral valley at the end of the rigorous period

N.E.C. stratified, pale olive-gray sandy silt, better sorted than earlier levels, containing some rounded chalk fragments, degree of sorting suggests eolian silts disturbed by streams, gradually filling in a depression; evidences the development of a less rigorous climate.

Dating of the site

According to Otte (1976:335, footnote 3), the dates (Table 6.1) from the Université de Louvain radiocarbon laboratory (Gilot 1971) were obtained on humiferous sediments, but they provided results (Lv 305/1 and 305/2) which were incompatible with the stratigraphy. Gilot (1971) attributes the incompatibility to the influence of limestone in the area where the samples were collected and to perturbation of the sediments (Gilot 1984:120). However, the dates from the Groningen laboratory of Unit MH, just below the occupation layer MG (27,965 ± 260 yrs BP, GrN-5523) and the underlying Unit MD (30,780 ± 400 yrs BP, GrN-5690) appear to be valid.

Climate and Environment

The site was occupied during a short climatic oscillation (cold-temperate) which followed the so-called Stillfried B interstadial (de Heinzelin 1971:64). According to B. Bastin

(1971), pollen spectra indicate a cold steppe environment, with less than 10% tree pollen represented by pine, birch and alder (de Heinzelin 1971:65), yet some diversity of biotopes was available: a dominant cold steppe on the plateau with a mosaic of more humid habitats with some trees and shrubs along the Haine River (de Heinzelin 1971:66).

According to the faunal analysis of A. Gautier (in Haesaerts and de Heinzelin 1979:66-68), the animals hunted included *Lepus timidus*, *Ursus arctos*, *Alopex lagopus*, *Equus* sp., *Rangifer tarandus*, *Cervus elaphus*, and *Bos/Bison*.

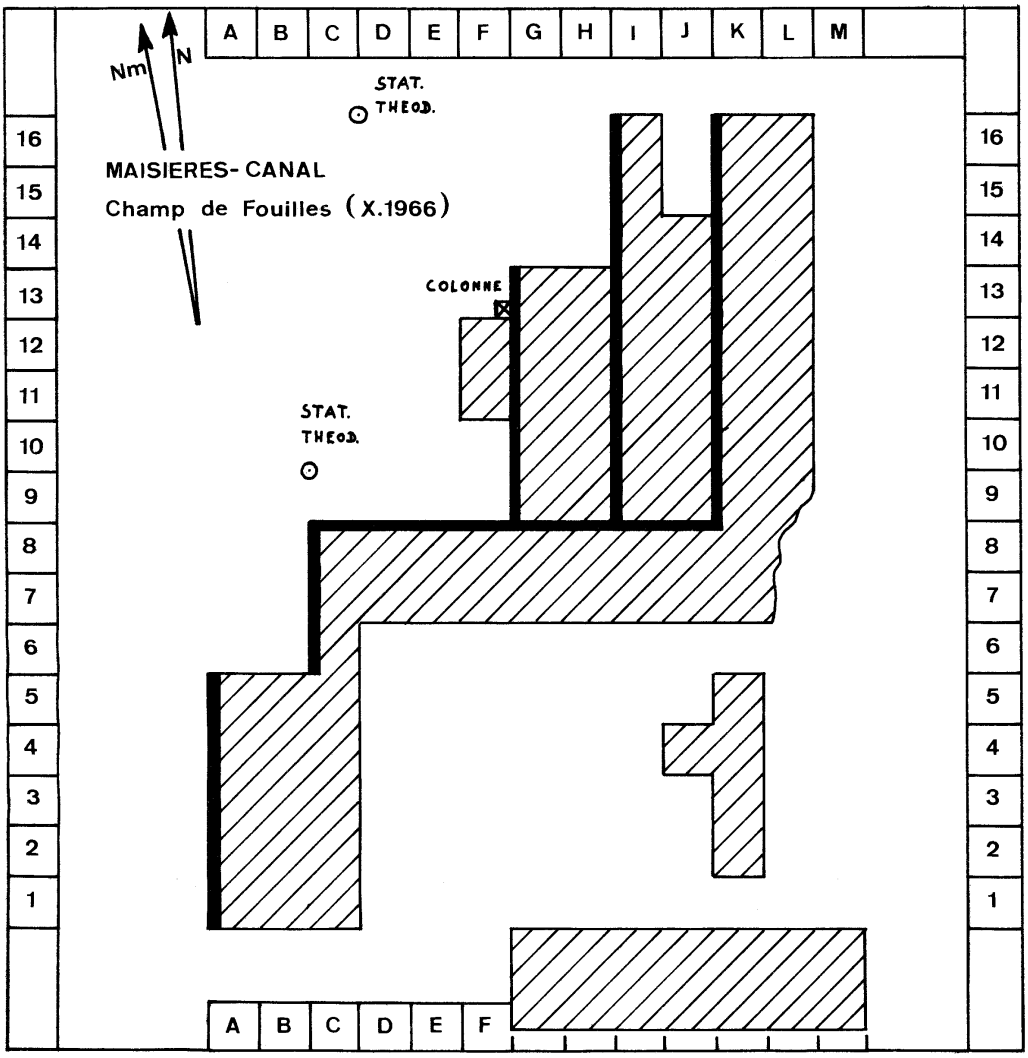

Planche II : 1) Plan du Champ de Fouilles; l'emplacement des coupes observées est indiqué par un trait renforcé.
2) Champ de Fouilles — Paroi F/G de 9 à 13. (J. de HEINZELIN, 1966)

Figure 6.8. Maisières-Canal. Plan of Champ de Fouilles.
(after Haesaerts and de Heinzelin 1979, Planche II)

Radiocarbon dates: Champ de Fouilles	Lab No.	Uncalibrated Dates	Sample	References
Archaeological horizon:				
Unit M.G. (M.H. for de Heinzelin 1971)	GrN-5523	27,965 ± 260 yrs BP	humus	Bastin 1971; de Heinzelin 1971:64-65; Haesaerts 1985, p. 112
Unit M.D.	GrN-5690	30,780 ± 400 yrs BP	humus	Bastin 1971; de Heinzelin 1971:64-65; Haesaerts 1985, p. 112
Maisières 1 (M.G./H.)	Lv.304/1 LV.304/2	31,080 +2040/-1640 BP 30,150 +1890/-1540 BP	humiferous sediment	Gilot 1971, 1984
Maisières 2 (M.G./H., 12 cm above Lv.304)	Lv.305/1 LV.305/2	35,970 +3140/-2250 BP 24,100 +650/-610 BP	humiferous sediment	Gilot 1971, 1984
Maisières 5 (clay layer containing some cores)	Lv.353	25,280 +1040/-920 BC	humiferous sediment	Gilot 1971, 1984
Below archaeological horizon:				
Maisières 3 (M.D.)	Lv.306	24,400 +700/-640 BP	humiferous sediment	Gilot 1971, 1984
Maisières 4 (M.D., 1 cm above Lv.306)	Lv.307	23,160 +550/-510 BP	humiferous sediment	Gilot 1971, 1984

Table 6.1. Radiocarbon dates for Maisières-Canal.

Site occupation and function

According to de Heinzelin (1971:66), the duration of human occupation at Maisières-Canal was probably relatively short-term, a matter of a few weeks or a season, or even a single seasonal halt on a migratory trajectory. However, based on the abundant lithic material resulting from substantial reduction activity, it is more likely that the site represents a palimpsest of short-term seasonal occupations. Site function would thus reflect the procurement of seasonally available subsistence resources, perhaps migrating animals and/or the logistical procurement of high quality flint for transport to other sites of longer-term occupation. The site was relatively exposed and located next to a ford of the Haine, which would likely have been as important for migrating fauna as for humans (de Heinzelin 1971:73).

As will be discussed, the volume of the lithic assemblage and the relatively low proportion of tools within it reflect a high degree of core reduction and blank production activity with a lower than expected number of tools. This would be in accordance with a strategy of exporting the larger blanks and tools produced.

Description of assemblage and industry attribution

According to Otte (1976:336), core reduction at Maisières-Canal is primarily laminar. Removals were made from bi-directionally opposed cores with dorsal faces prepared by perpendicular removals. Certain flake cores, worked on two faces, with centripetal debitage, recall the Levallois technique (citing de Heinzelin 1973:17). Blades are relatively abundant, and crested blades are very common. Font-Robert points are abundant and serve as diagnostic indicators for industry attribution. Based on technological and typological characteristics, the industry was seen as similar to the Upper Perigordian of Southwest France, but certain unique characteristics are present which distinguish it (i.e., production of tanged Font-Robert points and use of flat or invasive retouch). The industry has been variously identified as Perigordian V or Périgordien Hennuyer.

Assemblage samples

There is a single cultural horizon at Maisières-Canal, based on stratigraphic and typological homogeneity. While the Champ de Fouilles and Atelier de Taille de la Berge Nord-Est assemblages are penecontemporaneous, they have been analyzed separately because they (probably) represent different activity zones at the site. The results of analyses for the Atelier de Taille assemblage are presented in a separate section following analyses for the Champ de Fouilles assemblage.

Given the large size of the Champ de Fouilles assemblage (around 36,000 artifacts), it was decided that only a portion of the collection would be studied. All artifacts found in rows G through K, 6-16 (excluding the trench along the southwest edge) were analyzed, while rows A through F were not analyzed (Fig. 6.8). This yielded a sample size of 6,662 stone artifacts, around 18% of the entire assemblage (Table 6.2). The entire assemblage from the Atelier de Taille was analyzed (n=630).

Expectations

Maisières-Canal is situated in very close proximity to geological sources of two very good quality flint types, namely, Obourg and Spiennes. Therefore, I expect that quality and abundance would have exerted little or no pressure on the raw material economy. The quality of material is so good that any reduction technique could have been utilized with no raw material

constraints. The abundance of material (its ready availability close to the site) precludes the necessity for increased intensity of reduction and utilization of tools. Tools found at the site would be related to hunting and domestic activities during occupation, while the volume of material reduced could indicate the export of prepared cores and tools to other sites (Roebroeks n.d.), discussing the Gravettian occupation in Belgium, suggests that tools such as Gravette points made on Obourg flint (e.g., found in the Gravettian layer of Spy) may have been prepared at Maisières-Canal and exported. Given the proximity of flint sources, there should be very little non-local material present at the site, although some may be present in the form of finished tools or non-exhausted cores which would have been replaced by local material. Transported tools may also show an intensity of use that occurred before arrival at this site, but there should not be any evidence for tool resharpening at Maisières-Canal.

	Count		Weight	
Type	**n**	**%**	**wt in g**	**%**
1 - Obourg	6113	91.8	57230	79
2 - Spiennes	373	5.6	10723	14.8
4 - phtanite	9	0.1	104	0.1
8 - gray flints	104	1.6	849	1.2
9 - brown flints	11	0.2	28	0.04
10 - cherts	2	0.0	3	0.004
17 - olive-green flint	50	0.8	3483	4.8
Total	6662	100.0	72420 (n=2251)	100.0

Table 6.2. Frequencies of raw material types by count and weight (Champ de Fouilles).

Rank	**Type**	**Count %**		**Rank**	**Type**	**Weight %**
1	1 - Obourg	91.8		1	1 - Obourg	79
2	2 - Spiennes	5.6		2	2 - Spiennes	14.8
3	8 - gray flint	1.6		3	17 - olive-green flint	4.8
4	17 - olive-green flint	0.8		4	8 - gray flint	1.2
5	9 - brown flint	0.2		5	4 - phtanite	0.1
6	4 - phtanite	0.1		6	9 - brown flint	0.04
7	10 - chert	0.0		7	10 - chert	0.004

Table 6.3. Ranking of material types by frequency and weight (Champ de Fouilles).

Rank	**No(s).**	**Type(s)**	**Count %**	**Weight %**
1	1	Obourg flint	91.8	79
2	2, 8, 17	Spiennes, gray, olive-green flint	0.8-5.6	1.2-14.8
3	9, 4, 10	brown flint, phtanite, chert	< 0.5	< 0.5

Table 6.4. Collapsed ranking of material types (Champ de Fouilles).

CHAMP DE FOUILLES

RANKING OF MATERIALS BY FREQUENCY AND WEIGHT

Materials are ranked fairly similarly by count and weight (Table 6.3), with some minor reversals between the two measures of abundance: i.e., gray and olive-green flint, phtanite and brown flint. Obourg decreases in percent by weight while Spiennes increases, indicating that artifacts in Spiennes flint are, on average, somewhat larger. This ranking can be reduced to three tiers (Table 6.4).

SOURCES OF MATERIAL UTILIZED

Rank 1

Obourg flint (Type 1) is locally available, within 1 km of the site. It is found in primary geological context within the Craie d'Obourg (Campanian chalk bluffs) and in nearby secondary context due to erosion of the chalk formation. It is abundant, easily available and of excellent quality.

Rank 2

Spiennes flint (Type 2) is also locally available, but approximately 7 km to the south, in the Craie de Spiennes and Craie d'Harmignies chalk formations. They are today buried beneath loess deposits but were mined extensively during the Neolithic period.

Gray flints (Type 8) are distinct from what has been identified as "Spiennes" by differences in patina coloration. They have been studied separately from Spiennes flint but variability in macroscopic characteristics could fall within its range.

Type	Description
4	gray flint 1: very light gray without inclusions, translucent, brittle
6	gray flint 2: probably a variant of Obourg, but less translucent, more matte, homogeneous gray rather than brown or black, few inclusions but small gray spots
7	medium-grain gray flint: medium-grained, gray, opaque, matte, slightly rough fracture surface

The source for olive-green flint (Type 17) is unknown, but it too may be a variant of Obourg flint, although most Obourg flint is black or brown when the flake is thin enough to be translucent. The only olive-green flint in the Leuven-Maastricht lithic database comes from Gulpen in the Maastricht region, which would be too distant to be a likely source for Maisières-Canal.

Rank 3

Brown flint (Type 9) includes material from two probably different sources, both of which are as yet unknown.

Type	Description
5	brown flint: fine-grained, very translucent, brown with white flecks on surface, dark flecks within, glossy
8	brown-yellow flint: fine-grained, glossy, few inclusions, very different shade of brown from translucent Obourg, brighter and more yellow

Phtanite (Type 4) comes from the Ottignies-Mousty region, approximately 50 km to the northeast.

Chert (Type 10) is probably local, but there are only two pieces and thus are not a significant part of the lithic economy.

TRANSPORT OF MATERIAL

Cortex attributes (proportion of cortex, cortex wear) and general assemblage structure evidence were used to make inferences of transport form of material to the site (Table 6.5). A comparison between materials reveals interesting differences. Inter-site comparisons (chapter 12) show marked differences in transport form that reflect the increasing pressure on lithic economy as distance from flint sources increases.

Rank 1 material was obtained locally and transported as unprepared blocks and partially prepared cores, based on the high number of cortical pieces (41.5%).

Rank 2 materials, also used but to a much lesser degree than Rank 1, were transported as prepared cores. Cortical pieces are much less common (4-15%) except for Type 17 (52%), although even these cortical pieces have only small areas of cortex.

Rank 3 materials were transported only as finished tools and blanks.

Observation of cortex type indicates that all materials were obtained in primary context, which is more probably nearby secondary context on erosion slopes. Refits of certain artifacts were found during analysis of the collection, although a systematic refitting project was not undertaken. One series shows that primary reduction was present. Table 6.6 summarizes the cortex information.

EVIDENCE FOR REDUCTION OF MATERIALS AT THE SITE

The assemblage structure for each material type varies with rank, evidencing decreasing inclusivity of components (reflecting stages of the reduction sequence) as rank decreases.

Rank 3

Rank 3 materials appear only as blanks or finished tools (i.e., primary reduction is absent). Type 4 (phtanite) (n=9) includes six blades, one flake and two debris flakes, of which six are tools. All but one tool were made on blades and include two Font Robert points, one blade with continuous retouch on one edge, and one with continuous retouch on two edges (CRP2). The flake has continuous retouch on one edge. The blade tools are all long, particularly the Font Robert points (lengths are 91 and 109 mm). The second lacks proximal and distal ends, as does the CRP2, which is still 68 mm long. The three flakes average 20 mm in length. The artifacts are dispersed over several squares, that is, they are not especially associated with a single area.

Rank 1 material		
Type	**Assemblage structure**	**Brought to site as...**
1 - Obourg flint	102 cores, 444 tools, 2357 unretouched removals, 3210 debris (including 7 chunks*)	unprepared blocks and partially prepared cores
Rank 2 material		
Type	**Assemblage structure**	**Brought to site as...**
2 - Spiennes flint	22 cores, 7 tools, 238 unretouched removals, 106 debris (including 2 chunks)	prepared cores
8 – gray flint	1 core, 67 unretouched removals, 36 debris (including 1 chunk)	prepared core
17 - olive-green	12 cores, 2 tools, 27 unretouched removals, 9 debris	prepared cores
Rank 3 materials		
Type	**Assemblage structure**	**Brought to site as...**
9 - brown flint	1 tool, 6 blanks, 4 debris	finished tools and blanks
4 - phtanite	6 tools, 1 blank	Finished tools and blanks
10 - chert	2 debris	?

Table 6.5. Transport form of raw materials and general assemblage structure (Champ de Fouilles). * Chunks are probably core remnants.

		Cortex		**Proportion**		**Primary Context**		**Secondary Context**	
Rank	**Type**	**n**	**%**	**n < 50%**	**n > 50%**	**n**	**%**	**n**	**%**
1	1 – Obourg flint	2536	41.5	1522	271	2399		82	
2	2 – Spiennes flint	55	14.7	35	2	49		4	
2	8 – gray flint	4	3.8	1	1	4			
2	17 - olive-green flint	26	52.0	13	3	23		3	
3	9 – brown flint	0	0.0						
3	4 - phtanite	1	11.1		1			1	

Table 6.6. Procurement context: cortex data.

Material	**Total n (blank pool)**	**flakes**		**blades**		**crested blade**		**Bladelets**	
		n	**%***	**n**	**%**	**n**	**%**	**n**	**%**
1 – Obourg flint	2791	2063	74	635	23	56	2	37	1
2 – Spiennes flint	245	167	68	73	30	5	2	0	0
8 – gray flint	67	65	97	2	3	0	0	0	0
17 – olive-green flint	29	11	38	13	45	5	17	0	0

Table 6.7. Blank production by material type (Champ de Fouilles). *Percent of blank pool, not of assemblage of each material type.

Type 9 (brown flint) (n=11) includes three blades, four debris flakes 10-30 mm in length, and four flakes 30-40 mm in length. Only one tool is present, a small denticulated blade (whole but only 18 mm long). Type 10 (chert) (n=2) includes an irregular flake 30-40 mm long and a piece of angular debris 10-30 mm long, both unretouched.

Of these Rank 3 materials, only phtanite was transported to the site mainly as finished tools (6 of 9). Brown flint was transported from an unknown source in the form of blanks that remained unretouched. Chert does not form a part of the lithic economy. None of the tools made on phtanite are exhausted or heavily resharpened. They do evidence a relatively high degree of shaping intensity, particularly the Font Robert points.

Ranks 1 and 2

What blanks were produced?

Table 6.7 summarizes the kinds of blanks produced for each material type, including removals that could have been retouched into tools and those which were made into tools. Flakes are dominant but include many flakes produced during reduction that are unsuitable due to their morphology. Blades are common for Obourg and Spiennes flint, but only Obourg flint was used to produce a series of bladelets.

What blanks were selected for retouching into tools?

Table 6.8 indicates the number of tools made on the different kinds of blanks, with a clear pattern of blade preference for Obourg flint. Thus, although many flakes were produced during the reduction process, the majority were rejected.

What is the intensity of blank selection?

The intensity of blank selection refers to the ratio between tools and unused blanks: of the pool of potential blanks produced, what percentage was actually selected for tool retouch? (Table 6.9). For all materials, the ratio of tools to available blanks is extremely low, but this can be explained as due to the rejection of a wide range of flakes as unsuitable and to size selection of blanks. Additionally, as discussed later, if Maisières-Canal functioned as a logistical site where material was reduced for subsequent transport to residential camps, then the majority of blanks (probably blades) and tools produced, as well as prepared cores, would have been removed from the site.

Is there a size difference between blanks and tools?

At Maisières-Canal, because there are no raw materials constraints imposed on the lithic economy, tools used during occupation would have been discarded without substantial resharpening. A comparison of size of tools and blanks (unretouched flakes and blades) will thus clearly show which, if any, size parameters affected blank selection for tool production and size thresholds. T-tests were done to compare length, width and thickness for whole blade tools and whole unretouched blades, and for whole flake tools and whole unretouched flakes for Rank 1 material, Obourg flint (Table 6.10). For blades, length, width and thickness are all statistically significantly different where tools are longer, wider and thicker than unretouched blades. For flakes, only length is statistically significant between tools and blanks.

Material	Total n tools	Tools on flakes	Tools on blades	Tools on crested blades	Tools on bladelets	Tools on cores/ chunks	Tools on debris
1 – Obourg flint	444	141	283	8	3	3	5
2 – Spiennes flint	7	4	3				
8 – gray flint	0						
17 - olive-green flint	2	2					

Table 6.8. Blank selection for tool production by material type (Champ de Fouilles).

Type	n tools	n unused blanks	tools + blanks	Tool/blank ratio	% tools
1 – Obourg flint	444	2345	2791	0.19:1	16
2 – Spiennes flint	7	238	245	0.03:1	3
8 - gray flint	0	67	67	0	0.0
17 - olive-green flint	2	27	29	0.07:1	7

Table 6.9. Intensity of blank selection (Champ de Fouilles).

Rank 1 - Obourg flint - Comparison of tools and blanks, whole blades only.

Variable	Number of Cases	Mean	SD	SE of Mean
LENGTH Length (mm)			**p=.000**	
Blanks (unretouched)	326	55.2331	21.093	1.168
Tools (retouched)	283	63.6254	25.183	1.497
WIDTH Width (mm)			**p=.000**	
Blanks (unretouched)	326	18.5307	9.681	.536
Tools (retouched)	283	25.4523	9.722	.578
THICK Thickness (mm)			**p=.000**	
Blanks (unretouched)	326	6.6933	4.275	.237
Tools (retouched)	282	9.0674	4.456	.265

Rank 1 - Obourg flint - Comparison of tools and blanks, whole flakes only.

Variable	Number of Cases	Mean	SD	SE of Mean
LENGTH Length (mm)			**p=.021**	
Blanks (unretouched)	274	46.5839	19.598	1.184
Tools (retouched)	139	51.3741	20.383	1.729
WIDTH Width (mm)			**p=.521**	
Blanks (unretouched)	274	35.7737	15.185	.917
Tools (retouched)	139	36.7842	14.930	1.266
THICK Thickness (mm)			**p=.540**	
Blanks (unretouched)	261	9.5326	6.251	.387
Tools (retouched)	139	9.9209	5.570	.472

Table 6.10. t-tests comparing size of whole blanks and tools (Champ de Fouilles).

ATELIER DE TAILLE DE LA BERGE-NORD-EST

The Atelier de Taille assemblage is composed exclusively of Obourg flint (n=630, weight = 4923 g), corresponding to Rank 1 in the Champ de Fouilles assemblage. The assemblage structure is summarized in Table 6.11. 192 (30.5%) artifacts are cortical, with fresh chalk cortex, indicating that material was obtained in primary context but partially prepared at the source before transport to Maisières-Canal, where it was reduced in place.

The blank pool in the assemblage is flake-dominant, with only 53 blades present (Table 6.12). As the Atelier de Taille has been interpreted as a workshop area of the site, it is likely that the majority of blanks and prepared cores were exported. Thus, the blank pool remaining would represent flakes and blades that were rejected, either on the basis of size and/or shape. The number of cores (n=6, plus 9 chunks) is low.

Among the reduction debris, there are 7 platform renewal flakes, one crested blade, 34 angular debris, 193 debris flakes (> 20 mm in length), and 40 trimming flakes.

The 13 tools discarded at the site were made on 9 flakes and 4 blades.

Type	Assemblage structure	Brought to site as...
1 – Obourg flint	6 cores, 13 tools, 495 blanks, 116 debris, including 9 chunks	partially prepared cores

Table 6.11. Transport form of raw materials and general assemblage structure (Atelier de Taille). * Chunks are probably core remnants.

Material	Total n (blank pool)	flakes		blades		crested blade		bladelets	
		n	%*	n	%	n	%	n	%
1 – Obourg flint	335	276	82.4	53	15.8	1	0.3	5	1.5

Table 6.12. Blank production by material type (Atelier de Taille). *Percent of blank pool, not of assemblage of each material type.

EVALUATION OF LITHIC ECONOMY WITH RESPECT TO RAW MATERIAL CONTEXT

The ranking of materials reflects distance in space and time (recent past of the group occupying Maisières-Canal). The Rank 1 material is the local Obourg flint, used both for activities at the site and probably for export. Spiennes flint, Rank 2, reflects local provisioning as well but material is transported to the site in the form of prepared cores with little cortex. The other Rank 2 materials, gray flint and olive-green flint, have a much more minor degree of reduction activity and could either reflect non-local material transported to the site, replaced upon arrival by Obourg and Spiennes flint, or they could in fact be variants of both Obourg and Spiennes. The Rank 3 materials, brown flint and phtanite, were transported only as finished tools and blanks, and thus reflect the end-products of material obtained and used prior to arrival. Given the local presence of flint, none of the other sources would have been further exploited, to minimize procurement costs.

Based on the volume of reduction activity, Maisières-Canal appears to have functioned as a logistical, short-term site, with possible multiple seasonal re-occupation, taking advantage

of access to both subsistence and lithic resources in the Hainaut Valley. During occupation, subsistence activities would have occurred to maintain the group while they were engaged in lithic reduction activities. Prepared cores, blanks and tools were subsequently removed from the site and transported to a residential site where they were then used. Maisières-Canal can thus be seen as a logistical satellite site possibly attached to a longer-term residential site, or a summer residential camp associated with some winter residential site in the Ardennes/Condroz/Famenne regions.

Figure 6.9. Maisières-Canal, Champ de Fouilles. Obourg flint showing chalk cortex.

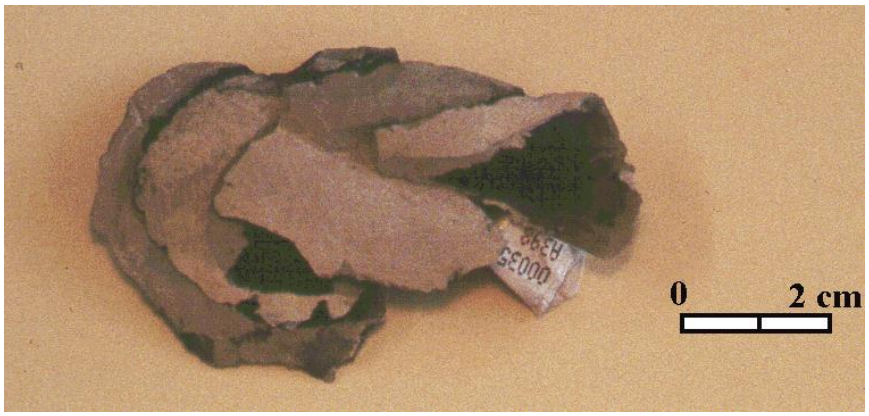

Figure 6.10. Maisières-Canal, Champ de Fouilles.
Refit series 1 (G12.133, G12.186b, G12.186a, G12.46).

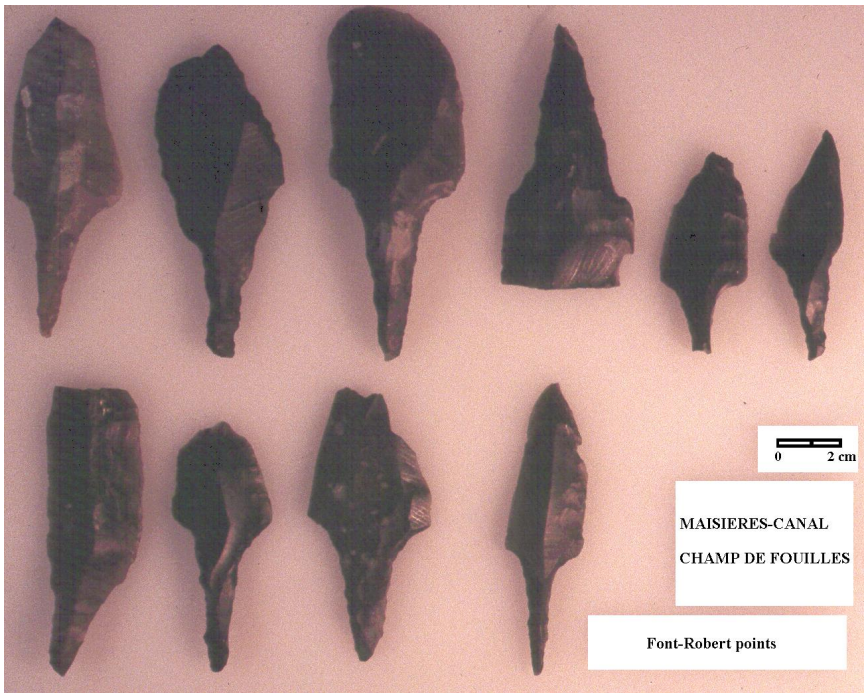

Figure 6.11 Maisières-Canal, Champ de Fouilles. Font-Robert points.

Figure 6.12. Maisières-Canal, Atelier de Taille de la Berge Nord-Est. Tools.

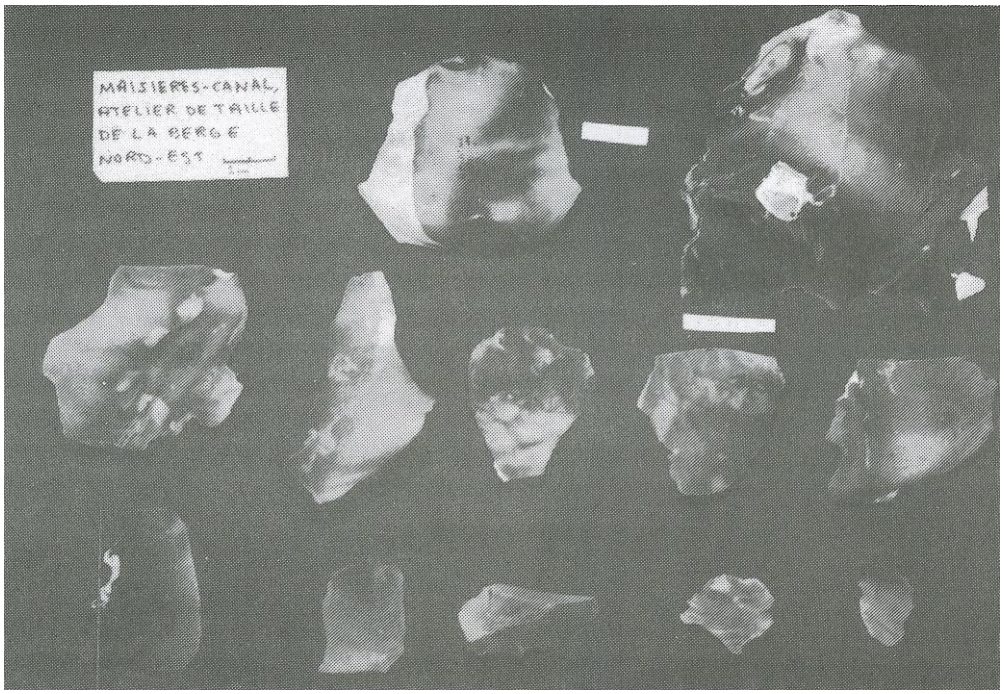

Figure 6.13. Maisières-Canal, Atelier de Taille. Flakes.

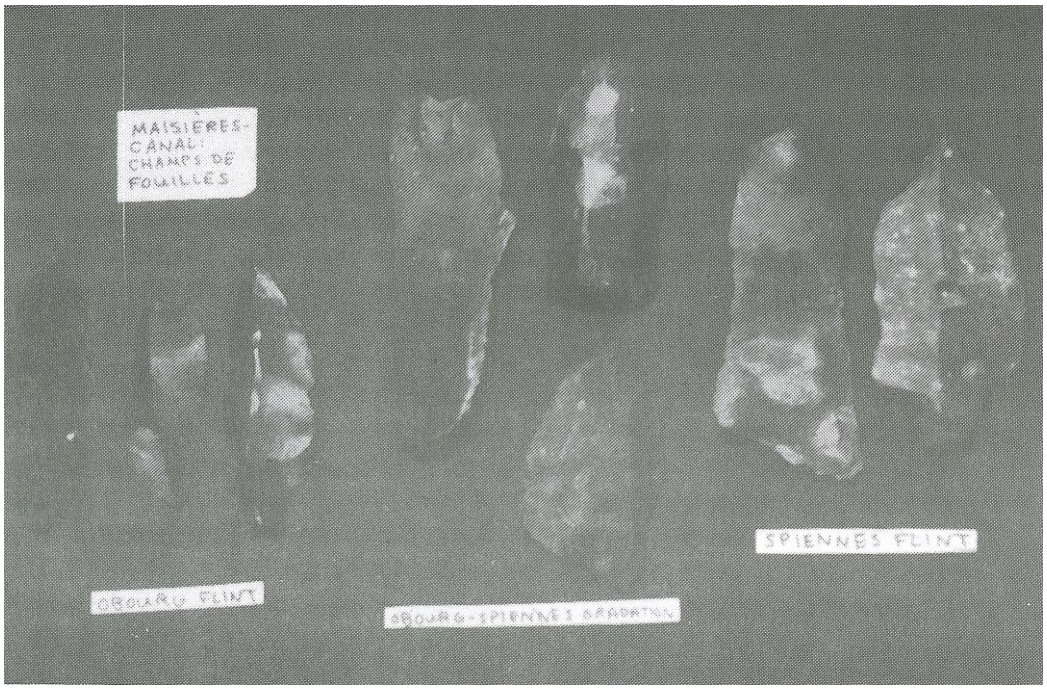

Figure 6.14. Maisières-Canal, Champ de Fouilles. Raw material types.