

THE CRESWELLIAN SITE SIEGERSWOUDE II (*GEMEENTE OPSTERLAND*,
PROVINCE OF FRIESLAND, THE NETHERLANDS)

E. Kramer*, P. Houtsma** and J. Schilstra***

ABSTRACT: In 1962 and 1984 a small Late Palaeolithic site was excavated near Siegerswoude. The artefacts belong to the Creswellian tradition. The composition of the artefact assemblage suggests that the Creswellian hunters used the site during a short period. Coversand stratigraphy, and the position of some artefacts in two bowl-shaped pits indicate that this site should be dated in the Allerød interstadial.

KEYWORDS: Creswellian, Late Palaeolithic, Allerød interstadial, Younger Coversand, composite tools, tree fall pits.

1. INTRODUCTION

The site Siegerswoude II¹ was discovered in the spring of 1962 by P. Mudstra, field surveyor/collector of the Frisian Museum, Leeuwarden, who found a number of silex artefacts in soil surrounding a recently dug ditch. The provincial archaeologist of Friesland, G. Elzinga, showed them to Dr. A. Bohmers of the Biological Archaeological Institute (B.A.I.) of the University of Groningen. He recognized the artefacts as belonging to the Late Palaeolithic Creswell tradition. Since Creswellian sites are relatively rare in the Netherlands, and at that date only a single site had been investigated scientifically (Zeijen 1946), it was decided to proceed with an excavation.² The investigation took place from 16th June to 4th August, 1962, under the scientific supervision of Dr. Bohmers. Responsibility for the day-to-day running of the excavation rested with the second and third authors of the present paper. During the preliminary work for this publication several questions arose, solutions to which could apparently only be found by carrying out a small additional investigation. This took place from 5th to 21st June, 1984, under the supervision of the first-mentioned author.

The flint material of Siegerswoude II is considered to be Creswellian, a Late Palaeolithic tradition rather rare in the Netherlands. Bohmers (1956) was the first to recognize and describe this Dutch Creswellian. According to him, its characteristic features include, among other things, points with a pronounced angle in the side which is entirely

or partly retouched. At that time, this type of point, called *Dreieck-Messer* by Schwabedissen (1954), was best known from a number of English sites, including Mother Grundy's Parlour, Creswell Crags, Derbyshire, the site from which the name derives. Creswellian points have been found in several Late Palaeolithic sites in the Netherlands (Schwabedissen, 1954: p. 63; Wouters, 1982: p. 123). Often, however, small numbers are involved, found among larger numbers of other types of points. In Siegerswoude II most of the points belong to the Creswellian type. On these grounds, the material from this site can be regarded as one of the few typical complexes of this tradition.

After the publications by Schwabedissen (1954) and Bohmers (1956; 1960), there was very little interest in Creswellian material in the Netherlands for some time. Campbell's detailed study of the English material (published in 1977), however, provided a new impetus. In 1975 Stapert started a programme the purpose of which was to analyse and to publish the material on the Creswellian sites in the Netherlands. He himself published the small surface collection of 'Op de Hees', in the municipality of Meerlo-Wanssum (Stapert, 1979), and the site of Emmerhout which was accidentally discovered in 1967 and subsequently excavated (Stapert, this volume). Publications on the Zeijen site, excavated in 1946 (Stapert, in prep.) and on the

* Frisian Museum, Turfmarkt 24, 8911 KT Leeuwarden, the Netherlands

** W. Kroezestraat 4, 8434 NN Waskemeer, the Netherlands

*** G. ter Borchlaan 28, 7242 DM Lochem, the Netherlands



Fig. 1. Map of the Netherlands, showing the location of Siegerswoude.

surface collections of Neer II (Kramer, in prep.) are expected shortly. An analysis and a description of Siegerswoude II were among the aims of the Creswell project. Recently, too, Wouters (1982) published an article on Creswellian material in the Netherlands and Belgium. In addition to the sites already known from other publications, Wouters also mentions Creswellian artefacts from the surface sites of Kessel I, Drunen IB and Lommel IC.³

2. THE EXCAVATIONS OF 1962 AND 1984

2.1. Procedures

In 1962 an excavation trench, 12 m (E-W) x 10 m (N-S) was marked out around the ditch from which had come the artefacts found by Mudstra. A 3 m (E-W) x 6 m (N-S) section of this trench in the north-east corner was not excavated. After removal of the heath-covered turf, layer after layer of the soil was carefully planed off with a spade. All the soil thus removed was carefully sieved. In accordance with the then customary procedure, the position of the artefacts was measured up and entered on a

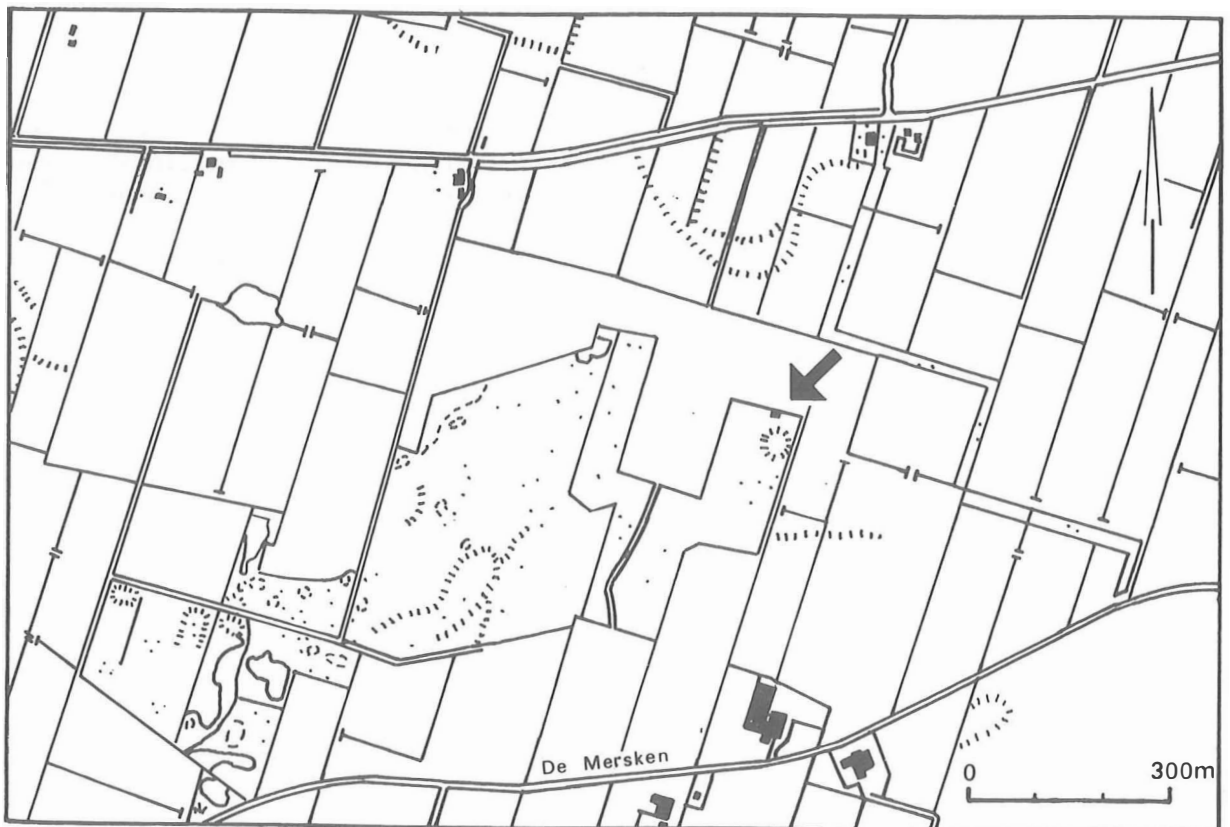


Fig. 2. Topography of the site Siegerswoude, indicated by the arrow, and surroundings.

distribution map, scale 1:10. Each type of re-touched tool was indicated on this drawing by a different symbol. In addition, these tools were numbered in the field and the numbers entered on the drawing. All the other material was labelled with a single symbol on the drawing, *viz.*, an open circle. These artefacts were not numbered. It is therefore no longer possible to determine their position. In 1962, 220 excavated artefacts were assigned a number; the numbers 221-271 were given to artefacts found in the loose soil from the ditch. Only later numbers were assigned to the unfinished artefacts, *viz.* 272-740. Originally two profile baulks, 0.5 m wide, and running N-S and E-W, respectively, through the middle of the large excavation trench, were left intact. In the S-E corner of the trench two shorter N-S orientated profile baulks were left standing across the bowl-shaped pits which will be described below. After the trench had been dug out to the desired depth and drawings made of the relevant profiles, these profile baulks were also carefully excavated.

In 1984 the 6x3 m section in the N-E corner of the large excavation trench was investigated. Three artefacts were found in profile E-F (fig. 7a) which was deeply excavated for the purpose to examine the coversand stratigraphy in more detail.

2.2. The vertical distribution of the finds

In 1962 it became evident that the Late Glacial was not the only period during which the site had been inhabited. Mesolithic flint material was found in the bleached layer (A2) of the podsol profile and in the thin, black, humus-rich layer (B2h) immediately below it. There were, however, too few artefacts for the material to be ascribed to a specific cultural tradition.⁴ The Late Palaeolithic material was found in the brown ironpan layer (B22) and in the yellow sand (C) below it. That was also established in the later investigation of 1984. In addition to the silex artefacts, a small piece of haematite was found in 1962.

Two bowl-shaped pits were discovered in the large excavation trench. Pit I, with a diameter of more than 2.5 m and a depth of c. 1.3 m, was situated at the edge of the concentration. A large number of artefacts was found in the filling. Pit II, with a diameter of c. 2 m and a depth of c. 1 m, was situated a few metres more to the east, outside the concentration, and contained only a single flake. These pits will be described in more detail below. Here it suffices to say that they are younger than the

habitation, and that the artefacts in their fillings were therefore in a secondary position.

2.3. The horizontal distribution of the finds

The distribution map (fig. 6) shows the horizontal spread of the flint material excavated in 1962 and 1984. It is evident that the finds were spread over only a small area. In this respect Siegerswoude II is comparable with the Creswellian site of Hohenholz, near Steinhude in Lower Saxony (Bohnsack, 1956). The major disturbance in the concentration is the ditch which led to its discovery in 1962. The loose finds from this disturbance are not indicated in figure 6. The artefacts which are shown were lying *in situ* under the ditch. The flint material was all rather close together. It may be assumed that scarcely any relevant material was overlooked, particularly because the site was excavated down to the so-called zero line of the find distribution.

The distribution of the various types in the area affords little information. Small groups of points occur in a number of places, however. From this can perhaps be concluded that points were used in so-called composite tools. The occurrence *in situ* of very small pieces of calcinated bone underneath the recent ditch is noteworthy. They were very close together and were encased in iron concretions, which may have contributed to their preservation (fig. 6: section F5). The absence of large stones and hearths may point to a brief occupation during the summer months which would obviate the necessity for provisions for a more permanent habitation (Mauss, 1979). The small area of the concentration of the artefacts might also point to this (*cf.* the site of Hohenholz: Bohnsack, 1956).

2.4. The joints

In order to obtain an impression of the completeness of the flint assemblage left at, and of possible flint working on the site, in 1984 some 40 man-days were devoted to fitting together artefacts from the 1962 and 1984 excavations. The results are shown in table 1. Many joints can be explained as artefacts broken by a number of causes, *e.g.* during use for a specific purpose, by the trampling underfoot of broken or discarded artefacts or by frost splitting. Some joints, *e.g.* nos. 1, 14, 15, 28 and 29, point to flint working on the spot. Since in 1962 all the excavated soil was sieved, it may be assumed that any missing pieces were no longer there for whatever reason.

Table 1. Survey of the joints. The numbers marked with an X are shown in figure 6, where the distance between the interlocking pieces is represented by a straight line.

Joint no.	Inv.	no.	Type
X 1	58a	+b	RA-burin+burin-spall (fig. 14:4)
2	400	+526	2 blades
3	76	+663	Broken flake
4	(76+663)	+635	2 flakes
5	314	+334	Broken point (not illustrated)
6	164	+556	Broken, obliquely truncated blade
7	(400+526)	+470	2 blades
8	423	+401	2 blades
9	636	+455	Broken blade
10	31	+51	Broken blade sections
11	414	+201	2 blades
12	377	+670	2 blades
13	328	+487	2 blades
X 14	130	+19	Core+point (not illustrated)
15	88	+433	Core+small blade
16	(414+201)	+640	2 blades+flake
X 17	161	+63	Retouched blade+flake
18	463	+245	2 blades
19	244	+507	Broken point (fig. 11:46)
X 20	126	+210	Point+obliquely truncated blade (figs. 9:8 and 11:44)
21	216	+521	Blade+flake
22	30	+558a+b	2 blades
23	485	+313	2 flakes
24	89	+641	2 flakes
25	372	+317 (367?)	2 flakes
26	99	+441	Obliquely truncated blade (fig. 11:40)+blade
X 27	133a+b	+134	2 points (not illustrated; fig. 11:36)
28	193	+736	Core+flake
29	(193+736)	+402	Core+flake
30	90	+680	Blade+blade fragment
X 31	168	+170	Broken point (fig. 10:32)
32	199	+221	Broken point (fig. 11:35)
X 33	26	+144	Broken point (fig. 9:15)
X 34	7	+25	Broken point (not illustrated)
35	147	+158	Broken point (fig. 9:9)
X 36	71	+211	Broken point (fig. 10:16)
37	212	+72	Broken point (not illustrated, type AC1)
38	69	+637	2 flakes
X 39	62a	+62b	Broken point (fig. 11:43)
X 40	42	+57	Broken, obliquely truncated blade
41	558a	+558b	Broken blade
42	133a	+133b	Broken point (not illustrated)
43	43a	+43b	Broken blade
44	103a	+103b	Broken point (not illustrated)
45	167a	+167b	Broken point (not illustrated)
46	228a	+228b	Broken point (not illustrated)
47	A10½	+A11	Broken point (not illustrated)
48	106a	+106b	Broken point (not illustrated)
49	107a	+107b	Broken point (fig. 10:29)
50	182a	+182b	Broken point (fig. 9:12)
51	174a	+174b	Broken blade

For the sake of completeness, it should be pointed out that the typological labelling of the artefacts in table 1 does not always correspond with that on the distribution map (fig. 6). In 1962, broken artefacts were as a rule also given a typological label. In 1984 it turned out that pieces from artefacts which had been differently identified fitted

together after all. This is the case with *e.g.* joints 17, 31, 33, 34 and 39. Moreover, in figure 6 it was only possible to indicate those joints of which both the fragments have a number below 220, *i.e.* of which both fragments had been identified as a tool in 1962, and had been indicated with numbers on the drawing. Joints of which both fragments were only a

few centimeters apart are not indicated in figure 6 (nos. 42-51 in table 1).

3. THE GEOLOGICAL CONTEXT

The site is situated on the northern, high bank of the Boven-Boorne, on a cover sand ridge at an elevation of c. 5 m +NAP. During the excavation of 1984, a profile (E-F; fig. 7a) was studied by M.W. ter Wee (State Geological Service, Oosterwolde) and D. Stapert. The coversand proved to be of the Younger Coversand I type, which was deposited during the Early Dryas stadial. However, the possibility cannot be excluded that there is a thin layer of Younger Coversand II from the Late Dryas. In the A1 and A2 horizons of the podsol profile that developed towards the top of the coversand deposit, however, it is no longer possible to distinguish between Younger Coversand I and Younger Coversand II. The finely layered structure of the Younger Coversand I proved to be easily recognizable from the B horizon of the podsol profile (the level at which and below which the Late Palaeolithic artefacts were found) down to a considerable depth. At some points there were very thin layers of coarser sand/very fine gravel. At c. 3 m below the top of the B horizon, at c. 1.5 m +NAP, there was a transition from wind blown coversand to sandy brook deposits. Nearly 2 m deeper, Ter Wee, using a so-called Van der Staay drill, struck a gyttja-like layer. A sample of this was taken for pollen analysis. Tree pollen accounted for 35%, and a rich variety of herb pollens was also present. On the evidence of the pollen distribution, Van Zeist excludes the possibility of a Weichselpleniglacial dating⁵; a formation date during an Early Weichsel interstadial, however, is a possibility. Since the sample came from sediment that was c. 5 m below the level of the Late Palaeolithic artefacts, a Late-Glacial dating is unlikely.

In Ter Wee's opinion, the stratigraphy and the pollen-analytical dating are compatible. According to him, the subsoil of the site actually contains the bed of a small stream, which is likely to date from the second last Ice Age, and which must have been filled up with Early Weichsel deposits. The bed of this stream is not shown in the geological context map of figure 3. The latter was based on the results of drilling at intervals of c. 300 m. The bed of the stream was too narrow to be detected in such a wide-meshed network of observations.

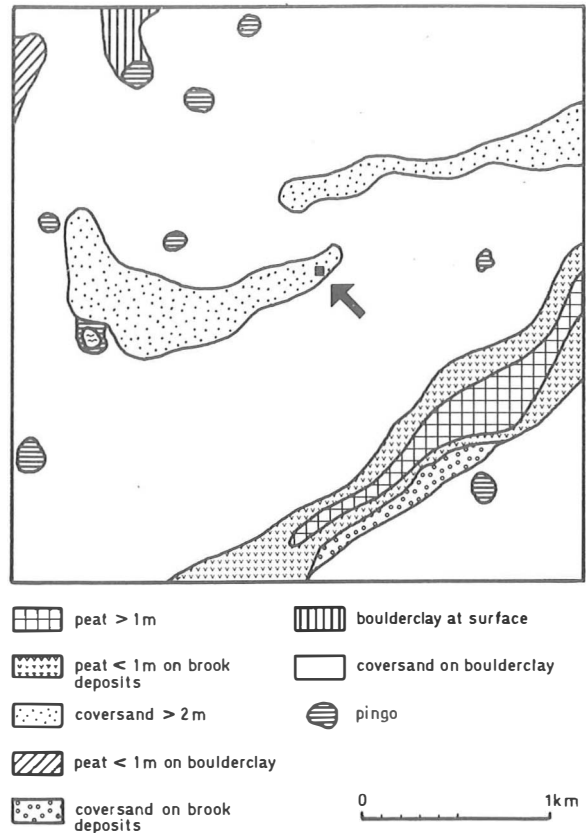


Fig. 3. The local geological context, based on information from the State Geological Service in Oosterwolde.

4. THE BOWL-SHAPED PITS AND THE DATING OF THE SITE

4.1. Description of the bowl-shaped pits

Two bowl-shaped pits were discovered in the area excavated, pit I at the edge of the flint concentration, pit II some metres to the east of it.

The filling of pit I contained a large number of artefacts, especially along the north wall. In the profile (fig. 7b) it can clearly be seen that the artefacts had slid down the wall. The distribution map (fig. 6) shows that there were fewer artefacts in square G4 than could be expected. From this and from the position of the flint against the slope of the pit, it can be concluded that the pit is more recent than the habitation. The dense concentration of artefacts along the north wall of pit I was situated in a greyish-white layer which also contained some small pieces of charcoal (unfortunately too few for a ¹⁴C dating!). Next to this layer, the soil was

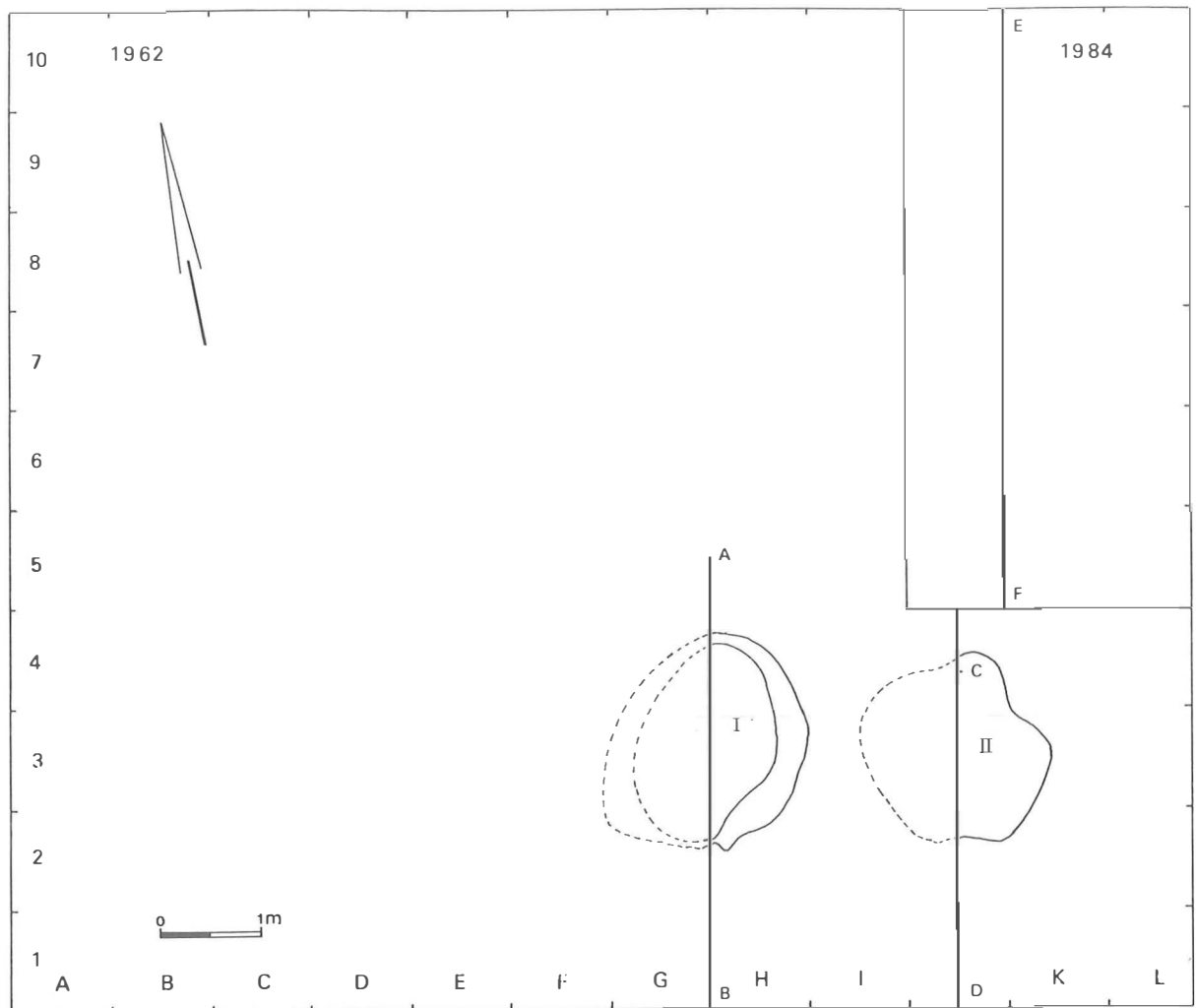


Fig. 4. Plan of the excavation trenches of 1962 and 1984, with bowl-shaped pits I and II, and profiles A-B, C-D and E-F.

somewhat harder and slightly yellower in colour. This combination was similar to a soil profile of Usselo Layer type.⁶ Deeper excavation revealed that the pit was filled with lumps of coversand which were no longer *in situ*, and whose layering was sometimes at right angles to that of the undisturbed coversand outside the pit. Moreover, between the artefacts and the wall of the pit proper, there was a 'shell' with a thickness of just over 10 cm which contained no finds.

The layers of pit II were more clearly legible than those of pit I. The picture, however, was the same. Here, too, displaced lumps of coversand were present. Of more importance was the presence of a frost crack which started in the coversand underneath the pit and which could be traced in the

filling. It therefore must have been formed after the pit had been filled up (*cf.* Zoller, 1981). The Late Dryas stadial is actually the only plausible date for the formation of the frost crack.

4.2. The dating of the bowl-shaped pits

Casparie and Ter Wee (1981) and Houtsma *et al.* (1981) described bowl-shaped pits discovered at a site of the Late Palaeolithic Tjonger tradition near Een-Schipsloot. According to these authors, the pits at Een-Schipsloot should be regarded as micro-pingos of some sort. They assumed that their formation is connected with the occurrence of permafrost. Exactly how this happened, however, is not clear. Palynological examination, ¹⁴C datings of



Fig. 5. Siegerswoude II, the excavation trenches of 1962. The profile baulks across the site are still intact. The small white discs in one of the profiles indicate the positions of artefacts. Photo G. Elzinga.

peat from one of the pits and the subsequent filling in of the pits with Younger Coversand II indicate that the pits in Een-Schipsloot were formed at the beginning of the Late Dryas.

It is doubtful, however, whether the pits of Siegerswoude II can be compared with those of Een-Schipsloot. There are indications that such is not the case. The filling of the Siegerswoude pits is composed partly of tilted lumps of Younger Coversand I. This is why they are much more reminiscent of the so-called 'horseshoe-shaped features', *i.e.* the pits which are formed when trees are blown down (Kooi, 1974). Such a process would also explain the presence of a section of soil profile which resembles the Usselo Layer. If these explanations are correct, the most probable date at which the pits were formed is the transition from the Allerød to the Late Dryas, *i.e.* the period around 11,000 B.P. in ^{14}C years.

4.3. The dating of the site

The bowl-shaped pits were probably formed around 11,000 B.P. This dating is a *terminus ante quem* for the settlement, since the pits must have been formed when the artefacts were already in position. A *terminus post quem* can also be given. The deposition of Younger Coversand I occurred mainly during the Early Dryas stadial. The artefacts were found in the top of this deposit. The hunters of the Creswell tradition of Siegerswoude II must have camped here during the Allerød period, *i.e.* between 11,800 and 11,000 B.P. in ^{14}C years.

5. THE FLINT ARTEFACTS⁷

5.1. Unworked artefacts

The approximate composition of the material is

Table 2. Artefacts from the excavations 1962 and 1984.

Type	Number
Tools	211
Flakes	161
Small flakes (smaller than 1 cm)	336 (not numbered)
Blades	155
Proximal blade fragments	81 (a few not numbered)
Medial blade fragments	53 (a few not numbered)
Distal blade fragments	67 (a few not numbered)
Flake/blade cores	3
Core preparation pieces and core renewal pieces	14
Blocks	30
Total	1111

given in table 2. The typological nomenclature is largely derived from Schwabedissen (1954), Bohmers (1956) and Campbell (1977).

Many varieties of flint were used. Its source can probably be found in the immediate vicinity in exposures of boulderclay of the Saale Glacial. The quality of some of the nodules must have been very good, judging from the quantity of blades produced from it. The rather remarkable composition of the total assemblage is noteworthy: few cores and blocks contrasting with a very large number of worked/unworked blades and flakes. The reason for this is not known. Perhaps the explanation is that at this spot only the repair or the production of a specialized tool was undertaken. It is, after all, quite evident that only limited use was made of the usual types, such as borer, scraper and burin, if their numbers are compared with the large number of points, some of them still perfect, which were found here. What they were used for is at present still a mystery, although we are inclined to regard them as parts of composite tools.

5.2. The tools

5.2.1. Survey

The subdivision of the tools, *i.e.* the modified artefacts from Siegerswoude II is given in table 3.

With reference to the survey of the points given below, it should be noted that they are classified in accordance with Campbell's criteria (1977). The classification is based on whether the retouching on the back is continuous or not. 'Continuous retouch' corresponds to Campbell's AC2 type and 'partial retouch' to his AC1 type. Two points whose backs have no angle measure more than 50 mm in length,

Table 3. Subdivision of the modified artefacts.

Type	Amount	%
Points and fragments	175	82.9
Obliquely blunted blades and fragments	15	7.1
Borers, awls	7	3.3
Scrapers	3	1.4
Burins	6	2.8
Retouched flakes, blades, blocks	5	2.4
Total	211	99.9

and should be classified therefore as 'Châtelperronian points', according to Bohmers (1956) and Schwabedissen (1954). We are aware of the fact that it is not always possible to describe clearly the difference between Creswellian and shouldered points (fig. 10: 20, 21 and 31).

5.2.2. Points

A brief description of the points found follows below; the number in brackets gives the find numbers; these numbers are the ones used for the points in the distribution map produced in 1962, which also shows all the tools with their find numbers. All the artefacts were retouched from the ventral side, unless stated otherwise. L = length, B = breadth, T = thickness, all in mm.

A. Châtelperronian points

1. Fig. 9:1 (12). L 56 remaining, B 17, T 5. Continuous convex backing along the right side of blade. Distal point (tip is missing). Bulb of percussion present. No retouch at bottom right near butt due to localised narrowing of blade by previous flake. Made from double-ribbed blade. Campbell's AB1 type.

2. Fig. 9:2 (68). L 59, B 23, T 5. Continuous straight backing along the right side of blade. Use-retouch, left, along medial butt section. Distal point. Bulb of percussion present. Made from single-ribbed blade. Campbell's AB2 type.

B. Retouched blade (atypical point?)

1. Not illustrated (314 + 334) (*cf.* joint no. 5 in table 1). L 51, B 12, T 4. Continuous straight backing from butt to point on left side. No truncation of the point. Tip of blade-end shows hinge-fracture. Bulb of percussion present proximally. Made from double-ribbed blade. Campbell's AB2 or HA1 type.

C. Creswellian points (nos. 1-12, Campbell's AC2 type, nos. 13-70, Campbell's AC1 type)

Campbell's AC2 type

1. Fig. 9:3 (177). L 57, B 15, T 3. Continuous retouch from base to the tip on the left edge. Bulb of percussion present. Distal



Fig. 8a. Profile E-F from SW. The three nails bottom right indicate the position of the artefacts. Photo D.M. Visser.



Fig. 8b. Profile A-B through bowl-shaped pit I. Photo P. Houtsma.



Fig. 8c. Profile C-D (partly) through bowl-shaped pit II. Note the vertical position of the displaced lumps of coversand. Photo P. Houtsma.

point. Use-retouch bottom right near butt. Part of the dorsal side of blade shows cortex (shown by dots on the drawing). Made from a double-ribbed blade.

2. Fig. 9:4 (85). L 41, B 16, T 4. Continuous retouch from base to tip on right edge. Bulb of percussion near butt still present. Distal point. Made from single-ribbed blade.

3. Fig. 9:5 (78). L 44 remaining, B 18, T 5. Point broken off. Continuous retouch on the right edge. Bulb of percussion present. At point of fracture top left backing from dorsal edge as well. Left edge of blade shows traces of use-retouch on ventral edge. Made from double-ribbed blade.

4. Fig. 9:6 (143). L 40, B 14, T 3. Continuous retouch from base to tip on right edge. Bulb of percussion struck off at base by short flake. Point on distal end. Made from double-ribbed blade.

Not illustrated AC2-types from Siegerswoude

5. (7 + 25). (*cf.* joint no. 34 in table 1). L 35 remaining, B 13, T 3. Continuous retouch along left edge. Proximal point. Bulb of percussion removed during retouching. Made from single-ribbed blade.

6. (29). L 26, B 12, T 4. Continuous retouch from base to tip on left edge. Bulb of percussion near butt. Made from double-ribbed blade.

7. (48). L 35 remaining, B 13, T 5. Continuous retouch on left edge. Butt with accompanying bulb of percussion not present. Part of dorsal edge shows cortex. Small part of the point broken off. Made from blade with plano surface, *i.e.* not ribbed.

8. (52). L 35, B 10 T 3. Continuous retouch from base to tip on left edge. Bulb of percussion present near butt. Made from double-ribbed blade.

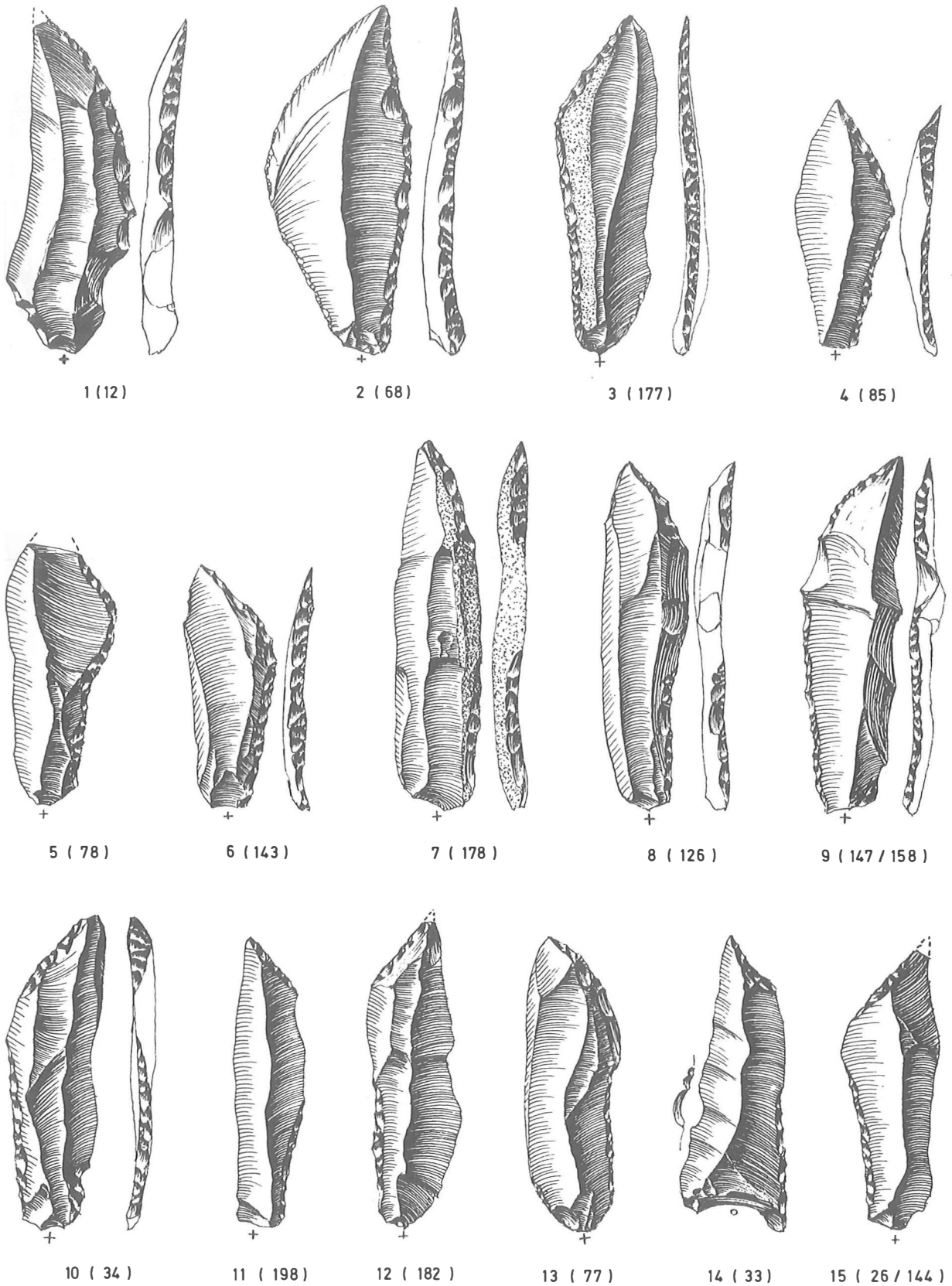


Fig. 9. Siegerswoude II. Flint artefacts: 1-2: Châtelperronian points; 3-6: Creswellian points (Campbell's AC2 type); 7-15: Creswellian points (Campbell's AC1 type). The numbers in brackets indicate the inventory numbers.

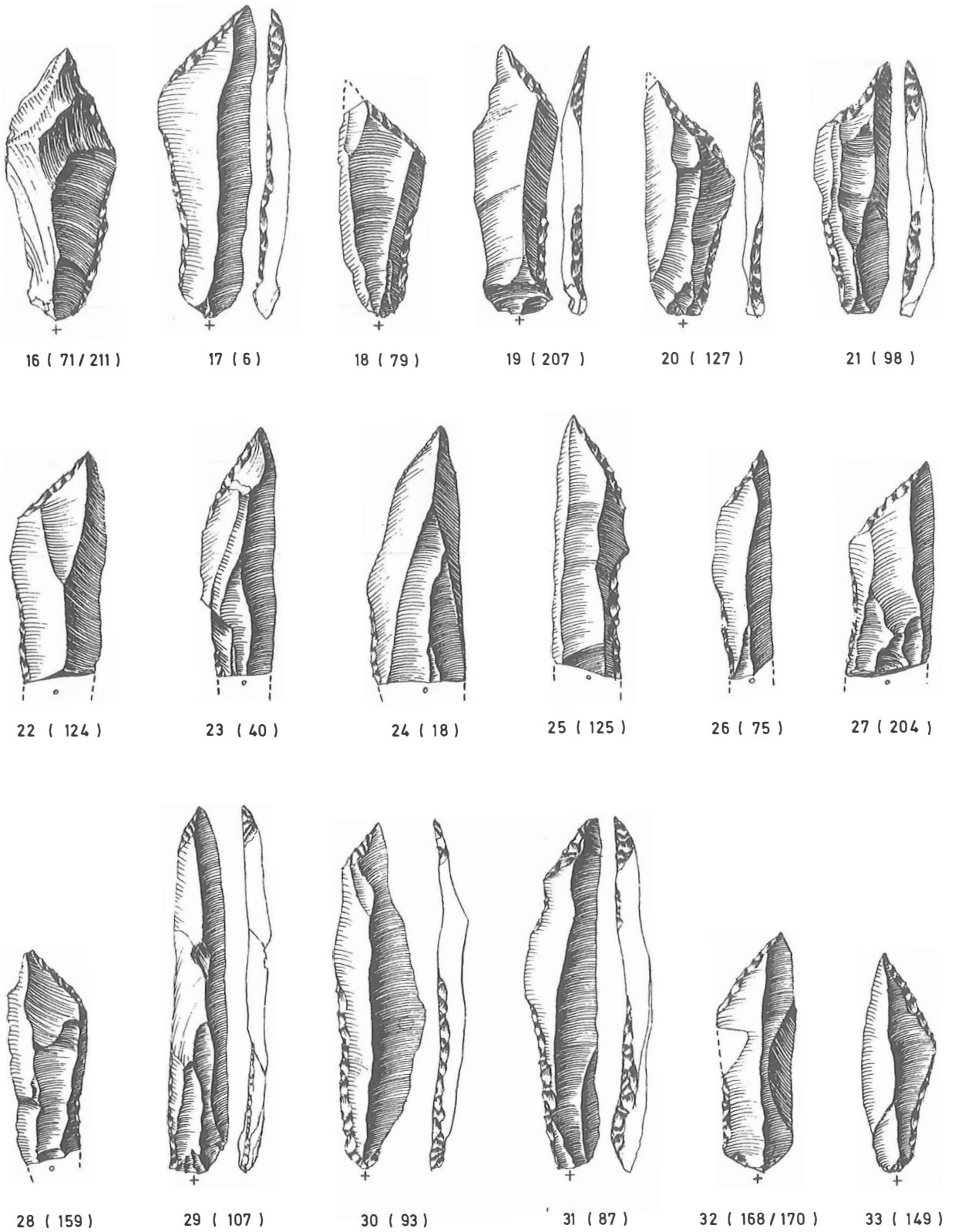


Fig. 10. Siegerswoude II. Flint artefacts: 16-33: Creswellian points (Campbell's AC1 type). The numbers in brackets indicate the inventory numbers.

9. (100). L 31 remaining, B 12, T 3. Bulb of percussion present (butt broken off). Continuous retouch on left edge. Made from single-ribbed blade.

10. (145). L 32, B 10, T 2. Continuous retouch from base to tip on left edge. Bulb of percussion present at base. From the point, two small flake-negatives can be seen which may have been formed after being used as a projectile. Confusion with RA-burin practically impossible due to backing along entire back, plus characteristic angle. Made from single-ribbed blade.

11. (181). L 35 remaining, B 13, T 4. Continuous retouch on left edge, starting just above end of butt. Distal point broken off, as is that part of butt which contained bulb of percussion. Made from single-ribbed blade.

12. (504) L 36, B 12, T 2. Continuous retouch along left edge. Bulb of percussion present at base. Distal point. Made from double-ribbed blade.

Campbell's AC1 type

13. Fig. 9:7 (178). L 62, B 14, T 4. Partial retouch on right edge. Bulb of percussion present. Distal point. Part of dorsal edge shows cortex. Use-retouch top and bottom left. Made from double-ribbed blade.

14. Fig. 9:8 (126). L 58, B 13 T 5. Partial retouch on the right edge. Bulb of percussion present. Distal point. Made from double-ribbed blade. *Cf.* joint no. 20 in table 1.

15. Fig. 9:9 (147 + 158). (*cf.* joint no. 35 in table 1). L 61, B 15, T 5. Partial retouch on left edge. Bulb of percussion present. Distal point. Made from single-ribbed blade.

16. Fig. 9:10 (34). L 53, B 14, T 3. Partial retouch on left edge. Bulb of percussion present. Distal point. Use-retouch on medial right edge. Made from double-ribbed blade.

17. Fig. 9:11 (198). L 49, B 11, T 4. Partial retouch on right edge of point, along butt and point. Distal point. Bulb of percussion present. Made from single-ribbed blade.

18. Fig. 9:12 (182a+b). (*cf.* joint no. 50 in table 1). L 52, B 14, T 3. Partial retouch on left edge near butt and point. Tip of point broken off at distal end. Bulb of percussion present. Slightly burnt. Made from double-ribbed blade.

19. Fig. 9:13 (77). L 50, B 14, T 3. Partial retouch of point on right edge near butt and point. Bulb of percussion present. Distal point. Use-retouch bottom left near butt. Made from double-ribbed blade.

20. Fig. 9:14 (33). L 50, B 15, T 5. Partial retouch on right edge of point near point and butt. Distal point. Part of butt with bulb of percussion broken off. Use-retouch and notch on medial left edge. Made from single-ribbed blade.

21. Fig. 9:15 (26 + 144). (*cf.* joint no 33 in table 1). L 47, B 14, T 4. Partial retouch on left edge of point near point and butt. Distal point. Bulb of percussion present. Tip of point broken off. Both fragments *crâquelé*. Made from single-ribbed blade.

22. Fig. 10:16 (71 + 211). (*cf.* joint no. 36 in table 1). L 45, B 15, T 3. Partial retouch on right edge of point near point and butt. Distal point. Bulb of percussion present. Retouch also near butt left. Made from single-ribbed blade.

23. Fig. 10:17 (6). L 53, B 14, T 4. Partial retouch on left edge near point and butt. Distal point. Bulb of percussion present. Extensive use-retouch on right edge along entire length. Made from single-ribbed blade.

24. Fig. 10:18 (79). L 36 remaining, B 13, T 3. Partial retouch on right edge near point and butt. Bulb of percussion present. Tip of point broken off near distal end. Use-retouch on left edge along entire length. Made from double-ribbed blade.

25. Fig. 10:19 (207). L 46, B 12, T 3. Partial retouch on right edge near point and butt. Distal point. Bulb of percussion present. Use-retouch bottom left near butt. Made from single-ribbed blade.

26. Fig. 10:20 (127). L 40, B 14, T 3. Partial retouch on right edge near point and butt. Distal point. Bulb of percussion

present. Tiny part of tip of point broken off. Made from double-ribbed blade.

27. Fig. 10:21 (98). L 43, B 11, T 3. Partial retouch on left edge near point and butt. Distal point. Bulb of percussion present. Use-retouch bottom right near butt. Made from double-ribbed blade.

28. Fig. 10:22 (124). L 40 remaining, B 14, T 3. Partial retouch on left edge near point and butt. Distal point. Butt with bulb of percussion broken off. Use-retouch on right edge. Made from single-ribbed blade.

29. Fig. 10:23 (40). L 42 remaining, B 13 T 5. Partial retouch on left edge near point and butt. Distal point. Butt with bulb of percussion broken off. Made from double-ribbed blade.

30. Fig. 10:24 (18). L 44 remaining, B 15, T 3. Partial retouch on left edge of point near point and butt. Distal point. Butt with bulb of percussion broken off. Made from double-ribbed blade.

31. Fig. 10:25 (125). L 45 remaining, B 11, T 3. Partial retouch on right edge of point near point and butt. Distal point. Butt with bulb of percussion broken off. Made from double-ribbed blade.

32. Fig. 10:26 (75). L 38 remaining, B 10, T 2. Partial retouch on left edge of point near point and butt. Distal point. Butt with bulb of percussion broken off. Use-retouch on right edge. Made from single-ribbed blade.

33. Fig. 10:27 (204). L 37 remaining, B 14, T 3. Partial retouch on left edge of point near point and butt. Distal point. Butt with bulb of percussion broken off. Made from double-ribbed blade.

34. Fig. 10:28 (159). L 36 remaining, B 12, T 2. Partial retouch on right edge of point near point and butt. Distal point. Butt with bulb of percussion broken off. Use-retouch on left edge along entire length. Made from double-ribbed blade.

35. Fig. 10:29 (107a+b). (*cf.* joint no. 49 in table 1). L 62, B 9, T 3. Partial retouch on left edge near point and butt. Distal point. Bulb of percussion present. Use-retouch along right edge. Made from single-ribbed blade.

36. Fig. 10:30 (93). L 60, B 14, T 4. Partial retouch along left edge of point near point and butt. Bulb of percussion missing. Retouch on right edge of point along butt. Made from single-ribbed blade.

37. Fig. 10:31 (87). L 60, B 12, T 5. Partial retouch along left edge near point and butt. Base of butt with bulb of percussion missing. Distal point. Light use-retouch on right edge. Made from single-ribbed blade.

38. Fig. 10:32 (168+170). (*Cf.* joint no. 31 in table 1). L 41, B 11, T 3. Partial retouch on left edge near point and butt. Bulb of percussion present. Distal point. Light use-retouch on right edge. Made from double-ribbed blade.

39. Fig. 10:33 (149). L 37, B 11, T 3. Partial retouch on right edge near point and butt. Bulb of percussion present. Distal point. Made from single-ribbed blade.

40. Fig. 11:34 (142). L 37, B 14, T 4. Partial retouch on left edge near point and butt. Bulb of percussion present. Distal point. Small part of cortex bottom right near butt. Made from double-ribbed blade.

41. Fig. 11:35 (199+221). (*cf.* joint no. 32 in table 1). L 38 remaining, B 12, T 2. Partial retouch on left edge of point near point and butt. Distal point. Butt with bulb of percussion broken off. Made from double-ribbed blade.

42. Fig. 11:36 (134). (*cf.* joint no. 27 in table 1). L 39, B 8, T 2. Partial retouch of point on right edge near point and butt. Distal point. Bulb of percussion present. Made from double-ribbed blade.

43. Fig. 11:37 (32). L 39, B 10, T 3. Partial retouch of point along left edge near point and butt. Distal point. Bulb of percussion absent due to retouching. Made from double-ribbed blade.

44. Fig. 11:38 (137). L 41, B 13, T 3. Partial retouch on right edge of point near point and butt. Distal point. Bulb of percussion present. On right edge, small part of cortex present on unretouched parts. Made from double-ribbed blade.

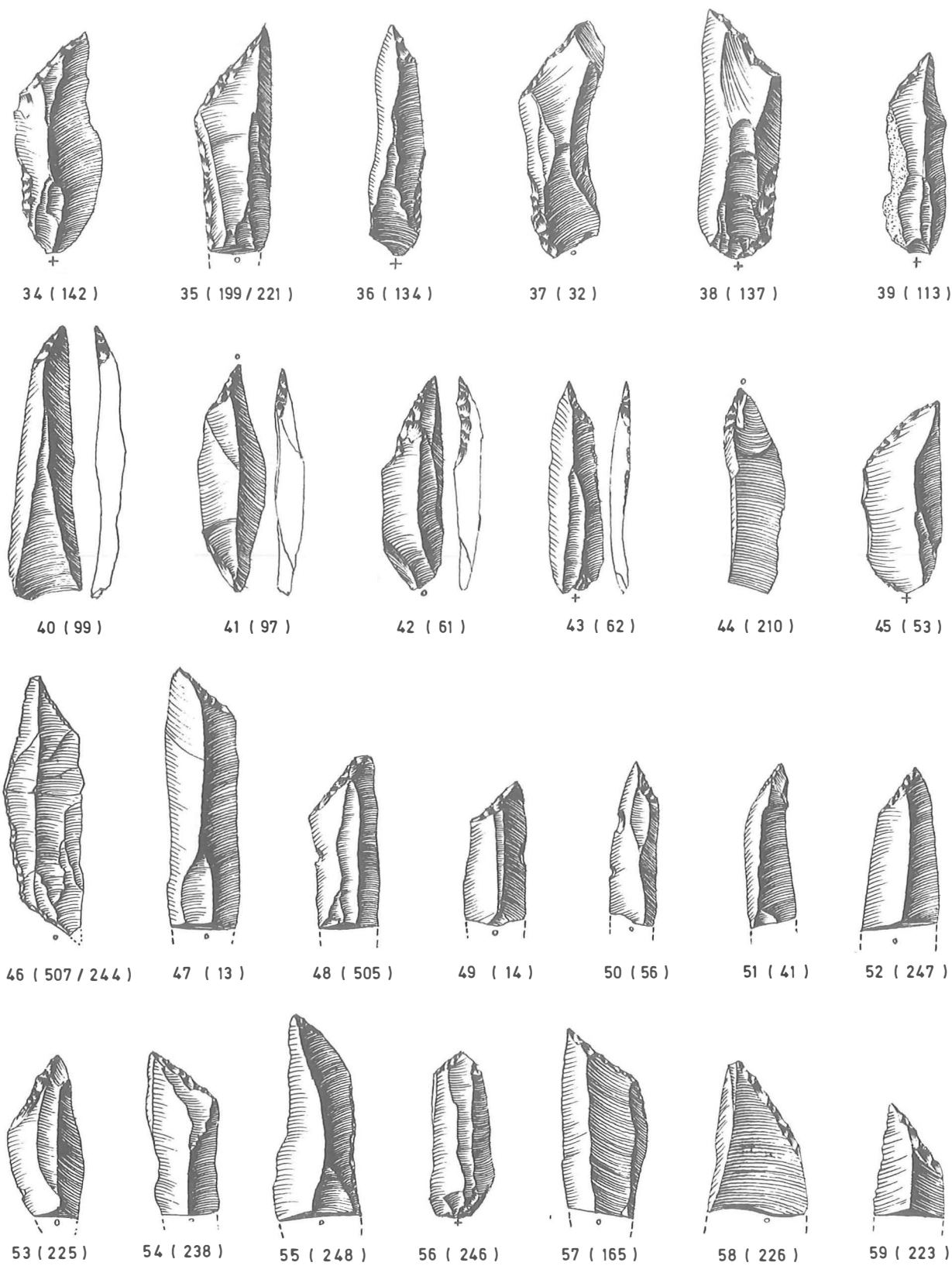


Fig. 11. Siegerswoude II. Flint artefacts: 34-39: Creswellian points (Campbell's AC1 type); 40-45: obliquely blunted blades (Campbell's AA1 type); 46: atypical point; 47-59: blade fragments with oblique truncation at distal end of the blade. The numbers in brackets indicate the inventory numbers.

45. Fig. 11:39 (113). L 34, B 10, T 2. Partial retouch on left side of point near point and butt. Left edge dorsal side shows cortex. Distal point. Bulb of percussion present. Light use-retouch on right edge of point. Made from double-ribbed blade.

Not illustrated AC1 types from Siegerswoude

46. (19). (*cf.* joint no. 14 in table 1). L 35, B 11, T 4. Partial retouch on left edge of point. Distal point. Bulb of percussion present. Made from single-ribbed blade.

47. (22). L 43, B 12, T 4. Partial retouch on right edge of point. Distal point. Bulb of percussion present. Made from single-ribbed blade.

48. (24). L 47, B 13, T 3. Partial retouch on left edge of point. No backing near butt bottom left due to narrowing of original blade. Distal point. Bulb of percussion present. Light use-retouch top left near tip of point. Made from double-ribbed blade.

49. (44) L 36 remaining, B 12, T 4. Partial retouch on left edge of point. Distal point. Butt with bulb of percussion missing. Made from single-ribbed blade.

50. (74). L 35, B 9, T 3. Partial retouch on left edge of point. Distal point. Bulb of percussion present. Made from single-ribbed blade.

51. (103a+b). (*cf.* joint no. 44 in table 1). L 53, B 17, T 4. Partial retouch on right edge near butt. Bulb of percussion present. Oblique truncation top right at distal end. Made from single-ribbed blade.

52. (104). L 36 remaining, B 15, T 3. Oblique truncation right near distal end. Tip broken off. Proximal end broken off. Made from single-ribbed blade.

53. (105). L 34, B 10, T 3. Partial retouch on left edge of point. Distal point. Bulb of percussion present. Light use-retouch on right edge. Made from single-ribbed blade.

54. (119). L 34, B 12, T 2. Partial retouch on left edge of point. Distal point. Bulb of percussion present. Small plane of fracture obliquely retouched later (after tip of blade broken off). Made from double-ribbed blade.

55. (133a+b). (*cf.* joint nos. 42 and 27 in table 1). L 39, B 12, T 2. Partial retouch on right edge of point. Distal point. Bulb of percussion present. Made from double-ribbed blade.

56. (153). L 33 remaining, B 13, T 4. Partial retouch on right edge of point. Bulb of percussion present. Tip of point missing. Made from single-ribbed blade.

57. (167a+b). (*cf.* joint no. 45 in table 1). L 46 remaining, B 14, T 3. Partial retouch on left edge of point. Proximal point. Tip with bulb of percussion broken off. Proximal part of joint *crâquelé*. Made from double-ribbed blade. *Cf.* also no. 64 (228a+b).

58. (175). L 36, B 12, T 3. Partial retouch on left edge of point. Distal point. Bulb of percussion present. No retouching near butt bottom left due to irregular shape of blade. Made from double-ribbed blade.

59. (176). L 40 remaining, B 10, T 2. Partial retouch on left edge of point. Distal point (tip broken off). Bulb of percussion present. Made from double-ribbed blade.

60. (183). L 35, B 12, T 2. Partial retouch on left edge of point. Distal point. Bulb of percussion present. Made from double-ribbed blade.

61. (190). L 33, B 11, T 2. Partial retouch on left edge of point. Distal point (tip broken off). Bulb of percussion present. Made from single-ribbed blade.

62. (206). L 38, B 14, T 3. Partial retouch along butt on right. Distal point not retouched. Bulb of percussion present. Made from double-ribbed blade. Unfinished AC1 type?

63. (206a). L 34 remaining, B 10, T 2. Partial retouch on right edge of point. Tip of point broken off at distal end, as is base of butt with bulb of percussion. Made from single-ribbed blade.

64. (228a+b). (*cf.* joint no. 46 in table 1). L 46, B 12, T 3. Partial retouch on left edge of point. Distal point. Bulb of

percussion present. In this joint, too, a burnt-unburnt part, *viz.* the point *crâquelé* and the butt unburnt. *Cf.* also no. 57 (167a+b). Made from single-ribbed blade.

65. (229). L 56 remaining, B 14, T 4. Partial retouch on right edge of point. Tip of point broken off at distal end. Bulb of percussion present. Light use-retouch on left edge. Made from single-ribbed blade.

66. (236). L 52 remaining, B 13, T 4. Partial retouch along butt on left edge of point. Point broken off at distal end. Bulb of percussion present. Made from double-ribbed blade. Most probably Campbell's AC1 type.

67. (254). L 34 remaining, B 13, T 3. Partial retouch on right edge of point. Tip of point broken off at distal end. Bulb of percussion present. Use-retouch bottom left along butt. Made from single-ribbed blade.

68. (302). L 33 remaining, B 15, T 2. Partial retouch on left edge near butt. Point broken off at distal end. Bulb of percussion present. Extensive use-retouch along medial part of right edge of point. Made from double-ribbed blade. Butt fragment probably Campbell's AC1 type.

69. (305). L 31 remaining, B 11, T 4. Partial retouch right edge of point. Distal point. End of butt with bulb of percussion broken off. Made from single-ribbed blade.

70. A10 $\frac{1}{2}$ -11. (*cf.* joint no. 47 in table 1). L 42, B 12, T 2. Partial retouch on left edge of point near point and butt. Distal point. Bulb of percussion present. Point was recovered on three separate fragments, the maximum distance (three-dimensionally between any two of the fragments being c. 10 cm. Fractured presumably during the period of habitation or after that due to soil movements or frost splitting. Made from single-ribbed blade. The only complete Creswellian point from the later excavation of June, 1984 (from section J5, *cf.* distribution map, fig. 6).

To sum up, the following features can be compared in the seventy above-mentioned Creswellian points, some of which are still complete. When retouching was carried out, there was a slight preference for the left edge of the blade (41 times); 29 blades had been retouched on the right edge. The numbers of points with single ribbing or double ribbing do not differ very much: 33 double-ribbed as against 36 single-ribbed. There was apparently a preference for partial retouch as this is the case with 58 specimens, so that Campbell's AC1 type proves to be represented 6 times as often as the AC2 type, of which only 12 specimens occur. Only 4 specimens had been exposed to burning. The average length of 46 still undamaged Creswellian points (5.2.2.)

was 44.1 mm. Figure 12 shows a comparison of the lengths of these complete points with those of undamaged, un-retouched blades.

It appears from the graph that the length of the un-retouched blades is shorter than that of blades which were retouched as points. According to Arts and Deeben (1981), who made the same observation for the Late Palaeolithic material from Vessem, this difference may have been even greater if we remember that a certain decrease in length may have occurred previously due to the commonly occurring oblique truncation. Another explanation

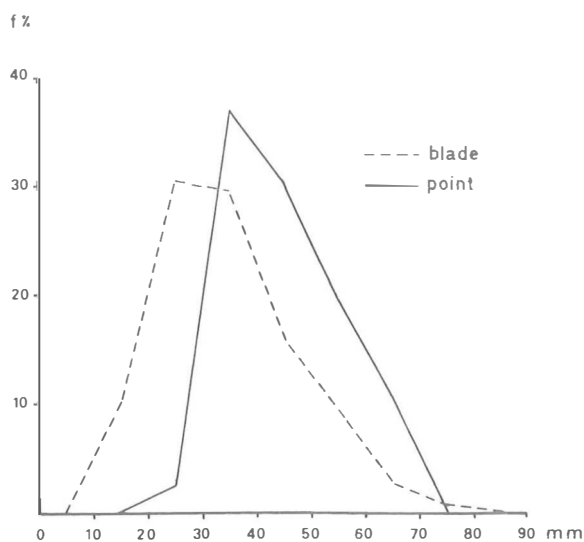


Fig. 12. Siegerswoorde II. Comparison between the lengths of complete un-retouched blades (broken line, N=105) and of still complete Creswellian points made from blades (continuous line, N=46).

could be that a proportion of the still usable core pieces and blades were taken somewhere else. In addition to the practically complete specimens, a large number of fragments of probably the same type of fragments were also found (*i.e.* Creswellian AC1 or AC2 type); they can be subdivided on the basis of type of fragment as follows:

Butt fragments: a total of 46 butt fragments, 16 of them burnt; 22 were single-ribbed, 21 double-ribbed. In 24 fragments part of the edge of the blade was retouched; 22 show continuous retouch which may previously have been partial on the complete artefact.

Medial fragments: a total of 22 medial fragments, 18 of them burnt. The ratio of single-ribbed/double-ribbed is 16/6 and the retouching is certainly partial on 12 of the fragments.

Point fragments: a total of 26 point fragments, 13 of them illustrated in figure 11: 47-59, all with so-called oblique truncation. They include 12 burnt pieces, and the ratio single-ribbed/double-ribbed is 16/9 (1 dorsal surface being plano-convex in shape). Some fragments could better be called blade fragments with oblique truncation.

Point-medial fragments: 4 specimens, probably of the AC1 type: SWII 250, SWII 20, SWII 212+72 and SWII 163.

Finally, a number of points whose shape differs from that of the above should be mentioned:

SWII 166. L 35, B 6, T 2. Partial retouch along right edge, medial part of blade in the form of a notch. Backing from the dorsal side. Made from single-ribbed blade (Campbell's FDI type).

SWII 252. L 35 remaining, B 10, T 3. Partial retouch on right edge near point and butt and bottom left near butt. Distal point (tip broken off). Bulb of percussion and base of butt missing. Made from single-ribbed blade (Campbell's AC3 type?).

SWII 83. L 35 remaining, B 11, T 3. Oblique truncation on both edges of the proximal part and partial retouch top right near distal end. Bulb of percussion absent due to retouching. Made from double-ribbed blade (Campbell's AC3 type?).

SWII 244+507 (joint no. 19 and illustrated in fig. 11:46). L 43 remaining, B 11, T 3. Oblique truncation bottom left near proximal end. Bulb of percussion removed. Tip broken off, medial retouch to halfway along and also oblique truncation on right edge near distal end. Made from double-ribbed blade.

5.2.3. *Obliquely truncated blades (Campbell's AA1 type)*

SWII 99. Fig. 11:40. L 46 remaining, B 9, T 4. Blade obliquely truncated at proximal end, bulb of percussion thereby removed. Light use-retouch on right edge. Made from double-ribbed blade.

SWII 97. Fig. 11:41. L 38 remaining, B 11, T 4. Oblique truncation at proximal end, top left in illustration. Bulb of percussion. Light use-retouch on both edges of blade. Made from single-ribbed blade.

SWII 61. Fig. 11:42. L 35 remaining, B 10, T 4. Oblique truncation on left at distal end, proximal part with bulb of percussion broken off. Made from double-ribbed blade.

SWII 62a+b. Fig. 11:43. (*cf.* joint no. 39 in table 1). L 36, B 8, T 2. Oblique truncation at distal end, top right in illustration. Bulb of percussion present. Use-retouch on both edges of blade. Made from double-ribbed blade.

SWII 210. Fig. 11:44. L 33 remaining, B 8, T 2. Oblique truncation on left at proximal end of blade. Bulb of percussion removed. Distal end broken off. Made from single-ribbed blade. Fits SWII 126, *cf.* joint no. 20 in table 1; fig. 9:8.

SWII 53. Fig. 11:45. L 32, B 13, T 3. Oblique truncation on left at distal end of blade. Bulb of percussion present. Made from single-ribbed blade.

SWII 81. Fig. 13:4. L 50, B 16, T 4. Oblique truncation on right at distal end of blade. Bulb of percussion present. Made from double-ribbed blade. Near truncation top left, on dorsal edge, there is a sort of 'bec', formed by fine retouching.

Not illustrated specimens:

SWII 232. L 34, B 11, T 6. Oblique truncation at distal end. Bulb of percussion present. Made from double-ribbed blade which belongs to the group of 'core correction blades'.

SWII 82. L 39, B 8, T 3. Oblique truncation at distal end of blade. Bulb of percussion present. Made from double-ribbed blade.

SWII 267. L 30 remaining, B 15, T 3. Oblique truncation at distal end of blade. Proximal end with bulb of percussion broken off. This truncation is serrated. Made from double-ribbed blade.

SWII 470. L 35 remaining, B 11, T 3. Oblique truncation at distal end of blade. Tip broken off. Bulb of percussion present. Use-retouch along one edge of proximal part. Made from single-ribbed blade. *Cf.* joint no. 7 in table 1.

SWII 42. L 64, B 19, T 7. Oblique truncation at distal end of blade. Bulb of percussion present. Made from single-ribbed blade.

SWII 23. L 53, B 14, T 5. Oblique truncation at distal end of blade. Bulb of percussion present. Made from single-ribbed blade.

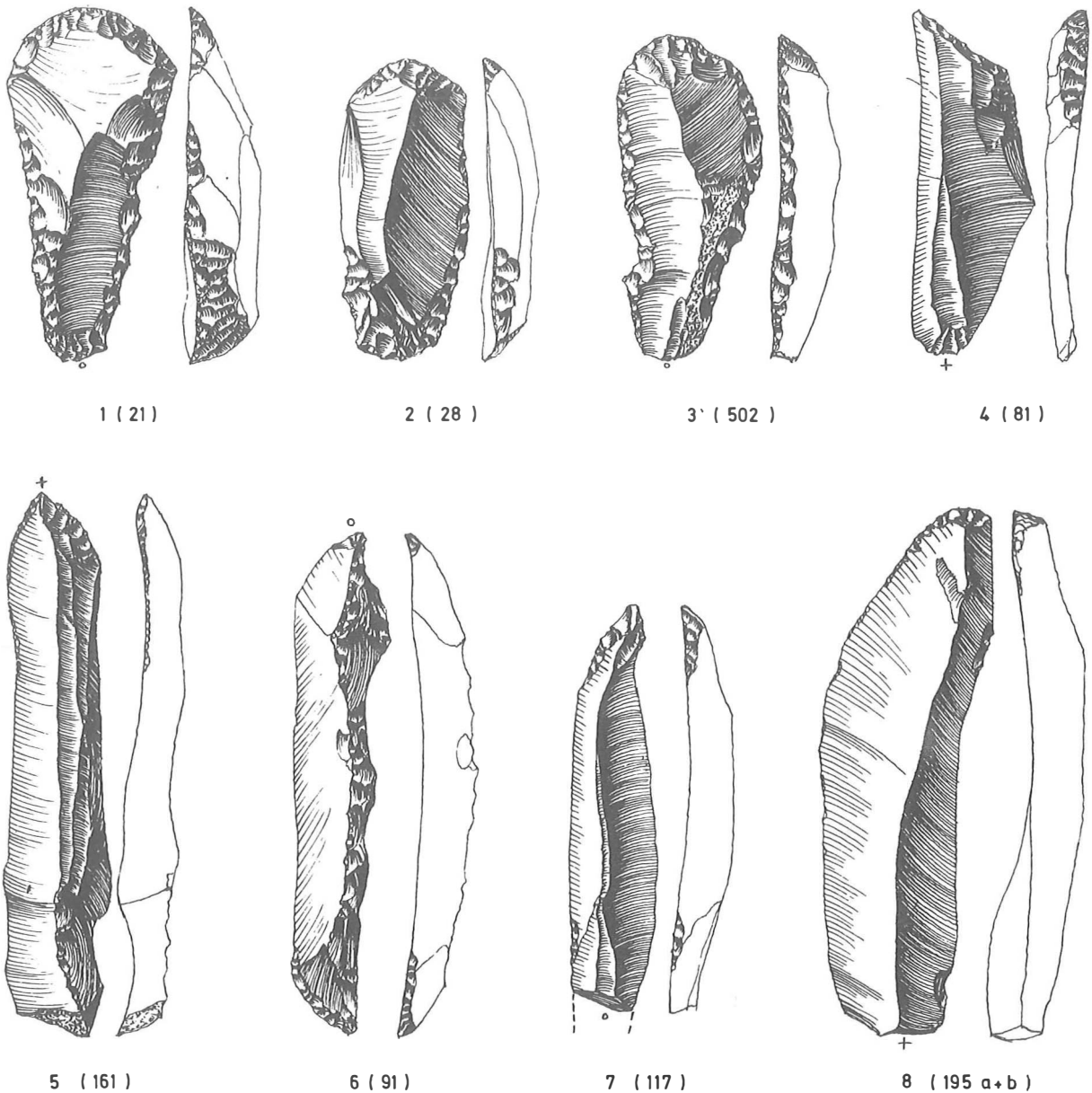


Fig. 13. Siegerswoude II. Flint artefacts: 1: double end-scraper; 2-3: end-scrapers from blade; 4: obliquely truncated blade; 5: blade; 6-7: *Zinken*-like tools; 8: retouched blade. The numbers in brackets indicate the inventory numbers.

SWII 307. L 50 remaining, B 12, T 7. Oblique truncation at proximal end of blade. Bulb of percussion removed. Made from double-ribbed blade.

SWII 164 + 556. L 53 remaining, B 11, T 5. Oblique truncation at distal end. Made from single-ribbed blade. Cf. joint no. 6 in table 1.

5.2.4. Scrapers

There are three convex end-scrapers, each made from a blade. The scraper in figure 13:1 can even be

called a double end-scraper: the angle of retouching at the end of the scraper, on the proximal edge of the blade, is rather acute. In all three of the specimens both edges were also retouched. The end-scraper in figure 13:3 shows a number of notches on both edges. The scraper angles measured were as follows: SW 21 (fig. 13:1) 45° and 65°, SW 28 (fig. 13:2) 55°, and SW 502 (fig. 13:3) 55°.

5.2.5. Borers or awls and Zinken-like tools

Four retouched artefacts, made from short, broad blades or flakes, were classified as borers or awls. All four were retouched from the ventral side on both sides of the apex. The apex of one of them is situated in the direction of the longitudinal axis of the blade. The other three artefacts are *Zinken*-like tools.

SWII 141. L 26, B 8, T 2. This specimen is quite comparable with Campbell's EB1 type.

SWII 227. L 27, B 11, T 3. Also resembles Campbell's EB1 type.

SWII 35. L 28, B 18, T 3. This specimen has two pointed projections at the distal end of a flake. One of the points is situated in the direction of the longitudinal axis of the flake, the second is almost perpendicular to it. Both tips are formed by retouched notches which meet at the ends.

SWII 503. L 22 remaining, B 6, T 2. Retouching at distal end of blade. The prong thus formed has a triangular cross-section. Proximal end broken off. Made from single-ribbed blade. Campbell's EA1 type.

SWII 110. L 27, B 10, T 3. The apex was formed by continuous retouch on both edges. Since the retouching extends on both edges along the entire length of the blade, this might be called a Kremser point, after Schwabedissen (1954: Abb. 5, p. 17).

SWII 117 (fig. 13:7). L 58 remaining, B 12, T 8. Distal end retouched along one edge producing, as it were, a *Zinken*-like 'bec' which tapers off to a point.

SW 91 (fig. 13:6). L 73, B 11, T 7. This specimen, made from a core preparation blade, shows a *Zinken*-like 'bec' on both proximal and distal ends.

5.2.6. Burins

SWII 189 (fig. 15:1). The largest specimen is a multiple RA-burin or truncation burin. Both ends of a large, bilaterally retouched blade were truncated by retouching; a burin edge was made with flakes on either side of the retouching at both the distal and proximal ends (cf. fig. 14). The negatives of a total of 7 burin spalls can still be observed (four primary and three secondary); three burin edges were secondarily renewed. The present widths of the burin edges are 4.5, 3, 5 and 4 mm, and the burin angles vary from 80°, 85°, 95° to 110°. Comparable specimens are rare in the literature; one of them, from le Cirque de la Patrie at Nemours near Paris, is illustrated in A. Leroi-Gourhan *et al.* (1976). According to the authors, this type is characteristic for the so-called *Périgordien supérieur*.

SWII 88 (fig. 15:2) is a good example of a so-called double-sided burin (AA-burin or dihedral burin). The burin was made from a core remnant; the width of the burin edge is c. 6 mm and the burin angle 85°.

SWII 10 (fig. 15:3). This RA-burin seems to have been made from a natural frost-split flake. Part of its side was re-retouched, probably to improve the grip. The width of the burin edge is c. 1 mm, which is enough to indicate that this specimen should rather be regarded as a burin plan. The burin angle is 90°.

SWII 58b (fig. 15:4). A blunt, single RA-burin, whose corresponding spall (SW 58a, cf. joint no. 1 in table 1) was recovered. This burin, too, was made from a retouched blade, like figure 15:1. The burin spall was reworked along practically the full length of the back, which presumably means that a very particular shape and length of the spall had been chosen (cf. Bohmers *et al.*, 1961: p. 138). The width of the burin edge is 1.5 mm and the burin angle 95°.

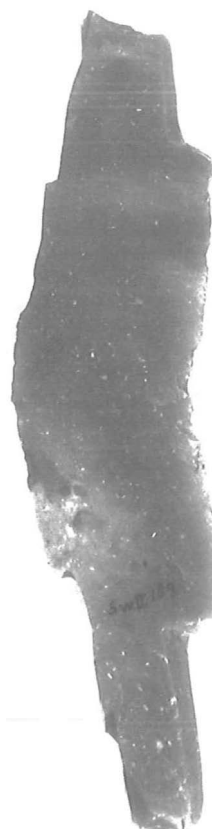


Fig. 14. Multiple burin SW 189, cf. also fig. 15:1. Photo M. de Bie.

SWII 121 (fig. 15:5). On first sight closely resembling a bow burin (*burin busqué*), a type already known from the much older Aurignacian (Wouters, 1981). In the production of characteristic specimens the first thing that was done, after preparation of the plane of percussion, was striking off a burin spall. Then a so-called encoche was applied to the opposite side and small lamellae (small burin spalls) were struck off the first burin spall negative in the direction of the encoche. The encoche here, though, cannot be clearly seen, nor do the small burin spalls extend very far. The burin was made from a core renewal piece, the width of the burin edge is c. 4.5 mm, and the burin angle 90°.

SWII 73 (fig. 15:6). This specimen is presumably an AA-burin (dihedral burin). This burin was made from a natural frost-split flake. It is difficult to determine the width of the burin edge (several small spalls meet from different angles): at a rough estimate c. 4-5 mm; burin angle c. 45°.

5.2.7. Retouched blades, flakes and blocks

The artefacts SWII 203, 166 and 161 (fig. 13:5) can be mentioned as examples of retouched blades. SWII 89 is a retouched block, which may have served as a plane. The large blade SWII 195 a+b (fig. 13:8) shows traces of retouching at the distal end.

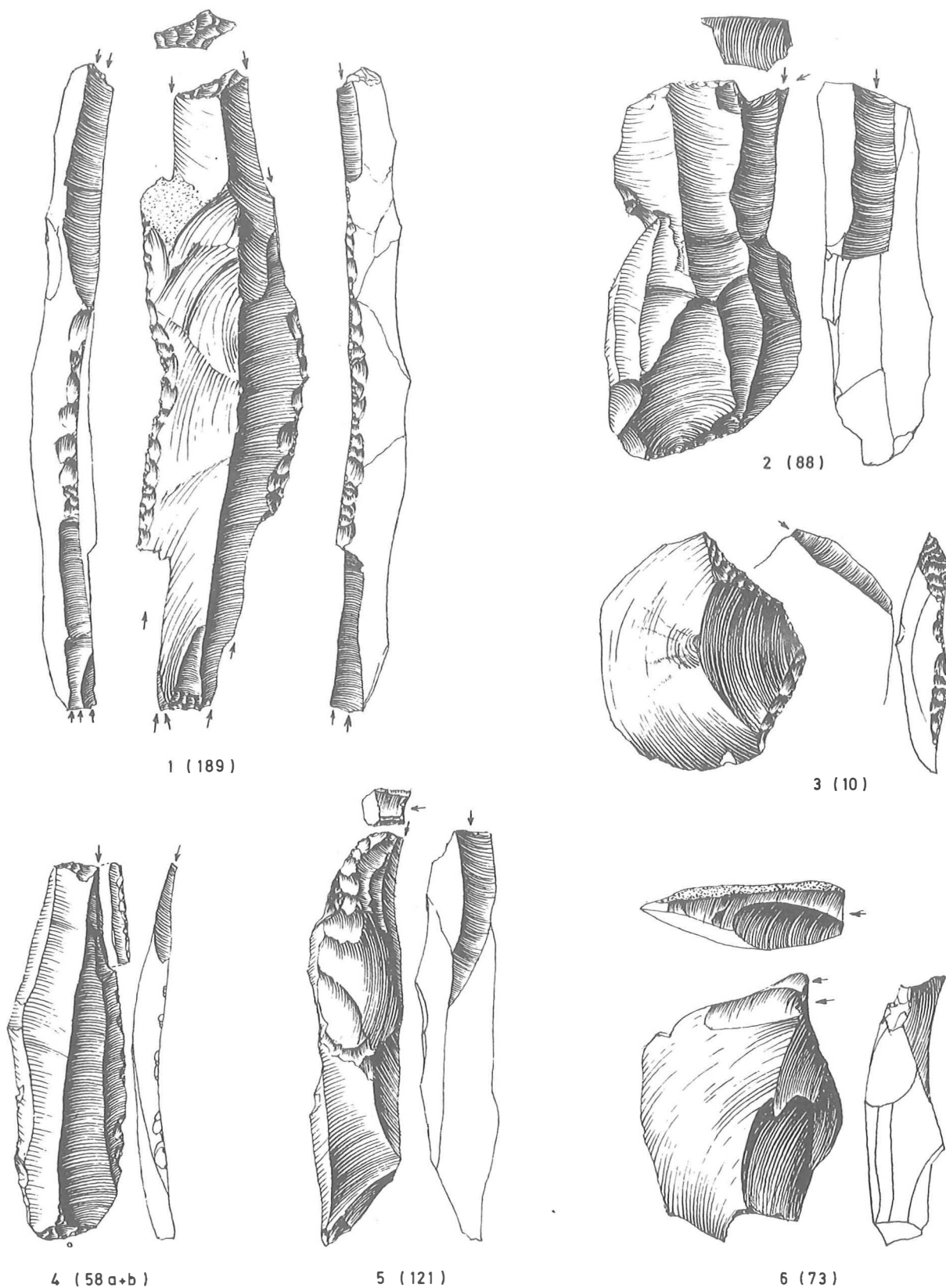


Fig. 15. Siegerswoude II. Flint artefacts: 1: multiple RA burin; 2: AA-burin; 3: RA burin; 4: RA burin; 5: burin *busqué*; 6: AA burin. The numbers in brackets indicate the inventory numbers.



Fig. 16. Distribution of the most important Creswellian sites. The shaded area indicates the extent of the North Sea and the English Channel during the Late Glacial (after Schwabedissen, 1954). open square: excavated 'open-air' sites: 1. Siegerswoude, 2. Zeijen, and 3. Hengistbury Head; closed circle: 'cave' sites: 4. Dead Man's cave, 5. Mother Grundy's Parlour, 6. Robin Hood's cave, 7. Gough's cave and 8. Presles. open circle: surface collections of 'open-air' sites: 9. Drunen, 10. Meerlo-Wanssum, 11. Kessel, 12. Neer II, 13. Lommel and 14. Hohenholz, near Steinhude.

6. FINAL REMARKS

The subject of possible contacts among Late Glacial groups in England and on the Continent has been extensively dealt with in the literature (Schwabedissen, 1954; Collcutt, 1979). We should always bear in mind that c. 120,000 km² of the then partly dry North Sea basin (fig. 16) were later flooded. It is possible that over this huge area, practically unknown and inaccessible territory for the archaeologist, there were contacts among various population groups and flint traditions. It is Collcutt's opinion that the origin of the British Later Upper Palaeolithic tradition is to be found on the continent, possibly in the Magdalenian, in an ex-

pansion after c. 16,000 B.P. There is, for example, a remarkable resemblance between two harpoons from Kent's Cavern and specimens from the Magdalenian in France.

In order to give an impression of the Creswell tradition on both sides of the North Sea, the relevant sites are shown in figure 16, based on data in Campbell (1977) and Wouters (1982). Campbell mentions more than 30 so-called Late Upper Palaeolithic sites with Creswellian points. From them, we have included only those sites which yielded 5 or more Creswellian points. The map suggests that the Creswell tradition originally had a continuous distribution area on both sides of the southern North Sea region.⁸

7. ZUSAMMENFASSUNG

Der Creswellienfundplatz Siegerswoude II liegt auf dem nördlichen Ufer des kleinen Flusses Boorn auf einem Flugsandrücken, etwa 5 m über dem Meeresspiegel. Das Werkzeuginventar enthält mehr als siebzig komplette Spitzen, nur drei Schaber und auch nur sechs Stichel. Neben Flintsplintern, Feuersteinabschlägen und sehr viel Klingen und Klingbruchstücken, liegen trotzdem nur drei Kernsteine vor.

Die Feuersteinfunde, begleitet von einigen kalzinieren Knochensplinterchen und einem winzigen Stückchen Hematit, lagen stark konzentriert auf einer kleinen Oberfläche zusammen, wie das auch der Fall war bei Hohenholz bei Steinhude (Niedersachsen). Das Fehlen von Herdstellen und anderen Bewohnungsspuren macht es wahrscheinlich, dass man sich hier während der Jagd nur sehr kurz aufgehalten hat. Bemerkenswert sind zwei Gruben. Grube I hatte ein Durchmesser von 2½ m und eine Tiefe von 1.30 m und die Feuersteinfunde waren zum Teil in die Grube hineingeglitten. Die zweite Grube hatte einen Durchmesser von 2 m, war 1 m tief und praktisch fundleer. In der Füllung war ein sekundärer Frostriss aus der jüngeren Dryaszeit. Diese Tatsache macht es deutlich, dass die Jäger von Siegerswoude II hier nicht nach der Jüngeren Dryaszeit gewesen sein können. Es ist wahrscheinlich, dass sie sich hier während der Allerødzeit, d.h. irgendwann zwischen 11.800 und 11.000 vor heute, aufgehalten haben.

8. NOTES

1. The co-ordinates of the site Siegerswoude II are 209.35/566.58 (map sheet 11E, Drachten). The name Siegerswoude I was given to a Mesolithic site in the immediate neighbourhood which was investigated by Bohmers in 1956. The site called Siegerswoude 11B by Wouters (1982) comprises material that originates from the site (SWII) described here (letter from A. Wouters to P. Houtsma dated 10th April, 1986) and is spread over several private collections.
2. Permission for the excavation was given in 1962 by the then owner, Mrs. A.C. Bruyel-Loopstra, Delft, for the excavation in 1984 by the new owner, Staatsbosbeheer (the State Forestry Service). We are very grateful to both. We would also like to thank P. Mudstra, S. Voordewind, K.H. Looijenga and R. Nolles who helped with the excavation in 1962, and N.W. Manshanden, J.K. Boschker and D.M. Visser (all employed by the Frisian Museum, Leeuwarden) who assisted in the 1984 excavation.
3. Wouters (1982) illustrated seven artefacts from the material excavated from Siegerswoude II in 1962, viz. the pieces SWII 34, 149, 85, 98, 87, 12 and 21. His illustrations numbered figs. 6:2, 6:4, 6:5, 6:6 and 6:7 and figs. 7:21 and 7:25 correspond with our figs. 9:10, 10:33, 9:4, 10:21, 10:31, 9:1 and 13:1, respectively.
4. In 1962 charcoal samples were collected from a hearth and two shallow depressions ('sunken huts'), associated with the Mesolithic habitation layer. These samples were submitted by R.R. Newell, and were dated: 7465±50 B.P. (GrN-6460), 7535±45 B.P. (GrN-6455) and 8620±80 B.P. (GrN-6470). Hearth and depressions are *not* indicated on the here published plan of the excavation. The radiocarbon dates seem to indicate that at least two periods of Mesolithic activity at the spot were involved.
5. On 17th December, 1984, Dr. W. van Zeist wrote to us as follows: "From the pollen spectrum it appears that the herb pollen outnumber the tree pollen. Grasses and *Cyperaceae* (sedges and cotton grass) are the predominant types of herb pollen: *Artemisia* is fairly well represented. *Pinus* accounts for far and away the highest percentage of tree pollen".
6. Newell (1973: p. 429, note 4) and, after him, Lanting and Mook (1977: p. 22) report that Creswellian artefacts were found on top of an Usselo Layer in Siegerswoude II. This is obviously based on an incorrect interpretation of the find context of the artefacts in pit I.
7. The artefacts collected in 1962 and 1984 are in the collection of the Frisian Museum in Leeuwarden. Only recently it became known that in 1962 some artefacts were given to Mrs. Bruyel-Loopstra. These and the artefacts in the private collections SW IIB mentioned in note 1 were not included in this study.
8. This paper was translated into English by Mrs. and Mr. Van der Meulen-Melrose.

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Figs. 6, 7a-c can be found in the fold at the back of this volume.