Reassessing Chronostratygraphic Position of the *Split Rock Site*, Sinai

Michal Kobusiewicz, Romuald Schild, Andrzej Bluszcz, and Fred Wendorf

---

Michal Kobusiewicz: Instytut Archaeologii i Etnologii, Polska Akademia Nauk., Zwierzyniecka 20, PL-60-814 Poznań

Romuald Schild: Instytut Archaeologii i Etnologii, Polska Akademia Nauk., Al. Solidarności 105, PL-00-140 Warszawa

Andrzej Bluszcz: Instytut Fizyki, Politechnika Śląska, ul. Krzywoustego 2, PL-44-100 Gliwice

Fred Wendorf: Department of Anthropology, Southern Methodist University, Dallas, USA-75-275 Texas

Reassessing Chronostratygraphic Position of the *Split Rock Site*, Sinai

Michal Kobusiewicz, Romuald Schild, Andrzej Bluszcz, and Fred Wendorf

Abstract – In 1996 the Middle Palaeolithic *Split Rock Site* has been excavated by the *Combined Prehistoric Expedition*. By chance of a rockfall, the site has been protected from total destruction by erosion. Two Archaeological Horizons were detected. According to their techno-typological indices both assemblages can be associated with the denticulate Mousterian of the Nubian Nile Valley. The Age of the Lower Archaeological Horizon coincides with the reappearance of the Neandertals in the Near East.

Keywords – Near East, Middle Palaeolithic, Mousterian, Neandertals.

Zusammenfassung – Der mittelpaläolithische Siedlungsplatz *Split Rock Site* wurde 1996 von der *Combined Prehistoric Expedition* ausgegraben. Einem Felssturz ist es zu verdanken, daß der Fundplatz vor der totalen Zerstörung durch Erosion bewahrt worden ist. Es wurden zwei mittelpaläolithische Horizonte entdeckt. Die technologisch-typologischen Merkmale der Steinartefakte verbinden die beiden Inventare mit dem *denticulate Mousterian* des nubischen Niltals. Das Alter des unteren archäologischen Horizontes läßt sich mit dem Wiedererscheinen des Neanderthalers im Nahen Osten korrelieren.

Schlüsselwörter – Naher Osten, Mittelpaläolithikum, Moustérien, Neanderthaler.

Introduction

In the fall season of 1996 the Combined Prehistoric Expedition (EDDY & WENDORF 1999) excavated a Middle Palaeolithic site, Sinai 20 or *Split Rock Site*, on the left bank of the Wadi El Mazeyh headwaters, that flows into Wadi Madibah, a tributary of Wadi Girafi (Fig. 1). Sinai 20 is at the foot of Gebel Khasem El Tarif, about 1 km south of the highway from Taba to Suez at an elevation of 750 m above mean sea level (KOBUSIEWICZ 1999; SCHILD 1999, 324). The site was subjected to systematic excavations (Fig. 2). It yielded over 24 thousands of flint artefacts. No organic materials have been preserved except for 19 small pieces of ostrich eggshells found in both horizons. It is the only Middle Palaeolithic site ever excavated in the Sinai. Two recently measured by Andrzej Bluszcz TL samples gave the ages that permit relatively secure chronological placement of this interesting site.

Geomorphology and Lithostratigraphy

The site lies on a small remnant in the form of a peninsula stretching out to the east from Gebel Khasem El Tarif (Fig. 2) bordered on the northeast and southwest by deeply incised wadis. The floors of these wadis cut into the Melha, Lower Cretaceous sandstone and are 4 to 5 m below the surface of the site.

Four stratigraphic trenches excavated at the *Split Rock Site* reveal a sequence of coarse slope deposits (Beds 2-7) resting on a truncated (Bed 1) Melha sandstone (Fig. 3). Down the slope, the coarse colluvial suite is, in turn, truncated down to Bed 2 by a younger wadi channel filled up by alluvial gravel, sand and silts (Beds 8-10). The surface of the alluvia and the slope sediments show traces of a pink, fine silty sand in desiccation cracks, a remnant of a subrecent soil (Bed 11). The youngest wadi channel filled with a series of alluvial deposits made up of boulders, gravel, sands and silts (Beds 12-14), resting on the bedrock, ends the sedimentary sequence at Site 20 (SCHILD 1999, 324-326).

Two major horizons of Middle Palaeolithic finds are recorded at the site (Fig. 4 and 5). The redeposited and considerably rolled flint artefacts of the Lower Archaeological Horizon occur throughout the bedded pebbles, gravel and sand of the slope wash of Bed 2. The materials of the Upper Archaeological Horizon, on the other hand, are embedded in the

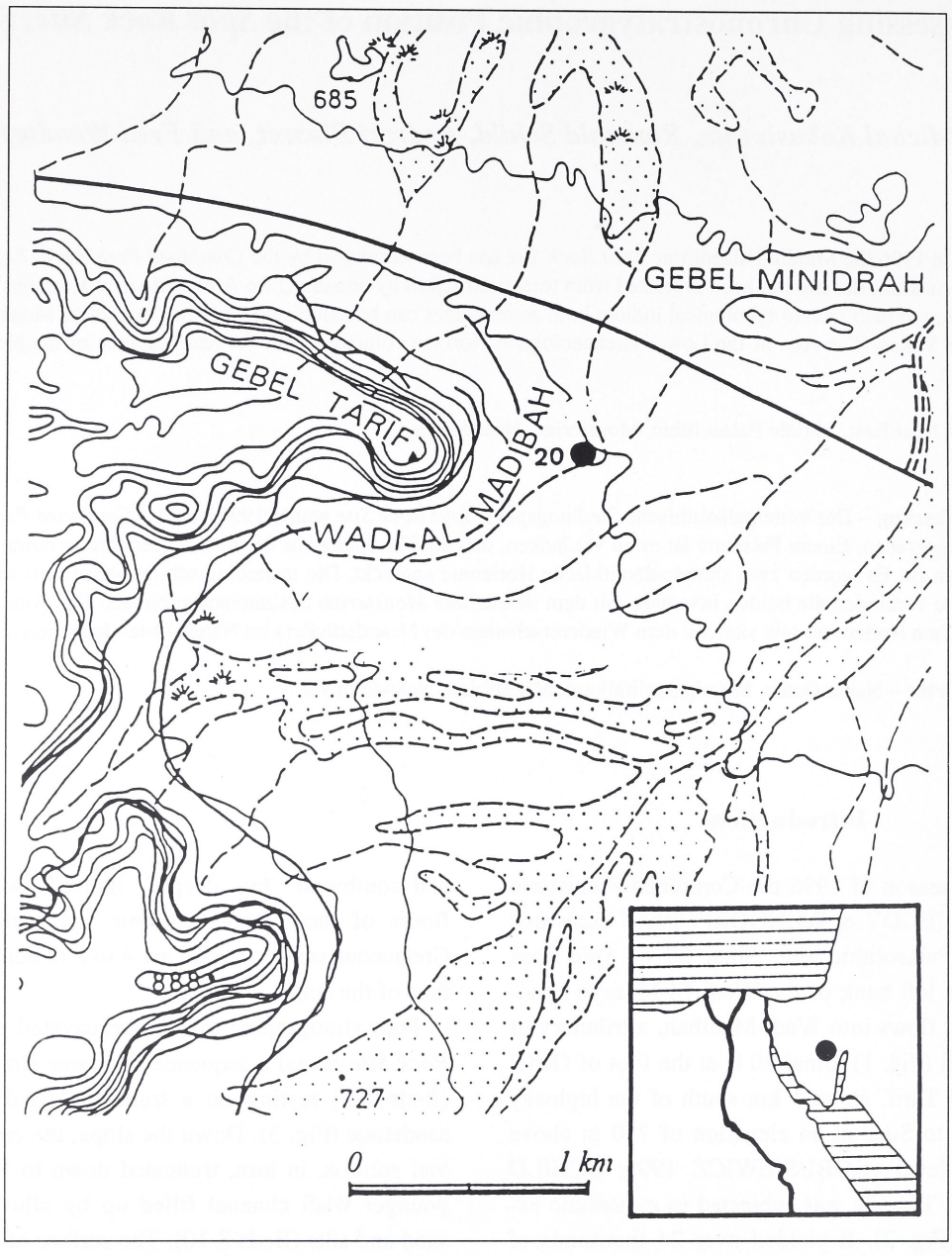

Fig. 1 *Split Rock Site* (Sinai). Location of Site.

entire depth of the lowermost, gravely deposit (Bed 8) of the older wadi suite. The upper beds of the same suite (Beds 9 and 10) also contain abraded, Middle Palaeolithic artefacts as well as semi-fresh pieces of Upper Palaeolithic appearance.

Two TL age estimates on quartz grains have been obtained for the Lower and Upper Archaeological Horizons. The lower one, from near the base of Bed 2, gave an age of 85.4 +/- 13.0 ka (GdTL-543). The upper estimate of 61.5 +/- 8.6 ka (GdTL-542) is from the middle of Bed 8. It is obvious that these TL age estimates date the time of the redeposition of the archaeological materials at Site 20.

The TL ages for the sediments containing derived archaeological materials should be associated with periods of high-energy deposition, presumably under arid or semi-arid conditions. The older is most clearly coeval with Stage 5b and the cold spell of Rederstall. The younger, seem to fit very well into the upper series of cold pulsations of Stage 4. It is, therefore, very likely that the archaeological occupations of Lower Horizons took place in the

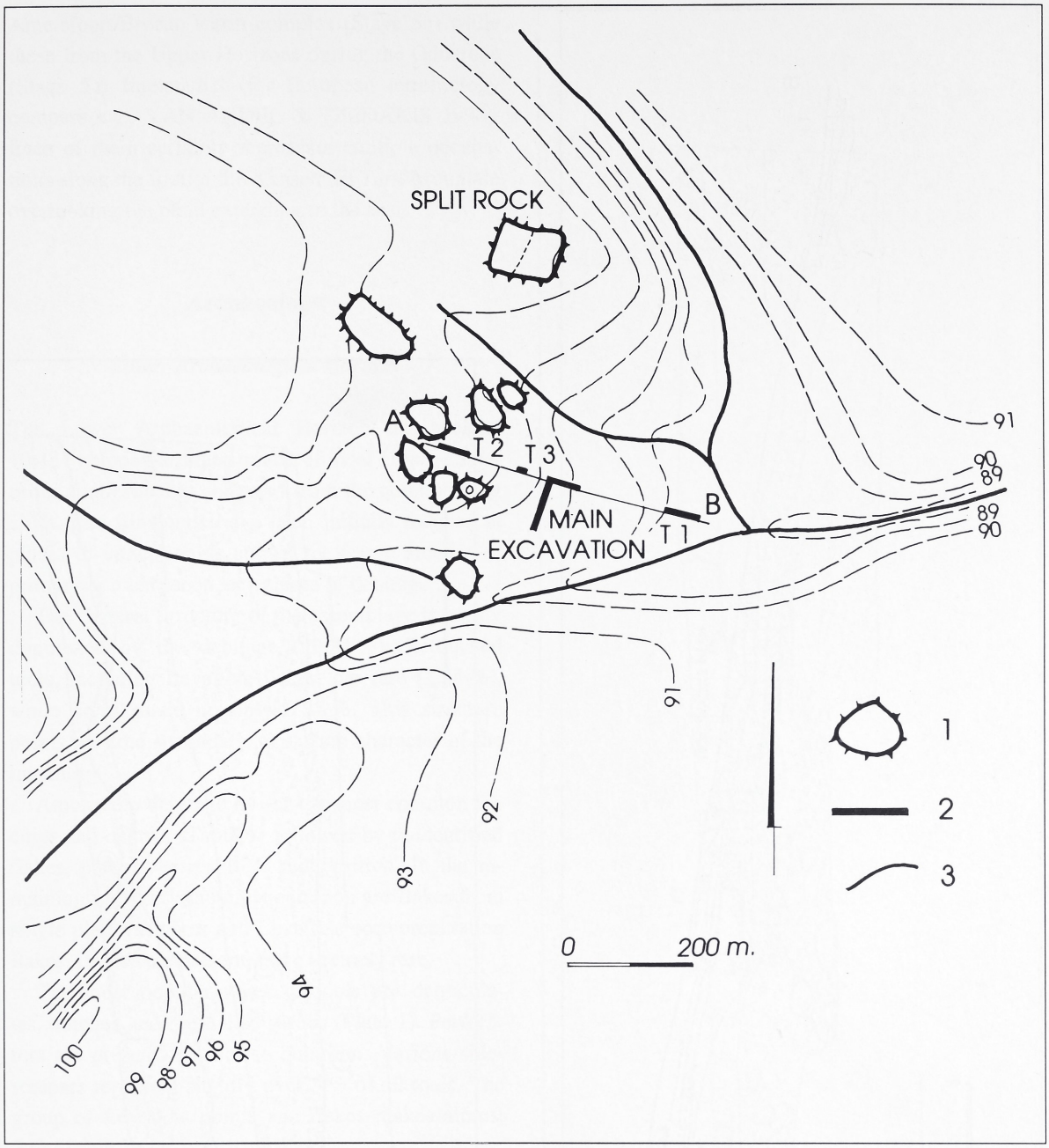

Fig. 2 *Split Rock Site* (Sinai). Contour map showing morphological features.
1 blocks of dolomitic sandstone, rockfall; **2** trenches; **3** wadi beds.

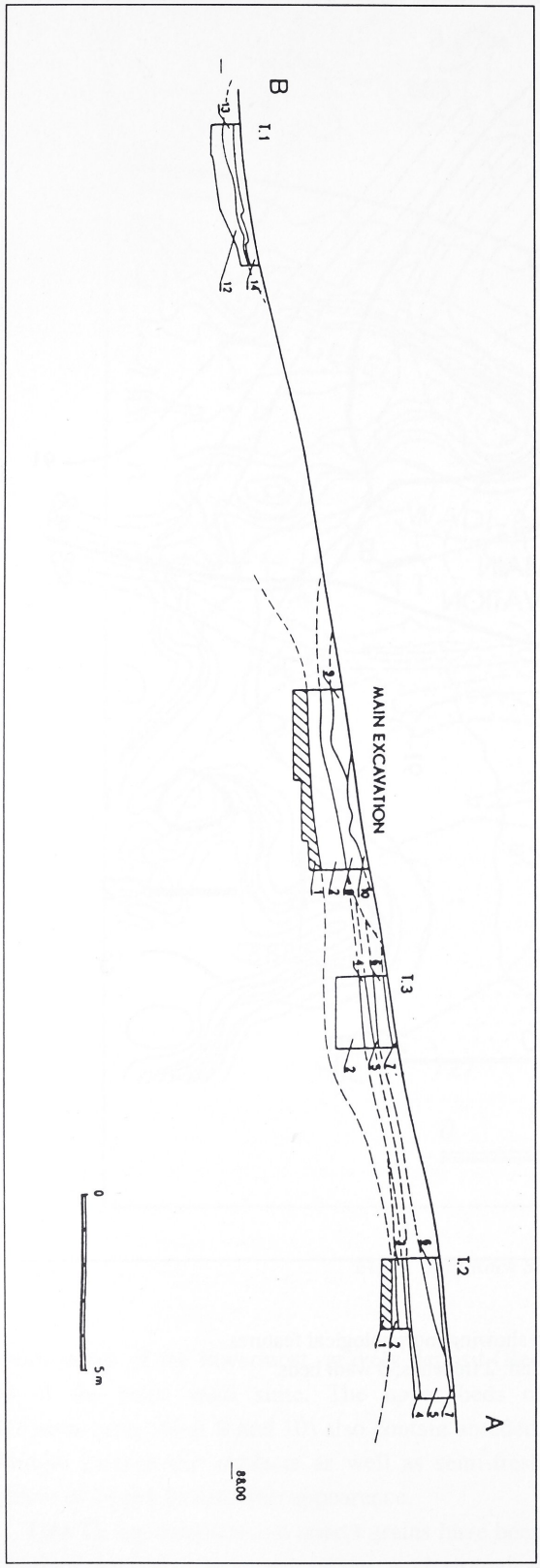

Fig. 3 *Split Rock Site* (Sinai). Cross-section showing stratigraphic setting of beds.

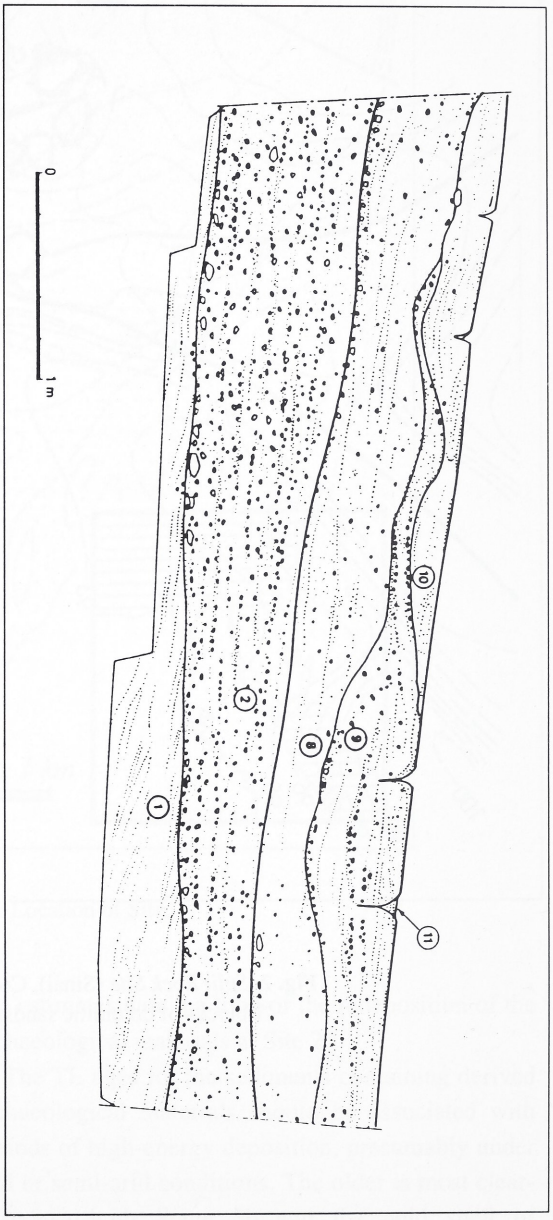

Fig. 4 *Split Rock Site* (Sinai). Cross-section along Row A/1 - E/1, Main Trench, northernn wall. **1** Sandstone; **2** alluvial deposits; **8-10** wadi gravel; **11** sediment-filled drying crack.

Amersfoort/Brørup warm complex (Stage 5c) while these from the Upper Horizons during the Odderade (Stage 5a) Interstadial (for European terminology compare e.g., VAN ANDEL & TZEDAKIS 1996). Each of them certainly represents multiple occupations along the foot of the Khasem El Tarif Mountain overlooking the plain extending to the east.

Archaeology

Lower Archaeological Horizon

The Lower Archaeological Horizon has yielded 10,431 chipped artefacts made of local Upper Cretaceous flint probably collected from the neighbouring cliffs. The flint must have been initially reduced at places of collection as shown by scarce amount of primary or even secondary pieces of debitage.

The General Structure of the assemblage is highly dominated by the debitage (97.34 %). Retouched tools, including Levallois flakes, are rare (2.34 %), while cores make up only 0.32 %. This structure points out to a secondary workshop character of the inventory.

Among the debitage by far the most common are chips and chunks (Table 1) followed by unidentified flakes, partially a result of redeposition. In the remaining inventory the most common are flakes from single platform cores and Levallois core preparation flakes. Blades are present, but extremely rare.

The most popular types of tools are denticulates, notches and retouched pieces (Plate 1). Perforators are present, but not so common. Various sidescrapers represent slightly over 3 % of all tools. The group of Levallois points and flakes makes almost 5 % (Table 2).

The debitage, the tools structure and the typological /technological indices of the assemblage (Table 4) suggest an association of the inventory with the Musteroid denticulate variant of Middle Palaeolithic, rather close to that known from Nubia (MARKS 1968).

Upper Archaeological Horizon

The Upper Archaeological Horizon produced 5,057 flint artefacts. The assemblage is again dominated by

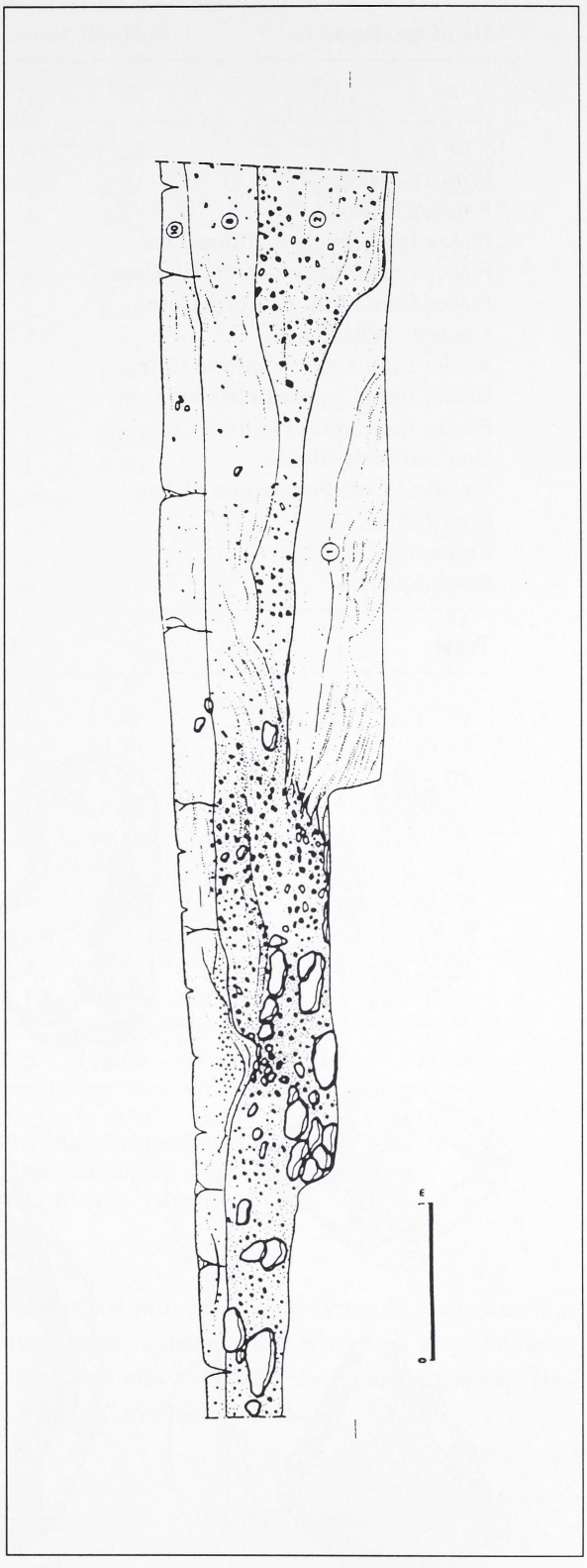

Fig. 5 *Split Rock Site* (Sinai). Cross-section along Row A/8 -A-1, Main Trench, western wall (see key on Figure 4).

Debitage Type	Lower Horizon		Upper Horizon	
	N	%	N	%
Primary Flakes	100	0.98	76	1.56
Primary Blades	-	-	5	0.10
Flakes from Single Platform Core	154	1.51	30	0.61
Flakes from Ninety-degree Plf. Core	6	0.06	1	0.02
Flakes from Multi Platform Core	33	0.32	-	-
Unidentifiable Flakes	571	5.62	256	5.28
Blades from Single Platform Core	8	0.08	11	0.02
Blades from Opposed Platform Core	-	-	2	0.04
Blades from Multi Platform Core	2	0.02	-	-
Unidentifiable Blades	6	0.06	-	-
Levallois Core Preparation Flakes	124	1.22	201	4.15
Core Tablets	-	-	6	0.12
Chips and Chunks	9,148	90.11	4,256	87.80
Notch Spalls	-	-	2	0.04
Total	**10,152**	**100.00**	**4,842**	**100.00**

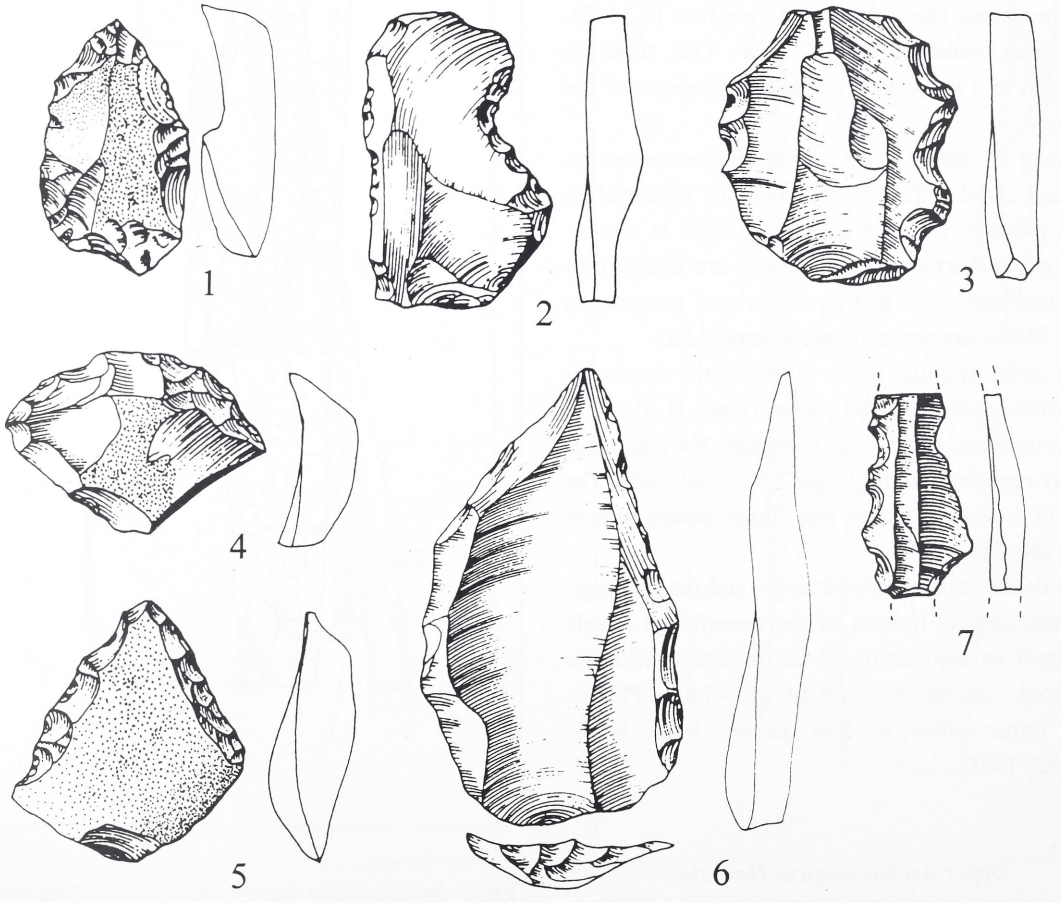

Plate 1 *Split Rock Site* (Sinai). Lower Horizon. **1** perforator; **2** notches; **3, 7** denticulates; **4** transverse convex side-scraper; **5** convergent double side-scraper; **6** Levallois point.

Tool Typ	Lower Horizon		Upper Horizon	
	N	%	N	%
Typical Levallois Flake	6	2.44	25	13.22
Atypical Levallois Flake	2	0.81	10	5.29
Typical Levallois Point	4	1.63	1	0.52
Side-scraper Simple Straight	-	-	1	0.52
Side-scraper Simple Convex	4	1.63	3	1.58
Side-scraper Convergent Straight	1	0.40	1	0.52
Side-scraper Convergent Convex	-	-	1	0.52
Side-scraper Double Straight	1	0.40	-	-
Side-scraper Double Concave Convex	-	-	1	0.52
Side-scraper Transversal Straight	1	0.40	1	0.52
Side-scraper Transversal Convex	1	0.40	3	1.58
Side-scraper Transversal Concave	-	-	1	0.52
Side-scraper Inverse	-	-	1	0.52
Side-scraper Atypical	-	-	4	2.16
Typical Perforator	19	7.75	1	0.52
Atypical Perforator	-	-	3	1.58
Truncation	-	-	1	0.52
Raclette	1	0.40	-	-
Notch	47	19.19	26	13.75
Denticulate	84	34.29	45	23.80
Bec	1	0.40	2	1.05
Piece with Inverse Retouch	11	4.48	2	1.05
Piece with Obverse Retouch	48	19.69	26	13.75
Piece with Alternating Retouch	5	2.04	4	2.16
Piece with Alternate Retouch	4	1.63	4	2.16
Tayac Point	-	-	4	2.16
Distally Notched Piece	4	1.63	5	2.64
Unidentifiable	1	0.40	13	6.87
Total	**245**	**100.00**	**189**	**100.00**

Table 2 *Split Rock Site* (Sinai). Absolute and Percentage Frequencies of Retouched Tools. The most common cores are the discoidal ones. Less common are single platform cores for flakes and the Levallois cores for flakes (Table 3).

the debitage (95.76 %). The tools including Levallois flakes account for 3.73 % while cores form 0.51 % of the total. The structure of the inventory is highly similar to the collection assembled from the Lower Horizon.

Again the debitage spectrum is extremely similar to the underlying level (Table 1). Similarly, the tool kit (Plate 2) is dominated by denticulated and retouched pieces (Table 2); however, the Levallois Group is here more prominent. In contrast to Lower Horizon, the most common type of core is the Levallois core for flakes (Table 3). This is mirrored in the indices (Table 4) showing a much higher proportion of the Levallois Group. It is obvious that the Upper Archaeological Horizon is very similar to the lower one, except for the more conspicuous presence of Levallois elements.

Conclusions

The Late Pleistocene geomorphology of the Sinai Peninsula is highly dominated by the processes of sediment removal; therefore, the archaeology of the *Split Rock Site* is so exceptional and of unique value. Although highly eroded, by chance of a rockfall, the

Core Types	Lower Horizon		Upper Horizon	
	N	%	N	%
Single Platform Core	5	14.17	4	15.38
Opposed Platform Core	3	8.82	2	7.69
Ninety-degree Platform Core	1	2.94	-	-
Unpatterned Multiplatform Core	3	8.92	3	11.53
Levallois Core for Flakes	5	14.70	10	38.49
Levallois Core for Points	-	-	1	3.84
Discoidal Core	9	26.50	2	7.69
Whole Pebble	1	2.94	-	-
Unclassifiable	7	20.58	4	15.38
Total	**34**	**100.00**	**26**	**100.00**

Table 3 *Split Rock Site* (Sinai). Absolute and Percentage Frequencies of Core Types.

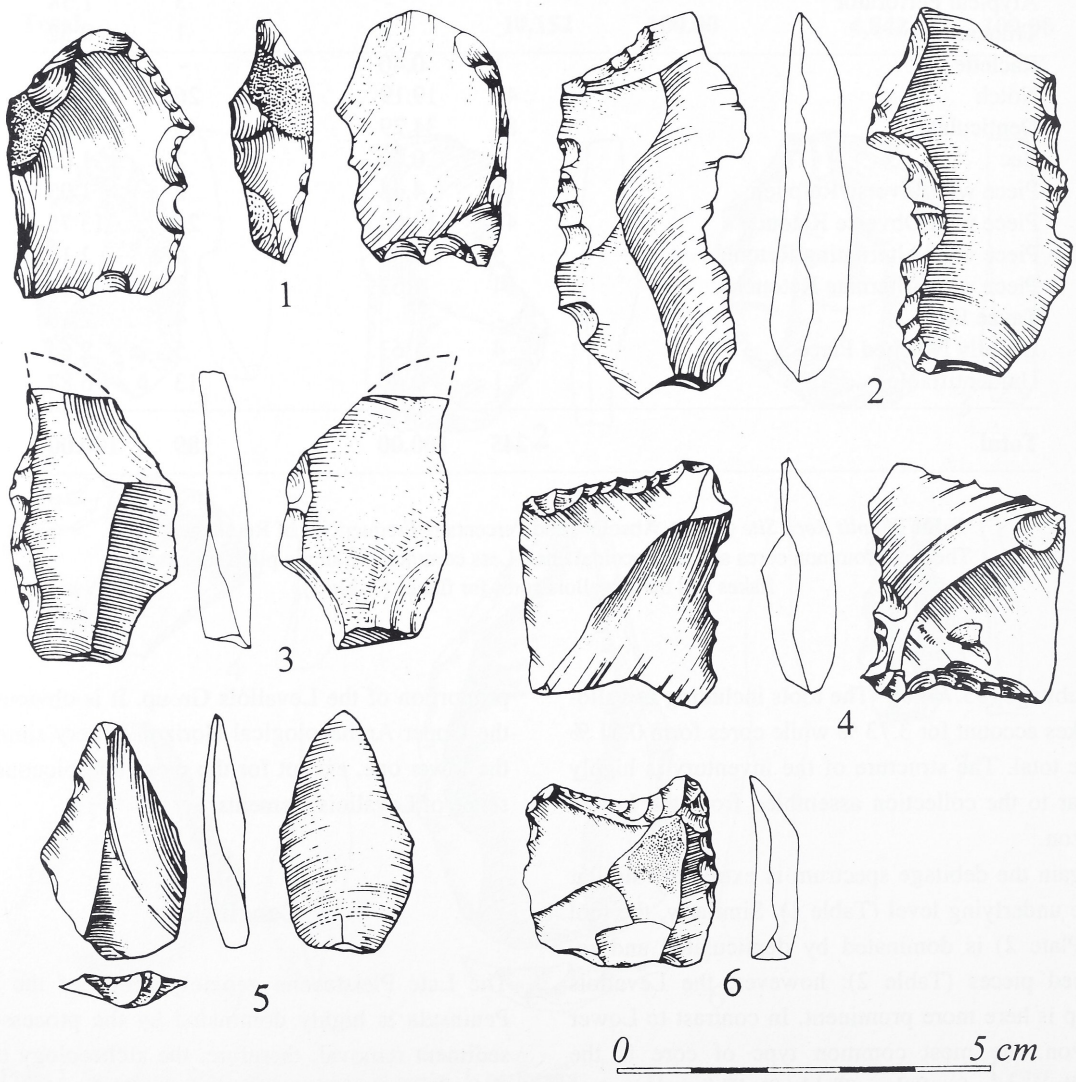

Plate 2 *Split Rock Site* (Sinai). Upper Horizon. **1-2, 4** denticulates; **3** side-scraper stright; **5** Levallois point; **6** notches.

Typological Indices								
	Lower Horizon				Upper Horizon			
	Number	Large	Ess.	Ret. Tools	Number	Large	Ess.	Ret. Tools
ILty	12,00	4,89	0,00	0,00	36,00	19,04	0,00	0,00
IR	8,00	3,26	4,87	3,43	17,00	8,99	16,34	11,11
Denticulate Group	84,00	34,28	51,20	36,05	45,00	23,80	43,26	29,41
Upper Palaeo Group	19,00	7,75	11,58	8,15	4,00	2,11	3,84	2,61
Technical Indices								
Index of Levall. Group		1,37				5,15		
Flake/Blade Index		53,1				31,1		

Table 4 *Split Rock Site* (Sinai). Typological and Technologial Indices.

site has been protected from total destruction during many thousand years of erosion.

On purely technical grounds, the techno-typological indices of both assemblages point out to an association with the denticulate Mousterian known from the Nile Valley in Nubia (MARKS 1968). It is interesting to note that the age of the Lower Archaeological Horizon generally coincides with the reappearance of the Neanderthals in the Near East (AKAZAWA et al. 1998; KLEIN 1994; 1995/1996; BAR YOSEF 1994; MERCIER et al. 1995; VAN ANDEL & TZEDAKIS 1996).

Bibliography

AKAZAWA, T., AKAZAWA, K. & O. BAR-YOSEF (1998) Neandertals and Modern Humans in Western Asia. New York 1998.

BAHR-YOSEF, O. (1994) The Lower and Middle Palaeolithic in the Mediterranean Levant: chronology and cultural entities. *In: NITECKI, M.H. & D.V. NITECKI (eds.) Origins of Anatomically Modern Humans.* New York/London 1994, *246-252.*

EDDY, F.W. & F. WENDORF (eds.) (1999) An Archaeological Investigation of the Central Sinai, Egypt. *The American Research Center in Egypt, Cairo, Egypt. University Press of Colorado.* Boulder (USA) 1999.

KLEIN, R.G. (1994) The Problem of Modern Human Origins. *In: NITECKI, M.H & D.V. NITECKI (eds.) Origins of Anatomically Modern Humans.* New York/London 1994, *3-17.*

– (1995/1996) Neandertals and Modern Humans in West Asia: A Conference Summary. *Evolutionary Archaeology 187, 1995/1996, 197-193.*

KOBUSIEWICZ, M. (1999) Excavations at Sinai-20, The Split Rock Site, Zarnoq Locality. *In: EDDY, F.W. & F. WENDORF (eds.) An Archaeological Investigation of the Central Sinai, Egypt. The American Research Center in Egypt, Cairo, Egypt. University Press of Colorado.* Boulder (USA) 1999, *193-207.*

MARKS, A. (1968) The Mousterian Industries of Nubia. *In: WENDORF, F. (ed.) The Prehistory of Nubia. Vol. 1.* Dallas 1968, *315-391.*

MERCIER, N., VALLADAS, H. & G. VALLADAS (1995) Flint thermoluminescence dates from the CFR Laboratory at Gif: Contributions to the study of the chronology of the Middle Palaeolithic. *Quaternary Science Review 14, 1995, 351-364.*

SCHILD, R. (1999) Geomorphology, Stratigraphy and Lithology of Prehistoric Sites. *In: EDDY, F.W. & F. WENDORF (eds.) An Archaeological Investigation of the Central Sinai, Egypt. The American Research Center in Egypt, Cairo, Egypt. University Press of Colorado.* Boulder (USA) 1999, 311-334.

VAN ANDEL, T.H. & P.C. TZEDAKIS (1996) Palaeolithic Landscapes of Europe and Environs, 150,000 - 25,000 years ago: an overview. *Quaternary Science Review, 15, 1996, 481-500.*