

# FLINT ARTEFACTS FROM TELL EL-RETABA POLISH-SLOVAK ARCHAEOLOGICAL MISSION, SEASONS 2010–2016

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*Abstract: Tell el-Retaba is an archaeological site located in the Wadi Tumilat, 35 km west of Ismailiya in Egypt. The joint Polish-Slovak Archaeological Mission has been conducting research there since 2007. This paper reports the results of the analysis of the flint assemblages found at the site from 2010 to 2016. The excavations revealed 180 flint artefacts in stratigraphic units dated from the Second Intermediate Period to the Late Period. The flint assemblages include sickle blades, retouched flakes and blades, pounders, grinders, polishers and some other examples of implements. The flint tool forms and the contexts of their find are described and the preliminary analysis of the raw materials is conducted. The study indicates that there are some differences in the tool forms and the raw materials used for their production in particular historical periods at the site.*

*Keywords: flint, lithic tools, sickle blades, Tell el-Retaba, Second Intermediate Period, New Kingdom, Third Intermediate Period*

Lithic artefacts of everyday use were present in the territory of Egypt continuously since the Stone Age. Over time their frequency of occurrence decreased, but they did not disappear even when metal tools came into use. The reason for that was the limited availability of copper and especially tin deposits needed to produce bronze.<sup>1</sup> Flint, in contrast, was common and available to everyone across the country. Moreover, it was a cheaper product, it was more resistant (its hardness is comparable to steel), and it could be repeatedly sharp-

ened. Thus, flint tools remained in use until at least the Roman Period.

In the later periods, lithic implements were not manufactured with the same precision as in the Predynastic period, the Early Dynastic period or the Old Kingdom.<sup>2</sup> Metal tools appeared more frequently, replacing individual tool forms.

During the excavations of the Polish-Slovak Mission at Tell el-Retaba,<sup>3</sup> carried out from 2010 to 2016, 180 flint artefacts were collected. The archaeological material was found in stratigraphic units dated from the Second Intermediate Period to the Late Period.<sup>4</sup> The flint artefacts were discovered in seven areas of the site.<sup>5</sup> Only 23 of them come from modern strata. The majority was found in the context of buildings, structures or in their immediate vicinity. The main aim of this paper is to analyse the flint assemblage within the framework of the chronological periods attested on the site.

## The lithic assemblage

### *Raw material*

Most of the artefacts are made of flint. This raw material is very hard (its hardness on the Mohs scale is 7), durable and easily accessible along the Nile Valley and in most desert regions. In Egypt, flint is frequently confused with chert and, therefore, in literature these two materials are usually referred to with the general term *silex*. Nonetheless, flint and chert are sometimes distinguished by their colour or structure.<sup>6</sup> In this paper, how-

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<sup>1</sup> FUCHS *et al.* 1995, 33–53.

<sup>2</sup> HOLMES 1989; HIKADE 2014; KOBUSIEWICZ 2015.

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<sup>4</sup> An overview of the occupation history of the site as well as the phasing system used by the Polish-Slovak Mission can be found in RZEPKA *et al.* in the present volume.

<sup>5</sup> The location of these areas and the description of structures and artefacts discovered in them can be found in RZEPKA *et al.* 2011; 2014; 2015 and in the present volume.

<sup>6</sup> KROMER 1977, col. 207; NICHOLSON and SHAW 2000, 28.

Tab. 1 Raw materials in the assemblage of flint implements from Tell el-Retaba 2010-2016.

Type	1	2	3	4	5	6	7
							
<b>Surface</b>	Lustrous	Lustrous	Lustrous	Matt	Matt	Matt	Matt
<b>Texture</b>	homogeneous	Light and dark inclusions	homogeneous	light inclusions	homogeneous	light streaks	light stripes
<b>Transparency</b>	Yes	Yes	Half	No	No	Half	Half
<b>Colour</b>	light-dark brown	light brown, grey brown	black	orange-brown	beige	grey-beige	beige
<b>Cortex</b>	light brown, rough, thin	Light, smoothed	Smoothed	–	–	–	Smoothed
<b>Quantity (%)</b>	82 (45.6)	20 (11.11)	2 (1.1)	5 (2.8)	4 (2.2)	8 (4.4)	5 (2.8)

ever, the term “flint” will be used to refer to both of these categories.

The most easily accessible forms of this material are desert pebbles, which have their cortex well smoothed by erosion. The nodules are light to dark brown and grey; their dimensions reach ca. 5–10 cm. However, flint of better quality (in tabular or nodular form) could also be mined.<sup>7</sup> On the basis of the examination of the surface, cortex and technology used to produce flint tools, it can be stated that the raw material mostly comes from eroded limestone bedrock of the desert. Nevertheless, it is possible that in some periods the raw material used to produce flint artefacts was imported. Flint of better quality was derived from quarries, which were situated in wadis along the Nile Valley. The best known and the biggest quarry is located at Wadi el-Sheikh in the Eastern Desert near Beni Suef, where flint was found in Eocene limestone bedrock. The second area rich in good quality flint is Wadi Umm Nikhaybar and Wadi Sannur near Wadi Araba between the Nile Valley and the Red Sea. Both places were related to the production of bifacial knives and long thin blades used in manufacturing of sickle blades among others. In Egypt, archaeometric analyses of flint raw materials have become increasingly frequent in recent years.<sup>8</sup> Since it is difficult to define the source of flint by macroscopic examination, laboratory analyses of this material should be undertaken.

The site of Tell el-Retaba has yielded several types of flint varying in colour, structure and transparency (Tab.1).

The most abundant raw material is type 1: light to dark brown, homogeneous, lustrous and transparent flint. There are 82 specimens of this type (45.6%). The second most frequent kind of material is type 2 – light brown or grey-brown lustrous, transparent flint with light streaks – 21 pieces (11.7%). The other types of flint occurred more rarely. Eight flint artefacts were made of unique types of flint raw material. They cannot be assigned to any of the groups or matched with other outliers. Also, about a quarter (24.4%) of the analysed artefacts could not be assigned to any of the mentioned raw materials. Such examples were burnt, patinated or had the form of an eroded nodule (for example some pounders).

The least frequently occurring type of raw material used to prepare a flake is light grey quartzite (0.5%). This raw material was frequently used at the site, for example for grinding as well as pounding tools.<sup>9</sup>

#### *Analysis of the flint artefacts*

180 lithic artefacts have been found at the archaeological site at Tell el-Retaba. Many of them come from layers excavated within buildings (69 – 38.33%), while the rest comes from their vicinity. The material can be divided into blanks, tools, nat-

<sup>7</sup> HARRELL 2012, 2–6.

<sup>8</sup> NEGRO and CAMELLI 2010, 107–116; GRAVES-BROWN 2010; WEINER 2011, 130–156; BRIOIS and MIDANT-REYNES 2014, 73–98; FORSTNER-MÜLLER *et al.* 2015, 49ff.

<sup>9</sup> RZEPKA *et al.* 2014, 61.

Tab. 2 Lithic frequencies on the archaeological site of Tell el-Retaba 2010-2016. SIP – Second Intermediate Period, TIP – Third Intermediate Period, LP – Late Period, M – Modern Period.

Period	Phase	Retouched flake	Groover	Natural flint	Sickle blade	Retouched blade	Polisher	Flake	Retouched crested blade	Perforator	Scraper	Pounder-grinder	Chopper/chopping tool	Grinder	Pounder	Polishing plate
SIP	G3	5		2	16	4								1	1	
	G2			2	4	1						1				1
18 <sup>th</sup> dyn.	F4	7			6											
	F3/F4	1		1	1			1								
	F3	10		7	12	1				1	1	1				
	F2			2												
	F2-F4				1	2										
19 <sup>th</sup> dyn.	E4				1	1						1				
	E3				1											
19 <sup>th</sup> -20 <sup>th</sup> dyn.	E1	2		1	5	1			1							
20 <sup>th</sup> dyn.	D4	1		1		1								1		
	D3				1								1		1	
	D2				2									1	1	
TIP	C4	2		2		1										
	C3			1										1	1	
	C2	3				1						1		4		1
	C1	2			2							1		1		
	C1-C4	1		1								4		2	1	
TIP-LP	C-B			1												
LP	B			2			1				2					
M	A	2	1	2	4			1				6	1	3	3	
<b>Total</b>		<b>36</b>	<b>1</b>	<b>25</b>	<b>56</b>	<b>13</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>17</b>	<b>2</b>	<b>14</b>	<b>8</b>	<b>2</b>

ural flint fragments or nodules without any traces of knapping. The flakes and blades with traces of use are classified as tools, but, as they have no gloss, only use-wear analysis could confirm this interpretation. No traces of a flint-knapping workshop have been found at the site. Its absence is indicated by the lack of a material from a primary production – cores, blanks or chips. Only a few flakes were present, but they may be a result of the repairing of tools. Only one crested blade occurred. All of the flint tool forms are presented in the table (Tab. 2) and described in chronological order below. Some of the artefacts here discussed were already mentioned and illustrated in previous articles.<sup>10</sup>

It is possible to distinguish two main methods of preparing the lithic implements: by flake and blade technologies. A separate group of artefacts that forms a significant part of the assemblage of

tools are pounders and grinders, which were made of flint nodules.

When writing about the production of flint tools, it is worthwhile to note their reduction and repairs. As a result of permanent use, the edges of implements became blunt. The owner could retouch such a tool once again or make a new one. At Tell el-Retaba, traces of the reduction process are visible in the flint inventory.

### Second Intermediate Period

The stratigraphic units in areas 4 and 7 dated to the Second Intermediate Period contained 38 flint artefacts, which comprise 21.11% of the whole assemblage. 29 of these elements represent the chronological phase G3 and nine come from phase G2. The set contains 4 natural flint fragments,

<sup>10</sup> RZEPKA *et al.* 2012, 253–287, figs. 29–33; RZEPKA *et al.* 2014, 39–120, figs. 25, 35–37, 75.



Plate 1. Flint sickle blades from Tell el-Retaba. Second Intermediate Period, Phase G3: 1 – S1776; Phase G2: 2- S1825; 3 – S1782; New Kingdom, 18<sup>th</sup> dyn., Phase F3: 4 – S780; 5 – S2095; 7 – S738; 18<sup>th</sup>-19<sup>th</sup> dyn., Phase E1: 6 – S1930; 19<sup>th</sup> dyn., Phase E4: 8 – S1939; Third Intermediate Period, Phase C1: 9 – S1307; 10 – S1367 (Photos L. Gidzińska, L. Hudáková, R. Rábeková, S. Rzepka).

20 sickle blades, 5 retouched blades, 5 retouched flakes, 1 grinder, 1 poulder, 1 poulder-grinder and 1 grinder-whetstone.

A sizable group of artefacts consists of sickle blades (Pl. 1, 1–3). In every case, gloss is visible on both sides, at one or both edges. Two shapes were distinguished within this form: triangular (used as end-sickles) and rectangular. Five sickle blades are triangular. The other 15 are rectangular in shape. Most of the sickles are made on regular slender blades (among which one is massive). Only one sickle blade is made on a flake. The sickle blades

vary in details of elaboration of their edges or ends. Five sickle inserts have serrated edges on the dorsal side (left or right) and 15 are denticulated. Six have blunted parallel edges on the dorsal sides. Eleven blades have one truncated end and breakage on the other, four of them have both ends broken, two others have both ends truncated and three have only one end broken (blades triangular in shape).

Most of the retouched blades are produced from a single platform core. Two of them have a punctiform butt, while in other cases the butt is





Plate 2. Flint tools from Tell el-Retaba. Second Intermediate Period, Phase G3: 1 – S1769 (retouched blade); 2 – S1775 (retouched flake); Phase G2: 3 – S1163 (grinder-whetstone/polishing plate?). New Kingdom, 18<sup>th</sup>-19<sup>th</sup> dyn., Phase E1: 4 – S1664 (retouched flake); 20<sup>th</sup> dyn., Phase D4: 5 – S2734 (retouched flake); Phase D2: 6 – S1374 (pounder); Third Intermediate Period, Phase C1-C4: 7 – S1598 (grinder-pounder); Late Period, Phase B: 8 – S2912 (grinder-pounder, traces of pigment?); 9 – S2923 (polisher); Modern layers: 10 – S1659 (groover?)(Photos L. Gidzińska, L. Hudáková, R. Rábeková, S. Rzepka).

not preserved. This could be a result of the use of a hard hammer. Two blades have a cortex, but it does not cover more than 25% of the surface. The blades have irregularly retouched edges or use-fractures (Pl. 2, 1).

The majority of the retouched flakes were produced from single platform core. Only one example has multidirectional negatives. One of them has a flat butt, one a punctiform butt, while in other cases the butt is not extant. Two flakes have a cortex, but also here it does not cover more than 25% of the flake's surface. Like the blades, most flakes have irregularly retouched edges or use-fractures (Pl. 2, 2).

The grinder has few flat surfaces with traces of abrasive wear. The shape of the tool is irregular. The pounder has visible pitting on the surface. The grinder-pounder has features of both tool types.

A combined tool was found as well: a grinder used for the shaping or sharpening of thin, elongated tools (Pl. 2, 3). Traces of abrasion are clearly visible.

Of the groups of raw material mentioned above, the most frequent in Second Intermediate Period layers is type 1. Five of the specimens are made of flint type 2, four of type 4, four of type 6 and two of type 7. The raw material of five of the specimens is impossible to recognise. One is made of material that does not fit any of the groups (Tab. 3).

#### New Kingdom

Layers dated to the New Kingdom yielded 80 flint artefacts, which constitute 44.44% of the examined material.

Tab. 3 Raw material frequencies on the archaeological site of Tell el-Retaba 2010-2016. SIP – Second Intermediate Period, TIP – Third Intermediate Period, LP – Late Period, M – Modern Period.

Period	Phase	Type 1	Type 2	Type 3	Type 4	Type 5	Type 6	Type 7	Uniden- tified	Others	Quartz- ite
SIP	G3	12	5		3		4	2	3		
	G2	5			1				2	1	
18 <sup>th</sup> dyn.	F4	12								1	
	F3/F4	3							1		
	F3	26			1				6		
	F2								2		
	F2-F4	1							1	1	
19 <sup>th</sup> dyn.	E4	1	1				1				
	E3	1									
19 <sup>th</sup> -20 <sup>th</sup> dyn.	E1	5						1	3		1
20 <sup>th</sup> dyn.	D4	2							2		
	D3	1		1					1		
	D2		2					1		1	
TIP	C4	3							2		
	C3		1						2		
	C2	3				1	1		5		
	C1	2				1		1	2		
	C1-C4		5						2	3	
TIP-LP	C-B								1		
LP	B	1					1		3		
M	A	4	6	1		2	1		7	1	
<b>Total</b>		<b>82</b>	<b>20</b>	<b>2</b>	<b>5</b>	<b>4</b>	<b>8</b>	<b>5</b>	<b>45</b>	<b>8</b>	<b>1</b>

### 18<sup>th</sup> Dynasty

Layers from areas 3, 4 and 7 dated to the 18<sup>th</sup> Dynasty contained 55 flint artefacts, which constituted 30.55% of the assemblage. 26 of them were found inside the three buildings excavated on the site (Tab. 4). 13 elements of the inventory represent chronological phase F4, four – F3/F4, 33 – F3, two – F2 and three – F2-F4. The set contains 10 natural flint fragments, 1 flake, 20 sickle blades, 1 perforator, 1 scraper, 3 retouched blades, 18 retouched flakes and 1 pounder-grinder.

The largest group of artefacts are sickle blades (Pl. 1, 4–7). Five sickle blades are triangular and fifteen are rectangular in shape. Most of the sickles are made on regular blades, and only two are on flakes. Eleven sickle inserts have serrated edges on the dorsal side, one on the ventral side and eight are denticulated. Eleven have blunted parallel edges on dorsal sides. Five blades have one truncated end and breakage on the other, eleven have both ends truncated, two have only one end broken (blades triangular in shape) and two have both truncated ends.

The perforator was made on one of the ends of the sickle blade. The tool has an alternate steep retouch.

The scraper is made on a flake. It has a flat and semi-steep retouch of the edge. The tool is fan-shaped. Cortex covers less than 25% of the surface.

The blades have one or two retouched edges. There are two distal fragments of the blade and one proximal. The tools are made from a single platform core and one of them has cortex on less than 25% of the surface.

Most of the flakes are produced from a single platform core, while five flakes have multidirectional negatives. Four of the flakes have a punctical butt, one has a flat butt, and one cortical, while in other cases the butt is not preserved. Six flakes have cortex. In four of them it does not cover more than 25% of the surface, in two others it is almost 50%. The majority of the flakes have irregularly retouched edges or just use-fractures.

The 18<sup>th</sup> Dynasty assemblage also includes a round pounder-grinder. There is visible pitting on one of the sides and one side is flat.

Tab. 4 Flint tools in the archaeological context at the site of Tell el-Retaba 2010-2016.

Period	Building/Structure	Room/layers	Phase	Flint artefacts	Quantity
18 <sup>th</sup> dynasty	Green House	top	F4	3 sickle blades, 2 retouched blades	5
		bottom	F4	1 sickle blade, 2 retouched blades	3
	Black House 1/Green House		F3/F4	1 natural flint fr., 1 flake, 1 sickle blade, 1 retouched flake	4
	Black House 3	1	F3	1 natural flint fr.	1
	Black House 1	3	F3	1 sickle blade	1
4		F3	1 flake, 5 sickle blades, 1 scraper, 5 retouched flakes	12	
19 <sup>th</sup> dynasty	SILO [1574]		E4	1 pounder-grinder	1
	COURTYARD OF BUILDING [1624]		E4	1 sickle blade	1
19 <sup>th</sup> -20 <sup>th</sup> dynasties	DUMPING PLACE (1259)		E1	1 natural flint fr., 4 sickle blades, 1 retouched crested blade, 1 retouched blade, 2 retouched flakes	9
20 <sup>th</sup> dynasty	WALL 2		D4	1 retouched flake	1
		[1654]		D3	1 pounder
	[834/838]	VIII.6	D3	1 chopping tool	1
		VI.5	D2	1 pounder	1
		V.1	D2	1 sickle blade	1
		XII.4	D2	1 sickle blade	1
Third Intermediate Period	[1082]	1	C4	1 natural flint fr.	1
	[1607]	Courtyard	C4	1 retouched flake	1
	[991]	2	C3	1 natural flint fr., 1 grinder	2
		1	C1	1 sickle blade	1
		2	C1	1 sickle blade	1
		3	C1	1 pounder-grinder	1
	[1095]	1	C2	1 grinder, 1 retouched blade, 1 retouched flake	3
		2	C2	1 grinder	1
		4	C2	1 pounder-grinder, 1 retouched flake	2
		4	C1	1 grinder, 2 retouched flakes	3
	[2196]	1	C2	1 grinder	1
	[2147]	1	C2	1 grinder, 1 grinder-polisher	2
	[1528]	1	C2	1 retouched flake	1
[1150]		C1-C4	1 pounder, 1 pounder-grinder	2	
Structure [1149]		C1-C4	1 pounder-grinder	1	
Late Period	[2074]	1	B	1 pounder-grinder	1
		2	B	1 pounder-grinder, 1 polisher	2
					69

A vast majority (42 specimens) of 18<sup>th</sup> Dynasty flint artefacts are made of raw material type 1. One example is made of raw material type 4, and two do not fit any of the types. Ten specimens are impossible to recognise.

#### 19<sup>th</sup> Dynasty

Layers from areas 4 and 9 dated to the 19<sup>th</sup> Dynasty yielded four flint artefacts, which corresponds to 2.22% of all flint materials. Two of them were found inside two buildings (Tab. 4). Three speci-

mens represent chronological phase E4 and one – E3. The assemblage consists of 2 sickle blades, 1 retouched blade and 1 pounder-grinder.

One of the sickle blades is triangular (Pl. 1, 8) and the second one is rectangular. The sickle inserts are made on flakes. One of them is serrated and one is denticulated. Sickle blades have one truncated end and breakage on the other.

The distal fragment of the blade has two retouched edges. The tool is made from a single platform core.

The pounder-grinder has pitted areas and flat surfaces with abrasive wear. One of the sides bears traces of red pigment.

Two flint artefacts dated to the 19<sup>th</sup> Dynasty are made of raw material type 1, one is of type 2 and one of type 6 (Tab. 3).

#### 19<sup>th</sup>–20<sup>th</sup> Dynasties

Layers from area 9 dated to the 19–20<sup>th</sup> Dynasties (phase E1) yielded ten flint artefacts, or 5.56% of all flint materials. Most of them were found in dump layers (Tab. 4). The set contains 1 natural flint fragment, 5 sickle blades, 1 retouched crested blade, 1 retouched blade and 2 retouched flakes.

Also in this phase the largest group of artefacts are sickle blades. One sickle blade is triangular and the other four are rectangular. All of them are made on regular blades. Three sickle inserts have serrated edges on the dorsal side and two are denticulated. Two have blunted parallel edges on dorsal sides. Two blades have one truncated end and breakage on the other, two have both ends truncated, and one has only one end broken (blades triangular in shape).

The retouched blade has distinctive, smoothed 'desert patina' with visible erosion of the surface. It was probably produced from a unidirectional core. Traces of use are visible on all edges of the artefact.

The retouched flakes are produced from a single platform core. One of them has a winged butt, while the butt of the second one is not preserved. One flake has cortex, but it covers less than 25% of the surface. The flakes have the irregularly retouched edges and use-fractures.

Five of the flint artefacts of 19<sup>th</sup>–20<sup>th</sup> Dynasties are made of raw material type 1, one is of type 7, and one of quartzite (Pl. 2, 4). The raw material of three specimens is impossible to recognise.

#### 20<sup>th</sup> Dynasty

Layers from area 4 and 9 dated to the 20<sup>th</sup> Dynasty contained eleven flint artefacts, or 6.11% of all flint materials. Six of them were found inside two buildings and in the area of wall 2 (Tab. 4). 13 elements of the inventory represent chronological phase D4, three belong to phase D3, and four to D2. The assemblage contains 1 natural flint fragment, 1 natural flint nodule, 1 chopping tool, 3 sickle blades, 1 retouched blade, 1 retouched flake, 1 grinder and 2 pounders.

The chopping tool has a concave working edge formed by a series of several strikes visible on the

dorsal side, prepared by one transversal strike on the ventral side.

One of the sickle blades is triangular and two are rectangular. Two of them are made on regular blades, and only one is on a flake. Two sickle inserts have serrated edges on the dorsal side and one is denticulated. One has a blunted parallel edge on the dorsal side. One blade has one truncated end and breakage on the other, one has both ends truncated and one has one end truncated.

The fragment of the retouched blade was made from a single platform core. Retouch was executed on both edges.

The retouched flake has unidirectional negatives (Pl. 2, 5). It is retouched on both edges and cortex covers less than 25% of its surface.

The grinder has few flat surfaces with abrasive wear. One pounder has visible pitting on all sides (Pl. 2, 6), and on the other the pitted area is found at one end of the elongated heated nodule.

Three flint artefacts from the 20<sup>th</sup> Dynasty are made of raw material type 1, two of type 2, one of type 3, one of type 7, and one is from unique flint material. The raw material of three specimens is impossible to recognise.

#### Third Intermediate Period

Stratigraphic units of the Third Intermediate Period in area 2 and 9 contained 33 flint artefacts, or 18.33% of the whole assemblage. Most of them were found inside nine buildings (Tab. 4). Five flint artefacts represent chronological phase C4, three – C3, ten – C2, six – C1 and nine – the Third Intermediate Period as a whole. The assemblage comprises 4 natural flint fragments, 2 sickle blades, 2 retouched blades, 8 retouched flakes, 8 grinders, 2 pounders, 6 pounder-grinders and 1 grinder-polisher.

One of the sickle blades is triangular (Pl. 1, 10) and one is rectangular (Pl. 1, 9). They are made on regular blades. Sickle inserts have serrated edges on the dorsal sides. One blade has both ends truncated and one has both ends broken.

Two fragments of retouched blades were made from a single platform core. Retouch was executed on both parallel edges. One of the tools has cortex on less than 50% of the surface.

Four retouched flakes were produced from a single platform core and four have multidirectional negatives. One of them has a punctiform butt, one has a cortical butt, while in other cases the butt is not preserved. Three flakes have cortex, but in two



cases it does not cover more than 25% of the surface and one has less than 50% of cortex. Most flakes have irregularly retouched edges or use-fractures.

The largest group of artefacts are pounders and grinders (Pl. 2, 7). The pounders have visible pitting on all sides and one of them is broken on one side. The grinders exhibit flat surfaces with abrasive wear; most of them are more or less cylindrical in shape. Combinations of the two forms have both pitting and flat surfaces with abrasive wear. The grinder-polisher has at least one flat surface. The whole tool has a waxy shine.

Eight flint artefacts from the Third Intermediate Period layers are made of raw material type 1, six of type 2, two of type 5, one of type 6, one of type 7, and three of a material which does not fit any of the groups. The raw material of 13 specimens is impossible to recognize.

The stratigraphic unit in area 7 dated to the Third Intermediate Period–Late Period yielded one natural flint fragment (0.56% of the assemblage).

The raw material of the specimen is impossible to recognise.

#### Late Period

The stratigraphic units in the area 7 dated to the Late Period contained five flint artefacts, or 2.78% of the whole assemblage. Three of them were found inside one of the buildings (Tab. 4). The set contains 2 natural flint fragments, 2 pounder-grinders and 1 polisher.

The pounder-grinders have pitting and flat surfaces with abrasive wear (Pl. 2, 8). One of them is broken. The polisher is oval in shape and has a waxy shine (Pl. 2, 9).

One flint artefact of the Late Period layers is made of raw material type 1 and one is of type 6. The raw material of three specimens is impossible to recognise.

The inventory of flint artefacts also includes another category: artefacts from modern layers. The group consists of 23 flint artefacts (12.78% of all flint material): 2 natural fragments of flint, 1 flake, 1 chopper, 4 sickle blades, 1 tool (probably a groover), 2 retouched flakes, 3 grinders, 3 pounders and 6 grinder-pounders.

This group of artefacts contains one tool worthy of note. The artefact is made on a massive flake with a faceted butt. Retouch is located on the dorsal side and two notches are visible on the left and right edges. The distal point was formed by a steep sub-parallel retouch. It may have been a groover (Pl. 2, 10).

#### Discussion

The most frequently used lithic tools in the discussed periods are sickle inserts. As shown above, this conclusion also applies to the site of Tell el-Retaba. The function of these blades is indicated mainly, in addition to their general morphology, by gloss on the working surface. Sickle gloss results from harvesting and deposition of the artefact.<sup>11</sup> The sickle inserts were fitted in wooden sickles. Completely preserved examples of such tools were found in the tomb of Hemaka in Saqqara dated to the Early Dynastic Period and in the Middle Kingdom city of Kahun.<sup>12</sup> Such sickles are also known from the New Kingdom, for instance the one with a hieroglyphic inscription from the collection of Lord Carnarvon (unknown provenance).<sup>13</sup> Most of the inserts from Egypt were produced using the blade technology. However, some examples from Tell el-Retaba were prepared on flakes. Sickle inserts usually have serrated edges, which makes them sharper and more resistant to blunting. The lithic inventory from Tell el-Retaba also includes some examples of blades without serrations. Most of the inserts had abrupt normal retouch parallel to the working edge. By adjusting the shape of the edge, it was easier to put the blade in the rounded wooden sickle. In the case of some triangular inserts from Tell el-Retaba, the working edge was also slightly convex or concave. To obtain a blade of the right length they were truncated or snapped (or both) at the ends. Each sickle had several rectangular inserts and one (or sometimes two) triangular ones at the end. However, there are no traces of adhesive on any of the artefacts in this assemblage. Prime examples of use of lime plaster as an adhesive are known from the investigations of the New Kingdom (18<sup>th</sup> Dynasty) site in Tell el-Dab<sup>ca</sup>.<sup>14</sup> Examples of sickle inserts are known from several sites dated to similar periods. These include Qantir, Kom Rabi'a, el-Ashmunein, Deir

<sup>11</sup> UNGER-HAMILTON 1984, 91–98; KAMIŃSKA-SZYMCZAK 2002, 111–151.

<sup>12</sup> PETRIE 1890, pl. IX, 22; EMERY 1938, pl. 15, A, B, C, D.

<sup>13</sup> STRUDWICK 2001, pl. VIII (cat. 25).

<sup>14</sup> ENDLICHER and TILLMANN 1997, 333–342.

el-Medineh and Beth Shan.<sup>15</sup> Tell el-Dab'a is the best source of parallels as the nearest finding place of sickle blades from the Second Intermediate Period. Similar to Tell el-Retaba, the blades are varied, but mostly thin and small, serrated or denticulated and truncated or snapped.<sup>16</sup> New Kingdom examples from Qantir/Pi-Ramesse, also comparable with those from Tell el-Retaba, belong to Types A and B according to A. Tillmann's typology.<sup>17</sup> These tools have mostly serrated working edges with blunted or retouched (steep retouch) parallel edges and often with truncated ends.

The second most frequently used group of lithic tools in the periods discussed here are retouched flakes and blades. The retouch is mostly irregular and discontinuous. It should be noted that the settlement lacked specialised craftsmen and less elaborate tools could be used for different purposes, for instance cutting, scraping or whittling, depending on edge sharpness.<sup>18</sup>

Flint pounders, grinders and polishers are usually ignored in the descriptions of lithic assemblages from Egyptian Dynastic sites. This kind of tool could be used in multiple actions, like the manufacture of other flint tools, preparation of food or preparation of pigment for artistic or cosmetic purposes. Three specimens from the site at Tell el-Retaba bear traces of red pigment on the surface. Polishers and a polishing plate were also found on the site. Examples of such materials produced from different kinds of stones are attested on the archaeological site of Qantir/Pi-Ramesse.<sup>19</sup>

Worthy of note are specimens correlated with primary production in the Tell el-Retaba flint assemblage. The site yielded few flakes without retouch, some retouched flakes with cortex and one retouched crested blade. Examples of the latter are known i.a. from Qantir/Pi-Ramesse.<sup>20</sup> However, in contrast to Tell el-Retaba, at that site blades were found in large numbers. In addition, at most mentioned archaeological sites dated to the Second Intermediate Period and Late Period there were numerous bifacial tools. Meanwhile, at Tell el-Retaba there were no such examples.

## Summary

It is assumed that the tools from Tell el-Retaba were generally used for domestic activities such as food preparation, scraping, cutting, piercing, grinding, pounding or harvesting.

It is possible to distinguish two main methods of preparation of the lithic implements at the site: flake and blade technologies. It seems that the population living at Tell el-Retaba used flakes mostly as simple tools, presumably for cutting or scraping. Few were used to prepare sickle inserts. In contrast, flint blades were mainly used to manufacture sickle inserts, whereas only 13 of them played the role of simple retouched implements.

The major group of tools at the site are pounder-grinders, which were made from flint nodules. Such tools as well as others made of different stone materials also occur at the site.

The flint inventory of the site also features two examples of use of the chopping-tool technique of production.

The analysis of the available data suggests that in some periods lithic implements could be manufactured from local raw material – desert flint nodules. The flint assemblage from the Second or Third Intermediate Period can serve as an example. The raw material is less homogeneous and has more inclusions than in the New Kingdom. However, cores or debris that could serve as proof of the existence of a flint workshop on the site have not been found. In contrast, flint artefacts found in New Kingdom layers, especially the 18<sup>th</sup> Dynasty, are made of very good-quality raw material – homogeneous, transparent and lustrous, with a light cortex. This kind of flint could have been mined and imported from some nearby sources. The differences in the type of raw material may have been caused by geographical conditions or the political situation.

In the Tell el-Retaba material, the standard of elaboration of flint tools and the number of implements belonging to different types varies depending on the period. The sickle blades discussed above can serve as examples: in the Second Intermediate Period they are smaller, thinner and more worn than in the New Kingdom. In the Third

<sup>15</sup> BRUYÈRE 1939, pl. XLII; ROEDER 1959, 311–315, pl. 77; SPENCER 1993, pls. 27, 28, 96; JAMES and MCGOVERN 1993, pls. 132–136; GIDDY 1999, 226–243, pls. 51–52, 89–90; TILLMANN 2007, 70–73.

<sup>16</sup> TILLMANN 2004; FORSTNER-MÜLLER *et al.*, 2015, 56ff.

<sup>17</sup> TILLMANN 2007, 70ff.

<sup>18</sup> ROSEN 1997, 92.

<sup>19</sup> PRELL 2011, 27ff.

<sup>20</sup> TILLMANN 2007, 41ff, pls. 3–5.

Intermediate Period the most numerous flint tool groups were grinders and pounders (16), while the number of sickle blades is reduced to only two.

The number of discovered artefacts is not large, which significantly limits the conclusions that

could be drawn here. A large part of the site has yet to be uncovered. It is hoped that further seasons of excavations at Tell el-Retaba will provide new information about production and distribution of lithic implements in this region.

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