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The Acheulean handaxes from Faysaliyya (Shawbak directorate, southwestern Jordan), 2017 season

Abstract: This paper presents the inventory of 23 Lower Paleolithic handaxes surface collected at the Faysaliyya archaeological site in 2017. The purpose of the paper is to inform about a new collection of handaxes found in the highland region of southern Jordan, provide its detailed description, and draw some preliminary conclusions which may be useful for further studies on numerous lithics materials from Faysaliyya. The site is located in southwestern Jordan, in the northern part of the geographical and historical region of Edom, the Edom Highland. It was discovered during rescue surveys in 2016 and has been excavated since 2017 by a Polish team from the Institute of Archaeology of the Jagiellonian University within the framework of the HLC Project. The presented handaxes were made of relatively high quality local flints. They all are characterized by a state of preservation typical for lithic artefacts obtained from a desert environment (patina, weathering). Moreover, most of them bear traces of abrasion and damages, which suggests that they could have been brought to Faysaliyya by fluvial transportation. The handaxes have been classified according to F. Bordes' typology. They mostly include amygdaloids and sub-cordiforms but several coridiforms, discoidals, sub-triangulars, and a single Miqocian ficron have been distinguished as well. Two artefacts have been classified as miscellaneous forms. In a very few cases, traces of reutilization as flake cores, or some kinds of modification/rejuvenation are visible on the handaxes. Due to their finding context, the group of handaxes presented in this paper cannot be considered as a homogenous assemblage and may consist of artefacts of various chronology. Generally, the analysed handaxes reveal features which are typical of the Late Acheulean, but it cannot be excluded that some of them may be dated to the Middle Acheulean (alternatively Large Flake Acheulean). Thus, the presented inventory seems to be similar to others surface collections of handaxes from southwestern Jordan, such as Fjaje, Wadi Faynan or Wadi Qalkha.

Keywords: Lower Palaeolithic, Acheulean, handaxes, southwestern Jordan, Near East, lithic analysis

1. Introduction

The Faysaliyya archaeological site is located about 5 km south-east of the city of Shawbak in the northern part of the geographical and historical region of Edom, the Edom Highland (also called the Eastern Highland or Jabal al-Adhiriyāt) (Fig. 1). The site lies on a plateau formed

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Fig. 1. Location of the Faysaliyya archaeological site. Drawings by A. Brzeska-Zastawna

of Tertiary and Cretaceous rocks covered by younger Quaternary sediments. The plateau rises about 1,200–1,300 m a.s.l. and is characterized by a flat, rocky, desert landscape with low, rolling hills cut by numerous V-shaped valleys of seasonal rivers. A large number of rock outcrops, including good quality flints², are also present in this region (Kołodziejczyk *et al.* in press).

In fact, the investigated area is a complex of deflated prehistoric open-air sites situated near the village of Faysaliyya. It was discovered in 2016 during a surface survey conducted by the Department of Antiquities of Jordan in connection with the prospective construction of a wind farm in this area. In 2017, the excavations carried out by the team from the Institute of Archaeology of the Jagiellonian University in Cracow started. The works are a part of the HLC (Heritage-Landscape-Community) Project headed by Piotr Kołodziejczyk and devoted to the understanding of prehistory and early history of the At-Tafila micro-region in southern Jordan. Because of the Faysaliyya site's impressive size, the research activity in 2017 was limited to an area of about 3 hectares. It should be noted that the lithic artefacts were densely distributed over the whole site and there were no evident limits of their occurrence. Lithics were scattered equally on the valley floor, its slopes, and on the adjacent hilltops. Excavation works were conducted at five squares located in different places within the selected area. Some

² In this paper the authors use the term 'flint' because it is the most widely used term in archaeology, also in the Levant (Sharon *et al.* 2010; Shea 2013; Belfer-Cohen, Bar-Yosef 2014). The term generally refers to silica rock. In the sense of geological sciences, the term corresponds to the term 'chert'.

surface survey works were also done. The fieldworks preformed at Faysaliyya site in the 2017 season produced numerous lithics (more than 5,000 specimens). The preliminary analysis of these materials indicates that they consist mainly of Palaeolithic and Epipalaeolithic artefacts, among which less frequent items dated to the Neolithic and/or the Bronze Age periods can be distinguished (Kołodziejczyk *et al.* in press).

This paper presents a group of 23 Lower Palaeolithic bifaces, all classified as handaxes, surface collected at the Faysaliyya site in 2017. Apart from the detailed descriptions of the discussed artefacts and their comparative analysis, the authors compare them with other similar collections from the southern Levant and attempt to address some of the most significant methodological issues associated with analysing this type of lithic inventories.

2. Materials and methods

It should be stressed that the discussed collection consists only of surface finds without the materials obtained from excavated trenches, which are planned to be examined separately later. The handaxes were collected in the eastern part of the investigated area and, which is of particular importance for the interpretation of this inventory, they did not form any visible concentration (they were distributed over a relatively broad area within a distance of a few meters to tens of meters). Furthermore, it is very likely that the discussed artefacts were found in secondary contexts. Geological investigations into the processes of the Faysaliyya site formation are still ongoing, but current observations indicate that the presence of at least a part of the lithics occurring directly on the ground surface is a result of fluvial erosion of the surrounding hills. Probably, the same applies to the surface collection of bifaces as well. However, due to the landform setting, the fluvial transportation of the analysed artefacts appears to have a short-distance character.

The first methodological difficulty faced by the authors during the analysis of the bifaces was to distinguish intentionally made negatives from those caused naturally by different post-depositional processes, including fluvial transportation. In general, all of the handaxes from Faysaliyya are characterized by a pronounced desert patina, but in some cases clearly younger negative scars removing the patinated surfaces can be observed. Some of them are relatively easy to recognise as post-depositional damages like various types of breakage, battering of edges or notch-like fractures, while others are indistinguishable from negatives left by intentional formation and retouching of bifacial tools. Moreover, in a few cases, the handaxes have been significantly reshaped by unpatinated negatives, which can be interpreted as some kind of modification or reutilization of these artefacts. Considering all of this and taking into account that all scars affect the final shape – and therefore also the typological classification – of handaxes, the authors decided to recognize most of the negatives in question as potentially intended. Nonetheless, the most recent experimental studies demonstrate that many even correct scars may be created by the post-depositional rolling of handaxes (e.g. Grosman *et al.* 2011b). Therefore, to leave the question of the interpretation of unpatinated negatives open for the future, in the attached figures they are marked with a light grey colour.

The second problem was the choice of a method for typological classification of the bifaces forming the collection. It should be noted that researchers working with the Levantine Lower Palaeolithic materials use different classification systems, including adapted typologies which have been developed based on assemblages from western Europe or eastern Africa, as well as their own classification schemes (Rollefson 1981, 17; Shea 2013, 48). Because the typology devised by François Bordes (1961) is still the most popular and commonly used classification system for Lower Palaeolithic assemblages in the Levant (e.g. Shea 2013), and its application

ensures the best prospects for later comparative studies, the authors decided to apply it in the presented paper. It seems superfluous to make a detailed characteristic of the Bordian classification approach and consider its advantages and disadvantages here, since it has been discussed more than once in many publications (e.g. Kolpakov, Vishnyatsky 1989; Debénath, Dibble 1994; Bisson 2000; Le Tensorer 2012). Bordes' typology of bifacial forms is basically based on three attributes: thickness-to-width ratio, length-to-width ratio and the shapes of edges. The handaxes from Faysaliyya have been classified according to these principles, and their descriptions are presented in Table 1. Each description of each artefact includes: macroscopic characteristics of the raw material, observation of the surface condition (presence of a cortex, or other natural surfaces, and of patina and abrasion), bifacial retouch and trimming specifications, shape of the edges, section symmetry and, if occurring, terminal modification or re-utilization and post-depositional damages. The basic measurements (length, maximum width, maximum thickness, weight) and the four indices proposed by Bordes (elongation, thickness, pointedness, roundness of edges) are given as well. Based on these data the type of each handaxe has been determined.

3. Analysis

3.1. Raw material

All of the examined handaxes were made of the same raw material, namely the relatively high quality local flint which is characterized by a brown-beige colour, sometimes with characteristic banding, and a light red or white cortex. Based on observations of the specimens with cortex present on both faces (Fig. 4: 1; 5: 2; 9: 2; 10: 2; 12: 1; 13: 1), it can be supposed that flat, tabular or slab-like shapes nodules were probably preferred at the stage of raw material procurement.

3.2. State of preservation

All artefacts are patinated, most often almost over their entire surfaces, and they are characterized by the weathering and abrasion of surfaces typical for lithic objects obtained from a desert environment. The great majority of the handaxes bear traces of post-depositional damages, most likely caused by fluvial transportation. However, only in three cases are the handaxes significantly damaged (Fig. 9: 1; 12: 1; 13: 2). Most of the damages are small fractures or bruises located on the edges of artefacts, and locally removed patinated surfaces. Sometimes such damage creates a continuous series of regular 'scars'. Some of these post-depositional damages are indistinguishable in a macroscopic view from intentional retouching.

3.3. Technological traits

Bifacial tools were produced by the rational reduction sequences (e.g. Newcomer 1971; Callahan 1979; Inizan *et al.* 1999). In the case of the discussed handaxes, the reconstruction of such sequence is difficult due to numerous post-depositional damages affecting their final morphology. Furthermore, there are no data about the finding of characteristic flakes from the bifacial shaping. Almost all of the analysed handaxes are characterized by invasive, mostly centripetal bifacial retouch. Cortex or natural surfaces are rare and if they are present, they are preserved residually. Because of the invasive bifacial shaping of both sides it is difficult to determine the original blanks of which the handaxes were made. Some specimens have residual cortex of both sides which suggests that they were made of relatively flat, flint nodules. The handaxes' manufacturing process

was probably divided into three main stages. At the beginning, the nodule was bifacially flaked in order to remove cortex and modelling two convex surfaces on either sides. Then, the tool was more carefully shaped and thinned by removals removing bumps and remains of cortex. In the last phase of the manufacturing process, the handaxe was finished by series of small thin flakes ultimately shaping its edges (Newcomer 1971). The last phase of the handaxes' manufacturing process is often called the final trimming or the secondary retouch. Most of the analysed handaxes have negatives that can be interpreted as coming from the first two stages of the manufacturing process. Only one specimen seems to be rather only initially shaped, because of its unworked tip and large, rough removals visible on both of its faces (Fig. 8). Much more problematic are negatives coming from the last phase of the handaxes' shaping. The great majority of the handaxes from Faysaliyya are characterized by more or less continuous series of small scars running along their edges (e.g. Fig. 4: 2; 6: 1; 6: 2; 9: 2; 12: 1; 12: 2; 13: 1; 14: 2). These negatives are a bit similar to semi-abrupt retouch; in some cases they are patinated, in others not. Hypothetically, they can be regarded as traces of the intentional final trimming but most likely they are a result of the artefacts' rolling by the fluvial transportation. Therefore, the last phase of the manufacturing process is probably almost entirely invisible due to the various post-depositional damages. A few artefacts may be possibly considered as evidence of some reutilization or modification of handaxes. Two specimens bear traces of their secondary use as flake cores. In both cases, multidirectional flake negatives are visible on the handaxes' faces, which seem to be clearly younger than the series of bifacial ones forming the original shape of the tool (Fig. 11: 2; 15: 2). Other two handaxes have traces of probably intentional modification. The first one has noticeable corrections of the base and tip sections (Fig. 6: 2), while the second has a series of rejuvenation removals only on the base (Fig. 13: 1). It should be stressed that the modification removals are unpatinated, which, if the proposed interpretation is correct, suggests their much younger chronology. Unfortunately, it cannot be ruled out that the reutilization/modification traces described above are also the post-depositional damages caused by the fluvial transportation of the handaxes.

3.4. Metrical and morphological features

Taking into account the dimensions of the examined handaxes it should be noted that they are quite diverse in size, but most of them (16 specimens) do not exceed 10 cm in length. Only 6 artefacts are longer than 10 cm (Fig. 2). The longest specimen is 150 mm, while the shortest is

Fig. 2. Length to width disperse diagrams for handaxes from the Faysaliyya archaeological site

68 mm. The width of the artefacts ranges from 52 to 102 mm and their thickness ranges from 20 to 55 mm. The weight of the handaxes varies and it results directly from their dimensions. The heaviest and largest specimen weighs nearly 700 grams while the lightest and smallest ones weigh less than 100 grams. Considering the handaxes' morphology, most of them are characterized by rather regular, rounded bases, usually convex edges and slightly pointed or rounded tips. In several cases, the shape of the edges differs from these norms (e.g. Fig. 7: 2, 8; 14: 1–2). The great majority of the handaxes are symmetrical or slightly asymmetrical in their sections. The longitudinal sections are mostly slightly sinusoidal and the cross sections are always lenticular.

3.5. Types of handaxes

According to the Bordes' division of handaxes into two major classes, 11 artefacts have been classified as flat, because their flatness index values are greater than 2.35. Roughly the same number are thick (12 specimens), with flatness indices less than 2.35. Only one specimen has

Fig. 3. Sites mentioned in the article near the Faysaliyya archeological site and other selected Levantine Lower Paleolithic sites; white dots – cave sites, dark dots – open-air sites (after: McLaren *et al.* 2007; Rollefson *et al.* 2005; al-Nahar, Clark 2009; Shea 2013; al-Nahar 2013). Drawing by A. Brzeska-Zastawna

an elongation index greater than 1.6. Six handaxes can be classified as common, with elongation indices between 1.3 and 1.6, but most of the collection (16 specimens) belong to short forms with elongation indices less than 1.3. The pointedness index values range from 0.46 to 1.51, and the roundness of edges index values range from 0.74 to 1.01. Among the distinguished types, amygdaloid handaxes definitely prevailed (9 specimens) (Fig. 10: 1–2; 11: 1–2;

Fig. 4. Faysaliyya, Shawbak directorate. Cordiform handaxes made of flint. 1 – inv. No. PL-17, 2 – inv. No. PL-21. Surface collection. Drawings by B. Witkowska

12: 1–2; 13: 1–2; 14: 1). Mostly, they represent short amygdaloid forms (8 specimens). Sub-cordiform (4 specimens) (Fig. 5: 1–2; 6: 1–2) and discoidal (3 specimens) (Fig. 7: 1; 9: 1–2) handaxes are quite numerous. Other types are less numerous: cordiform (2 specimens) (Fig. 4: 1–2); sub-triangular (2 specimens) (Fig. 7: 2; 8); handaxes, miscellaneous forms (2 specimens) (Fig. 15: 1–2); and Micoquian ficron (1 specimen) (Fig. 14: 2).

Fig. 5. Faysaliyya, Shawbak directorate. Sub-cordiform handaxes made of flint. 1 – inv. No. PL-16, 2 – inv. No. PI-25. Surface collection. Drawings by B. Witkowska

4. Discussion and conclusion

The surface collection of handaxes found at the Faysaliyya archaeological site in 2017 seems not to be a homogenous assemblage and it cannot be interpreted as remains of the Lower Paleolithic activity found *in situ*. Nevertheless, its analysis presented above has allowed the authors to make some important observations. All of the handaxes were made of the same raw material:

Fig. 6. Faysaliyya, Shawbak directorate. Sub-cordiform handaxes made of flint. 1 – inv. No. PL-26, 2 – inv. No. PL-35. Surface collection. Drawings by B. Witkowska

high quality local flint. Their surfaces are characterized by a state of preservation typical of lithic materials exposed to long-term, intense influence of a desert environment, evidenced by heavy patina and weathering. The presented inventory comprises various types of handaxes. The most numerous shapes are amygdaloids, followed by sub-cordiforms and discoidals. Several other types (cordiforms, sub-triangulars, miscellaneous forms, ficron) are also present.

Fig. 7. Faysaliyya, Shawbak directorate. 1 – discoidal handaxe, 2 – sub-triangular handaxe made of flint.
1 – inv. No. PL-22, 2 – inv. No. PL-14. Surface collection. Drawings by B. Witkowska

Except for one specimen, all of the handaxes have careful bifacial retouches and they retain only a small amount of cortex or natural surfaces. The most of them were probably made of flat, flint nodules. Because of the post-depositional damages affecting present morphology of the discussed handaxes, it is very difficult to reconstruct the successive phases of the manufacturing process. However, most likely they were manufactured in three stage sequence: roughing-out the nodule to removing cortex, bifacial shaping and thinning for creating a basic shape of the tool, and more or less careful final finishing of its edges. Worth noting is the fact that in some cases the cortical surfaces are partly preserved, which may suggest that sometimes the roughing-out phase was performed thoroughly. The removals coming from the first two phases are generally visible on the handaxes' sides while the last one is probably unable to be seen on account of the post-depositional damages of their edges. Moreover, in a few cases evidence of possible reutilization or modification/rejuvenation of the handaxes has been observed.

The artefacts bear significant traces of environmental damages, mainly related to fluvial processes. Due to river transport, the original morphology of an artefact can change (which results from broken tips, 'notches' on lateral edges, and battering abrasion of lateral edges). These kinds of damages can be observed in the case of the discussed handaxes. Particularly noteworthy are series of small scars which occur relatively frequently. Sometimes they are visible along the whole circumference of the artefacts, but much more often they occur only on the selected parts of their edges. These scars can be seemingly classified as the final trimming (or the secondary retouch) of the handaxes' edges and be interpreted as the finishing stage of the manufacturing process. However, it is more likely that the 'retouch' in question have been created by the fluvial transportation and rolling of the artefacts (Grosman *et al.* 2011b).

Fig. 8. Faysaliyya, Shawbak directorate. Sub-triangular handaxe made of flint. Inv. No. PL-27. Surface collection. Drawings by B. Witkowska

Fig. 9. Faysaliyya, Shawbak directorate. Discoidal handaxes made of flint. 1 – inv. No. PL-34, 2 – inv. No. PL-23. Surface collection. Drawings by B. Witkowska

Considering all post-depositional factors which could affect the presented collection of handaxes and its not homogeneous character, it is obvious that there is no possibility to draw any reliable conclusions about its chronology basing on the artefacts' measurement and detailed morphology. Nevertheless, it can be compared to some extent with others inventories of handaxes from the southern Levant area. The analysed handaxes evince a significant resemblance to surface collections from sites located in south-western Jordan, such as Fjaje (Fig. 3; the Late Acheulean

Fig. 10. Faysaliyya, Shawbak directorate. Amygdaloid handaxes made of flint. 1 – inv. No. PL-13, 2 – inv. No. PL-15. Surface collection. Drawings by B. Witkowska

according to Rollefson 1981), Wadi Faynan (Fig. 3; McLaren *et al.* 2007; fig. 6:18), and Wadi Qalkha (Fig. 3; the Late Acheulean; Rast 1992, fig. 4:1; 51; Henry 1995; Al-Nahar, Clark 2009). Interesting similarities to the presented collection are visible on the other further sites, such as e. g. Nahal Zihor in southern Israel (Ginat *et al.* 2003; Grosman *et al.* 2011a).

Above mentioned analogies and the general morphology of the handaxes from Faysaliyya indicate that they can be most likely dated to both the Middle (Large Flakes Phase) and Late

Fig. 11. Faysaliyya, Shawbak directorate. Amygdaloid handaxes made of flint. 1 – inv. No. PL-18, 2 – inv. No. PL-19. Surface collection. Drawings by B. Witkowska

Acheulean, or to the Late Acheulean solely (Bar-Yosef 1975; Shea 2013, 73–76). The use of flint only, the absence of cleavers, Abevillian types and others early forms suggest, however, that the presented collection of handaxes probably should be regarded as rather Late Acheulean (Rollefson 1984, 130–131; Shea 2013, 74; Sharon 2017).

The presented paper should be seen as one of a series of publications devoted to Palaeolithic remains from the vicinity of Faysaliyya village. Further research at this site will certainly result

Fig. 12. Faysaliyya, Shawbak directorate. Amygdaloid handaxes made of flint. 1 – inv. No. PL-28, 2 – inv. No. PL-24. Surface collection. Drawings by B. Witkowska

in the discovery of more Palaeolithic materials, including Lower Paleolithic ones. The authors hope that it will be possible to provide more data concerning the paleoenvironment as well as the site formation processes. This information, along with the detailed analysis of lithic materials from the Faysaliyya archaeological site, will provide an important contribution to our understanding of the Palaeolithic occupation in southwestern Jordan.

Fig. 13. Faysaliyya, Shawbak directorate. Amygdaloid handaxes made of flint. 1 – inv. No. PL-30, 2 – inv. No. PL-31. Surface collection. Drawings by B. Witkowska

Fig. 14. Faysaliyya, Shawbak directorate. 1 – amygdaloid handaxe, 2 – ficron made of flint. 1 – inv. No. PL-33, 2 – inv. No. PL-32. Surface collection. Drawings by B. Witkowska

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Fig. 15. Faysaliyya, Shawbak directorate. Miscellaneous forms of handaxes made of flint. 1 – inv. No. PL-29, 2 – inv. No. PL-20. Surface collection. Drawings by B. Witkowska

Pięściaki aszelskie ze stanowiska Faysaliyya (prowincja Shawbak, południowo-zachodnia Jordania), z sezonu 2017

W artykule zaprezentowano kolekcję pięściaków, które w 2017 roku zostały zebrane z powierzchni stanowiska Faysaliyya w południowo-zachodniej Jordanii. Stanowisko jest położone na rozległym, pustynnym płaskowyżu o wysokości 1200–1300 m n.p.m. około 5 km na południowy-wschód od miasta Shawbak, w północnej części historycznej krainy Edom. Zostało ono odkryte w 2016 roku przez pracowników jordańskiego Departamentu Starożytności w trakcie badań powierzchniowych, prowadzonych w związku z planowaną budową elektrowni wiatrowej. Od 2017 roku stanowisko jest badane przez polską ekspedycję z Instytutu Archeologii Uniwersytetu Jagiellońskiego w Krakowie w ramach realizacji projektu badawczego HLC Project. W trakcie prac badawczych (wykopaliskowych i powierzchniowych) w 2017 roku odkryto bardzo liczne materiały krzemienne o różnej chronologii począwszy od dolnego paleolitu aż po neolit/epokę brązu.

Wśród zabytków o najstarszej chronologii na szczególną uwagę zasługują powierzchniowy zbiór 23 pięściaków aszelskich. Zostały one zebrane we wschodniej części stanowiska, jednak nie tworzyły żadnej koncentracji i najprawdopodobniej ich obecność na powierzchni gruntu była wynikiem intensywnych procesów fluwialnych. Przystępując do szczegółowego opisu i analizy omawianych zabytków, autorzy musieli zmierzyć się z dwoma istotnymi problemami badawczymi. Pierwszym z nich była interpretacja niektórych negatywów widocznych na powierzchni pięściaków. Wszystkie okazy charakteryzowały się obecnością silnej patyny, jednakże na wielu z nich równocześnie widoczne były negatywy młodszych odbić, znoszących patynę. Część z nich mogła być w oczywisty sposób zinterpretowana jako różnego typu postdepozycyjne uszkodzenia, jednak w niektórych przypadkach były one nierozróżnialne od celowych odbić bifacjalnych, półstromych retuszy finalnie kształtujących krawędzie pięściaków, modyfikacji lub zabiegów o charakterze reutilizacyjnych. Aby kwestia interpretacji odbić znoszących patynę, które nie zostały jednoznacznie uznane za uszkodzenia pozostała otwarta, na rycinach zostały one zaznaczone jasnoszarym kolorem. Drugim problemem był wybór metody klasyfikacji pięściaków. W opracowaniach dotyczących inwentarzy dolnopaleolitycznych z terenu Lewantu stosowane są różne typologie: europejskie, afrykańskie lub lokalne. Pięściaki przedstawione w niniejszym artykule zostały sklasyfikowane według zasad typologii wciąż najczęściej używanej, a tym samym dającej później największe możliwości pod względem porównania z innymi zespołami (wg F. Bordes).

Wszystkie analizowane pięściaki zostały wykonane z lokalnego, brązowo-beżowego krzemienia o stosunkowo dobrej jakości. Ich charakterystyczną cechą jest stan zachowania – patyna i zwiertzenie typowe dla zabytków krzemiennych, poddanych długotrwałemu oddziaływaniu suchego środowiska pustynnego. Ponadto noszą one widoczne ślady transportu wodnego. Poza jednym zabytkiem o cechach „prymitywnych”, wszystkie cechują się starannymi odbiciami bifacjalnymi. Z powodu licznych podepozycyjnych uszkodzeń rekonstrukcja poszczególnych faz formowania pięściaków jest trudna. Widoczne na zabytkach odbicia bifacjalnie mogą być przypisane do dwóch pierwszych z nich, natomiast ostatnia związana z ostatecznym formowaniem krawędzi najprawdopodobniej jest niewidoczna z powodu licznych obtłuczeń. W dwóch przypadkach pięściaki mogły być wtórnie wykorzystane jako rdzenie odłupkowe, natomiast w dwóch kolejnych zaobserwowano ślady ich napraw poprzez modyfikacje partii wierzchołkowej i bazy. Pod względem wymiarów metrycznych analizowane zabytki są zróżnicowane. Ich długość mieści się w granicach 68–155 mm, szerokość w 52–102 mm, a grubość w 22–55 mm. Waga zabytków jest ściśle powiązana z ich wielkością – największy okaz waży prawie 700 g, a najmniejszy mniej niż 100 g. Pod względem klasyfikacji typologicznej w omawianym zbiorze najliczniejsze są pięściaki migdałowate (9 okazów). Wśród pozostałych wyróżniono: 4 podsercowate, 3 dyskoidealne, 2 sercowate, 2 podtrójkątne i 1 ficron mikocki. W dwóch przypadkach jednoznaczne zaklasyfikowanie zabytków do któregoś z typów zaproponowanych przez z F. Bordes było niemożliwe.

Pomimo, że zaprezentowana kolekcja pięściaków ze stanowiska Faysaliyya z pewnością nie jest inwentarzem homogenicznym i najprawdopodobniej zostały one przetransportowane z pierwotnego miejsca

zalegania przez procesy fluwialne, ich analiza dostarczyła kilku interesujących obserwacji. Wszystkie zostały wykonane z tego samego surowca kamiennego i odznaczają się podobnym stanem zachowania. Na podstawie ich cech morfologicznych można dość ogólnie datować je na środkową lub późną fazę rozwoju kultury aszelskiej. Za późnoaszelską chronologią omawianej kolekcji przemawia wykonanie wszystkich zabytków z krzemienia oraz brak rozłupców i wczesnych typów pięściaków. Należy również wspomnieć, że zaprezentowana kolekcja jest podobna do innych późnoaszelskich inwentarzy z pięściakami z terenu południowo-zachodniej Jordanii (Fjaje, Wadi Faynan, Wadi Qalkha), a także południowego Izraela (Nahal Zihor).

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Table 1. Descriptions of the handaxes from Faysaliyya. L: length (Max.) [mm]; W: width (Max.) [mm]; T: thickness (Max.) [mm]; WE: weight [g]; F: flatness ratio; E: elongation index; P: pointedness index; R: roundness of edges

Type	Inv. No.	DESCRIPTION OF THE ARTEFACT	L	W	T	WE	F	E	P	R
CORDIFORMS	PL-17	Cordiform handaxe (Fig. 4.1) made on a nodule of brown flint. The surface is covered by a white-beige patina. The specimen has no cortex at all. Traces of abrasion are present. Bifacial shaping was made from both sides, by centripetal removals. Series of small scars are visible on the edges. The base of the handaxe is rounded. The tip is slightly pointed. The lateral edges are convex. The handaxe is straight and symmetrical in longitudinal section. In cross section the artefact is lenticular, symmetrical.	76	59	20	93	3	1.3	0.8	1
	PL-21	Cordiform handaxe (Fig. 4.2) made on a nodule of brown flint. White patina and fluvial abrasion are present on the surface of the specimen. The bifacial shaping was made on both sides, by centripetal removals. Series of small scars are visible on the edges. The base of the specimen is rounded and the tip is slightly pointed. The lateral edges are convex. The entire circumference of the specimen is sharp. The handaxe is slightly sinuous, and symmetrical in longitudinal section. In cross section the artefact is lenticular, and slightly asymmetrical.	121	85	33	289	2.57	1.42	0.67	0.97
SUB-CORDIFORMS	PL-16	Sub-cordiform handaxe (Fig. 5.1) made on a nodule of brown flint with light red cortex. White-beige patina and abrasion can be seen on the surface, and residual cortex occurs (about 20% at the midpoint of one side). The handaxe was shaped by centripetal removals. Series of small scars are visible on the whole circumference. The base of the handaxe is irregularly rounded. The tip is slightly rounded. Both lateral edges are convex. The handaxe is slightly sinuous, and symmetrical in longitudinal section. The specimen is lenticular, and symmetrical in cross section.	83	69	25	142	2.8	1.2	0.75	1
	PL-25	Sub-cordiform handaxe (Fig. 5.2) made on a nodule of brown flint (with banding). White patina and fluvial abrasion are present on the specimen. On both faces of the handaxe a residual natural surface is visible. The handaxe was shaped by centripetal removals on both faces. Series of small scars are visible on the edges. The lateral edges are convex. The base of the specimen is irregular, the tip is slightly pointed. The handaxe is slightly sinuous, and symmetrical in longitudinal section. The specimen has a lenticular, slightly asymmetrical cross section.	81	68	28	155	2.43	1.19	0.59	0.92

Type	Inv. No.	DESCRIPTION OF THE ARTEFACT	L	W	T	WE	F	E	P	R
SUB-CORDIFORMS	PL-26	Sub-cordiform handaxe (Fig. 6.1) made on a nodule of brown flint. White patina and abrasion are present on the surface of the artefact. The entire surface of the specimen is covered with flake scars. The handaxe was shaped by centripetal removals on both faces. Series of small scars are visible on the whole circumference. The lateral edges are convex; the base and the tip are rounded. The handaxe is straight, asymmetrical in longitudinal section, and lenticular and asymmetrical in cross section.	79	72	27	154	2.6	1.1	0.8	1
	PL-35	Sub-cordiform handaxe (Fig. 6.2) made on a nodule of probably brown flint. White-beige patina and traces of abrasion are present on the surface of the artefact. The whole natural surface of the specimen was removed by flakes. One small post-depositional fracture is visible. The specimen was shaped by centripetal removals on both faces. Series of small scars are visible on the whole circumference. The tip-section of the handaxe shows signs of modification. The base of the specimen is rounded. The tip is slightly rounded. Both lateral edges are convex. The handaxe is slightly sinuous, slightly asymmetrical in longitudinal section, and lenticular and asymmetrical in cross section.	93	83	30	226	2.77	1.12	0.72	1
SUB-TRIANGULARS	PL-14	Sub-triangular handaxe (Fig. 7.2) made on a nodule of brown flint with light red cortex. On the surface of the handaxe beige patina and abrasion are present. Cortex occurs residually. The handaxe was shaped by centripetal removals. Series of small scars are visible on the one edge. The base of the handaxe is slightly rounded and the tip is pointed. The lateral edges are straight. The handaxe is slightly sinuous in longitudinal section, but both faces have symmetrical shapes in this view. In cross section the artefact is irregular lenticular, and symmetrical.	89	102	32	255	3.18	0.87	0.51	0.74
	PL-27	Sub-triangular biface (Fig. 8) made on a nodule of brown flint with banding. White patina and fluvial abrasion are present on the surface of the specimen. On the tip, post-depositional damage in the form of a small fracture is visible. The natural surface is visible on the distal end. The handaxe was shaped by bifacial centripetal, fairly unsophisticated, removals. Series of small scars are visible on the edges. The base of the specimen is rounded. The tip is unworked. One lateral edge is convex; the other is straight. The handaxe is sinuous and asymmetrical in longitudinal section, and lenticular and asymmetrical in cross section.	150	99	42	689	1.36	1.51	0.62	0.93
DISCOIDALS	PL-22	Discoidal handaxe (Fig. 7.1) made of beige flint. White patina occurs almost all over the entire surface of the specimen. The entire surface of the specimen is covered with flake scars. Small damages are present. The initial bifacial shape was made from both sides by centripetal removals. Series of small scars are visible on the edges. The lateral edges are convex. A retouch is present along the whole circumference of the specimen. The base of the handaxe is rounded. The handaxe is straight, and symmetrical in longitudinal section. The artefact has a lenticular symmetrical cross-section.	87	82	27	197	3.03	1.06	0.84	0.96

Type	Inv. No.	Description of the artefact	L	W	T	WE	F	E	P	R
DISCOIDS	PL-23	Discoidal handaxe (Fig. 9.2) made on a flat nodule of brown grey flint. Almost the entire surface of the artefact is covered with white patina. The remains of cortex are present on both faces, partially on the edges and in the proximal part of the specimen. The handaxe was shaped by centripetal removals. Series of small scars are visible on the edges. The lateral edges are convex; the base is rounded. The distal part is rounded. A retouch is present along almost the entire circumference of the handaxe. The handaxe is straight, and symmetrical in longitudinal section. The artefact has a lenticular cross section.	115	90	36	408	2.5	1.28	0.78	1.01
	PL-34	Typical discoidal handaxe (Fig. 9.1) made of brown-beige flint. On almost the entire surface of the artefact white-beige patina and traces of abrasion occur. The initial bifacial shape was made from both sides by centripetal removals. The entire surface of the specimen is covered with flake scars. Series of small scars are visible on the whole circumference. The entire circumference of the specimen is sharp. The lateral edges and the base are convex. The tip is sharp and the base is rounded and slightly pointed. A retouch has been made along almost the entire circumference of the handaxe. The handaxe is sinuous, and symmetrical in longitudinal section. The artefact has a lenticular, symmetrical cross section.	83	70	26	138	2.69	1.19	0.8	0.99
AMYGDALOIDS	PL-13	Amygdaloid handaxe (Fig. 10.1) made probably on a nodule. On the entire surface of the artefact a white-beige patina occurs. The handaxe was shaped by centripetal removals on both faces. Series of small scars are visible on the edges. The lateral edges and the base are convex. The tip is partially damaged, but it was probably rounded. The handaxe is straight, and symmetrical in longitudinal section. The specimen has a lenticular, symmetrical cross section.	94	72	31	196	2.32	1.31	0.81	1
	PL-15	Amygdaloid handaxe (Fig. 10.2) made on a nodule of light brown flint with banding. On the entire surface of the artefact white-beige patina occurs. Traces of fluvial abrasion are also present on the surface of the specimen. The remains of the natural surface are present on one face of the handaxe (approx. 40% of the face). Series of small scars are visible on the edges. The base of the specimen is rounded. The tip is pointed. Both lateral edges are convex. The handaxe is slightly sinuous and symmetrical in longitudinal section, and lenticular and slightly asymmetrical in cross section.	101	85	40	301	2.12	1.19	0.81	1
	PL-18	Amygdaloid handaxe (except for the flatness ratio, the specimen has the shape and general proportions of a discoid handaxe) (Fig. 11.1) made on a nodule of brown flint. White patina occurs on almost the entire surface of the specimen. Slight damages are visible on the lateral edges of the handaxe. The handaxe was shaped by centripetal removals. Series of small scars are visible on the edges. The lateral edges are convex. The distal part and the base are rounded. The handaxe is straight, and symmetrical in longitudinal section. The artefact has a lenticular, symmetrical cross section.	72	61	28	117	2.18	1.18	0.82	0.98

Type	Inv. No.	Description of the artefact	L	W	T	WE	F	E	P	R
AMYGDALOIDS	PL-19	Amygdaloid handaxe (except for the flatness ratio, the specimen has the shape and general proportions of an ovate handaxe) (Fig. 11.2) made on a nodule, probably of brown flint. The entire surface of the artefact is covered with white-beige patina. The whole natural surface of the specimen was removed by flakes. The handaxe was shaped by centripetal removals. Series of small scars are visible on the edges. The base of the specimen is rounded. The tip is rounded (like-nosed), and asymmetrical. The lateral edges are convex. The handaxe is straight, symmetrical in longitudinal section, and lenticular and symmetrical in cross section. Perhaps, the handaxe could have been used secondarily as a flake core.	94	74	36	244	2.05	1.27	0.81	0.99
	PL-24	Amygdaloid handaxe (Fig. 12.2) made on a nodule of dark brown flint. Almost the whole surface of the artefact is covered with white-beige patina. Damages are visible on the lateral edges of the handaxe. The remains of natural surface are present in the mesial part of the specimen (approx. 10%). The initial bifacial shape was formed from both sides by centripetal removals. Series of small scars are visible on the edges. The base is rounded and sharp and may have been reworked by thinning. The lateral edges are convex from the base to the mesial part and straight from the mesial part to the tip. The tip is rounded, and slightly damaged. The handaxe is slightly sinuous and from the second side it is straight in longitudinal section. The artefact has a symmetrical lenticular cross section.	98	78	35	214	2.23	1.26	0.59	0.9
	PL-28	Amygdaloid handaxe (Fig. 12.1) made on a nodule of dark brown-grey flint with light red cortex. On almost the entire surface of the artefact white-beige patina and abrasion occurs. Damages are visible near the tip and on the lateral edges. The natural surface occurs sporadically. The handaxe was shaped by centripetal removals. Series of small scars are visible on the whole circumference. The lateral edges are convex. The base is rounded. The tip is separated, and slightly pointed. The handaxe is slightly sinuous, and symmetrical in longitudinal section. The artefact has a lenticular asymmetrical cross section.	84	64	34	166	1.89	1.31	0.52	1
	PL-30	Amygdaloid handaxe (Fig. 13.1) made on a nodule of brown flint with light red cortex. On the surface of the handaxe beige patina and traces of abrasion (probably fluvial) are present. Cortex covers a relatively large part of its surface (about 60%). The handaxe was shaped by centripetal removals on both sides. Series of small scars are visible on the whole circumference. At the base traces of modifications occur. The base of the handaxe is rounded and the tip is slightly rounded. The lateral edges are slightly convex. The handaxe is sinuous and asymmetrical in longitudinal section. In cross section the artefact is lenticular and asymmetrical.	84	52	25	119	2.1	1.6	0.73	0.9
	PL-31	Amygdaloid handaxe (Fig. 13.2) made on a nodule of brown flint. On the surface of the specimen white patina and traces of fluvial abrasion occur. Post-depositional damage is visible on one face, in the form of a large fracture. Natural surface occurs residually at the base. The handaxe was shaped by bifacial centripetal removals. Series of small scars are visible on the edges. The base of the specimen is unworked. The tip is slightly rounded. The lateral edges are convex. The handaxe is slightly sinuous and asymmetrical in longitudinal section. In cross section the artefact is lenticular and symmetrical.	104	69	34	235	2	1.51	0.69	0.90