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MIDDLE PALAEOLITHIC FLINT ASSEMBLAGES FROM THE PIEKARY IIa SITE

The group of the palaeolithic sites at Piekary is situated on the northern edge of the Vistula gorge through the south-eastern end of the Jurassic Massif of the Kraków-Wieluń upland. G. Ossowski discovered and excavated the first site in this region 90 years ago.

The investigations were continued by S. Krukowski in 1927 and 1936, by L. Sawicki in 1955 and since 1967 they have been carried on by the author of the report.

The problems resulting from the excavation of flint artifacts in the Piekary IIa site are the object of the present paper. The conception of the penetration of the upland area situated immediately above the cave named Jama was born in the course of the excavations in 1967. It was just then that the rich Upper and Middle Palaeolithic artifacts were discovered in the Neolithic and later slope-slides situated on the rocky terrace in front of the Jama cave.

An area of 64 m² in total was investigated at the Piekary IIa site in the course of two years work. In few points excavations reached the rock. In result the transversal profile east-west of the rock spur came up to about 35 m after interpolation and the perpendicular one to 11 m.

The profiles showed the following stratigraphy of the site:

Karstified, frost weathered surface of the Jurassic lime-rock. Karst funnels and irregularities of the rock were filled up by a mixture of loess-sandy-gravel formations. Their top is constructed mainly of the Carpatian Flysh sandstone rather carefully segregated. Their surface well levelled, about 228 m above sea level, contains few flint artifacts.

In the crevices of the upper parts of the rock and its frost cracks there is a small quantity of pure sediment of loess types.

The western edge of the site is dissected by a furrow sloping down to the Piekary III site filled up by sandy loess-like deluvial deposits where single flint artifacts were found.

Quietly stratified sands cover all the sediments hitherto discussed where few flint artifacts occur. The sands represent a typical metamorphic complex of heavy

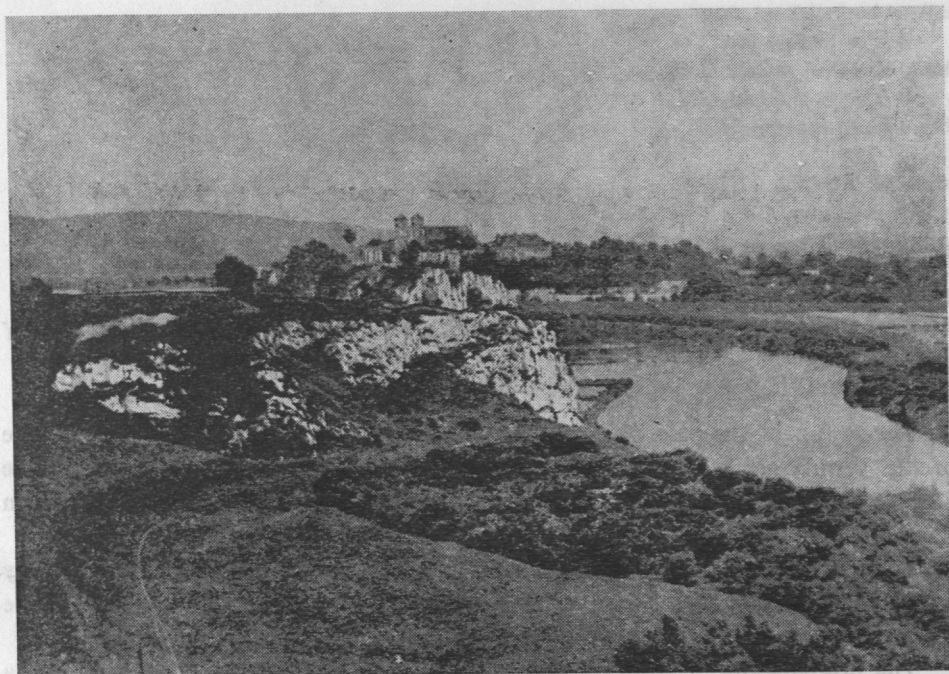


Fig. 1. Piekary, dist. Kraków. General view of rock spur from south-west. I, II, IIa, III, V — numbers of sites

minerals¹ characteristic of glacial or fluvjoglacial deposits, which the running water laid down forming as a slope sedimentary facies.

A series of washed loess occur above the sands. Its in the bottom sandy a little and in the top clayey of the B horizon of soil type. The upper part of the layer contains few charcoals and a fragment of Middle Palaeolithic workshop. Many of artifacts are overheated. The charcoals come exclusively from conifers: *Picea* sp. or *Larix* sp. (20 determinations) and *Pinus* sp. (1 determination)².

The upper part of the layer discussed is destroyed by solifluction which forms, here and there, multiserial configurations up to 1 m thick. Flint artifacts, in a big quantity overheated from the Middle Palaeolithic workshop destroyed by solifluction are intercalated by humus and very numerous charcoals. The set of species is extremely interesting and consists of: *Picea* sp. or *Larix* sp. 53,8 %, *Pinus* sp. 18,6 %, conifers not determined 19,3 %, *Taxus Baccata* 2,1 %, probably *Abies alba* Mill, 0,7 %, *Betula* sp. 0,7 %, probably *Quercus* sp. 0,7 %, and not determined deciduous trees 4,1 %.

¹ Dr A. Nowakowski from the Geological Faculty of the Warsaw University carried out the mineralogical analysis.

² All the macroremains of flora analyses were carried out by mgr Irena Gluza in the Palaeobotanical Laboratory of the Archaeological Museum in Kraków.



Fig. 2. Piekary, dist. Kraków. General view of rock spur from north-west. I, IIa, III, V — numbers of sites

The uppermost small layer destroyed by solifluction is different in composition and structure from the lower ones. It consists of rhythmically stratified deposits of blue silts and clayey loess shaped in dynamic solifluction forms of „buger” type destroying an Upper Palaeolithic workshop whose fragment was excavated.

In the overlying loess, maximum 2 m thick, traces of solifluction are still present in the bottom. A fragment of a mammal long bone³ not exactly determined was found in their horizon. The loess passes upwards into a typical eolian layer rich in carbonate, at the top closed by several vegetation horizons of initial phase soil type.

Flint concentrations of the Upper Palaeolithic workshops found in situ, denoted by symbol LG are associated with the uppermost horizon 231,5 m above sea level. Small fragments of mammoth's tusk were found among the bones broken into minute pieces occurring in concentrations. When washing the loess lying slightly beneath the uppermost vegetative horizon traces of small rodents' presence were found. They are not specifically determined yet.

Concentrations are covered by typical non-stratified loess strongly carbonated

³ Dr H. Kubiak from the Institute of the Systematic Zoology of the Polish Academy of Science — carried out the analysis of all remains of big mammals.

The erosive surface is overlaid by stratified loess deluvial deposits well transformed by soil formed on them; B horizon is only preserved there. Concentrations, next denoted by symbol LP, are found in situ in the lower part of the loess deluvial deposits near the highest point of the spur almost on the surface of the erosive shearing.

The deluvial deposits on the western part dissected by a ravine are partly filled up by slope deposits where flint artifacts coming from different time and accompanied by pottery occur.

When discussing the Middle Palaeolithic artifacts, I should like especially to draw attention to, I must say they are not very numerous. It is due to the technical difficulties in the site exploitation — they occur very deep. But there are relatively frequent considering the fact that they come from a small area excavated.

A dozen or so artifacts which should be associated with the top of gravel layer allow to characterize the assemblage as an industry where the levalloisian technique is weakly developed. Sometimes associated with preparation of striking platforms. At the same time other more primitive techniques of flint working were used in this industry as well. Lateral and transverse sidescrapers sometimes very carefully retouched occur among the tools. It is possible that the massive primitive side-scraper whose make and shape tend towards the Prądnik knife-scrapers belongs to the assemblage.

Some artifacts found in the deluvial deposits filling up the furrow represent common forms without any more important differentiating values. A small retouching waste certainly gives evidence to the manufacturing of bifacially retouched tools.

Artifacts occurring in the stratified sands, though there are a dozen or so only, are of suggestive significance. They indicate the highly developed levalloisian-core technique where sometimes a core with two striking platforms fully prepared, allowing to get blades, was used. A scraper of "dejeté" type or knife-scraper with bifacial retouch is very carefully made and indicates a very high standard of retouching technique.

All the collections of artifacts discussed so far are small fragments of assemblages. Their synchronism is not sure because they are dislocated. They were found in the water sediments of the valley or slope facies.

The most numerous Middle Palaeolithic artifacts come from the loess B horizon of soil and from the overlying layers soliflucted. The former were probably found in situ for the sediments did not show any dislocation and a few reunite cores occur there. The latter were situated in layers most probably slightly dislocated, for there are reunite cores, too.

The situation presented suggests that the artifacts from the layer of solifluction are a fragment redeposited from the assemblage below. The introductory analysis, however, induces to question this interpretation.

Most probably there are two different assemblages, for the basic technical indices point to essential differences. And so for the lower assemblage the indices with a

considerable margin for error are as follows: IL — 19%, IF1 — 48%, IFs — 36%, but for the upper ones IL — 3%, IF1 — 21%, IFs — 8%. The cores in both horizons show a series of similarities, and the discoid type not very regular and tending towards multidirectional forms is generally used. Both groups of implements excavated there do not present typologically interesting forms, they are rather specimens of uncertain character (burins), they should be included in the "pieces retouchées" type.

So we deal here with the precious Middle Palaeolithic assemblages of workshop type (which allow to build reunite cores) but it is still impossible for the author to express his opinion concerning their homogeneity or heterogeneity.

The Upper Palaeolithic assemblages found are very rich and I will discuss them short only.

The first Upper Palaeolithic assemblage occurred in the uppermost solifluction layer. It is a fragment of a workshop slightly dislocated as the reunite cores are rather numerous here. It is characterized by a highly developed core-technique. Regular blades from full prepared core with two striking platforms were obtained (index of cores and flakes from cores with two striking platforms 20%, Ilam 40%). A careful preparation of the striking platform edge was generally used. There were no tools in the assemblage.

Both uppermost levels of the workshop were excavated in situ. They are very compact concentrations with a small diameter about L — 1,5 m. Each contained from a few hundreds to over one thousand specimens.

Three concentrations were excavated in the LG workshops. Pretty big limestones were found in two and traces of red mineral dye and fragments of a grinder made of sandstone pebbles in one of them. Within the concentrations the artifacts left formed a layer 10 - 15 cm thick filled up by bones broken into minute pieces. Contrary to the LP workshops the LG ones contained a considerable number of tools almost exclusively burins on angle of retouched truncation or dihedral angle ones.

The workshops though much similar thanks to the use of a core with two striking platforms or with one approximate to navicular forms were, however, considerably different technically in details.

In workshops LG precoces were rather used — preparation of striking platforms was applied, longer blades were obtained and they were either transformed on the spot (presence of tools) or exported.

But in the upper LP nodules decorticated on the spot were used, the preparation of striking platform was not applied and for reasons unknown a considerable quantity of blades and flakes was left there. Typical tools are completely absent in the LP workshops. A few not very distinct forms might be interpreted as tools of the workshop type.

The material presented suggests the questions: how to interpret it, what its chronology is, and what culture it belongs to. The problems in view of the lack of a

series of analyses and the introductorytentative character of the present paper are difficult for the author to answer. None the less I shall try to make a few tentative suggestions which, I think, may be the gist of geochronological and cultural interpretation.

The horizon of the Carpathian Flysh gravel which, I think, is the trace of the old filling up of the Vistula valley, is the basis of the whole profile.

The loess remains in the crevices and frost cracks and karst funnels of the part of rock cleaned of gravels, probably, come from one of the Middle Poland glaciation phases or at the very latest from the earliest Würm.

Stratified sands and sandy loess deluvial deposits might have been deposited there either by floods or slope erosion. Latest possible date of their origin being the end of Eemian and the beginning of Würm.

The floristic composition of charcoals accompanying the Palaeolithic artifacts found in the soil destroyed by solifluction most probably seems to indicate the climatic régime corresponding to the Broerup interstadial.

In the interpretation of the Piekary profile special attention should be drawn to the hiatus occurring between the uppermost small layer, soliflucted containing Upper Palaeolithic assemblages and the underlying well developed configurations of disturbances where the Middle Palaeolithic collection is situated. The hiatus may be due to erosion and particularly to solifluction the phenomena especially dynamic in the time after the Hengelo interstadial.

A series of typical eolian loess divided by vegetation horizons is the last period of loess sedimentation if not in the whole then in the upper part rich in malacological remains. The origin of the full soil profile on the stratified deluvial loess deposits situated in the lower LP workshops falls to the Atlantic phase of Holocene.

The analysis of the question what cultural group the assemblages excavated belong to presents difficulties for two reasons: small quantity of artifacts excavated and the workshop character of camps founded here. The problem of the relation of the artifacts presented to the old assemblages obtained by S. Krukowski is most essential until a bigger number of Middle Palaeolithic artifacts needed for interpretation is excavated in the future.

The occurrence of the Piekary industry artifacts in loess deposits produces according to S. Krukowski the possibility to join them to those from the gravel top.

The retouching waste found in the furrow filled up by loess deluvial deposits seems to point to the earlier than the Skala industry appearance at Piekary of the assemblage from the culture circle with hand-axe traditions.

Our assemblage coming from stratified sands may supposable belong to the cultural circle with bifacially worked tools perhaps micoque-Prondnician – presence of the side scraper or knife-scraper-associated with highly developed levalloisian technique.

The occurrence of the Jama industry assemblage in loess makes possible its as-

sociation with either that of the loess horizon of soil or that from layers soliflucted. It is difficult, however, to solve the problem because of the weakness of the Jama industry definition resulting from the scantiness of S. Krukowski's collection.

The lower Upper Palaeolithic horizon can be joined to industries separated by S. Krukowski and belonging to the aurignacian industrial cycle. The first would probably correspond to the "Na Skafce" industry basing on the common technique of core with two striking platforms. The other — LG workshops — would be part of the Okraglik industry characterized by numerous tools mainly burins on retouched truncation and dihedral ones.

The problem what culture the uppermost workshops LP represent is open because of the complete absence of tools. The only cautious suggestion is the possibility of their connection with Late- and Final Palaeolithic cultures.