Fig. B.1. Comparison of IR50- and pIRIR225 related *g*-values.

Fig. B.1. Comparaison des valeurs de *g* liées à IR50- et pIRIR225.

Fig. B.2. Equivalent dose (*D*e) distributions: 1, L-Eva 1533; 2, L-Eva 1534; 3, L-Eva 1535; 4, L-Eva 1536.

Fig. B.2. Distributions des doses équivalentes (*D*e): 1, L-Eva 1533 ; 2, L-Eva 1534 ; 3, L-Eva 1535 ; 4, L-Eva 1536.

**Appendices**

Appendix A

The deposits found in the Pietraszyn area consist of Middle Miocene sediments, containing terrigenous and marine sediments with gypsum (Fig. 2). These deposits form a latitudinal ridge, currently covered with 20- to 40-m-thick Pleistocene sediments. The ridge of the Miocene sediments played an important role during the advance of the Elsterian (MIS 12) or Saalian (MIS 6) ice sheets (Lewandowski, 1988; Macoun and Králík, 1995; Růžička, 2004; Tyráček, 2011). During the Saalian glaciation, a latitudinally oriented barrier stopped the progression of the ice sheet. On the foreland of the ice sheet, there were extensive outwash cones, and a glacial lake appeared (Macoun and Králík, 1995). On the northern side, kame terraces were formed, covered with glacial tills (Salamon, 2015, 2017). Keme terraces are composed of stratified sands and gravels. In the area of Moravian Gate, kemes covered sediments from Elster glaciation.

In the foreland of the retreating ice sheet, a new river outflow appeared, with parallel rivers flowing from the eastern Sudetes to the Moravian Gate, draining into a proglacial lake. These directions of flow have remained to the present day.

During the Eemian interglacial period and the Weichselian glaciation (MIS 5d-2), the main rivers incised to a depth of up to 7–10 m. On the valley slopes, a number of periglacial fluvio-denudational valleys appeared. Inside one of them, which eroded the slope of the Troja Valley, the Middle Palaeolithic artefacts were found. In MIS 4 and 2 on the Głubczyce Plateau, an accumulation of loess deposits occurred (Jary and Ciszek, 2013). During the Holocene, the bottom of the smaller tributaries of the Oder river (such as the Troja River) were filled with sand, silt, and peat.

Appendix B

B.1. Geological method of grain size distribution

Analysis of grain size distribution for silty sediment was conducted using the Mastersizer 3000 Particle Analyzer from the Malvern Instruments. For the sieve analysis, a sieve set was used in accordance with DIN ISO 3310-1 and BS 410-1 norm (sieve size 63: 2800 μm) with dimensions of 200 × 25 mm, as well as a Vibratory Sieve Shaker AS 200 basic from the Retsh distribution. All of the samples had the same mass (100 g), and they were measured with an amplitude of 0.8 for 10 min without the interval function. For the graphic presentation of the results, the GRANULOM (elaborated by A. Walanus) program was used (with some modifications) with grain-size distribution parameters (Folk and Ward, 1957).

B.2. Age assessment methods

B.2.1. Quartz-luminescence dating

For a first luminescence dating campaign, three samples were taken, one from the middle part of the valley-infill (layer B7a), the second from inside the layer containing lithic artefacts (layer B9), and the third from the alluvial sands located below the valley (layer D). OSL dating was conducted in the Academic Laboratory Centre of the Institute of Geography of Jan Kochanowski University in Kielce in 2013. Sample-material was first dried at a temperature of approximately 20° C. Subsequently, the 63-to-100-μm fraction was isolated by sieving. After, the grains were etched with a 10% hydrochloric acid solution and a 20% H2O2 solution. Later, the quartz fraction was separated using the gravitational method. The last stage of the preparation procedure was 1-h etching of the sample with hydrofluoric acid. OSL measurements were conducted using a Manual Reader-Analyser TL/OSL RA’94, manufactured by MIKROLAB s.c. Weighed quartz portions of 0.5 mg were put on each aliquot. For equivalent dose measurements, the single aliquot regenerative dose protocol (Murray and Wintle, 2000) was applied.

To assess the concentrations of uranium, thorium and potassium, a “Mazar-01” Natural Radionuclide Analyser was used. A single measurement lasted approximately 30 h. Based on the obtained results, annual dose rates for the samples were calculated. While calculating the annual dose rate (in Gy/ka), the influence of cosmic radiation was also considered (Yokoyama et al. ,1982). The quartz OSL age estimates obtained from the artefact-bearing units range from 33.9 ± 3.4 ka to 38.7 ± 3.9 ka.

B.2.2. Feldspar luminescence dating

To bring more light to the controversial chronological framework of the artefact-hosting sedimentary units, further samples for luminescence dating were taken in 2016. This time, potassium feldspar was used for luminescence dating to determine whether the feldspar ages agree with the quartz OSL ages or not. Luminescence dating was applied to three samples derived from the sedimentary infill of the exposed fluvial channel (Fig. 2, 3C–3D). Additionally, one sample was obtained from fluvial sand underlying the valley.

For luminescence sampling, light tide steel tubes were used. Material for gamma-spectrometry was obtained at positions equal to that for the material for luminescence dating. Sample preparation for luminescence dating was conducted under subdued red light in the OSL laboratory at the Max Planck Institute for Evolutionary Anthropology in Leipzig, Germany. The sample preparation included sieving of the material to obtain the preferred grain-size fraction (180–250 µm) and treatment with HCl (15%) and hydrogen peroxide (30%) to remove carbonates and organic matter, respectively.

Luminescence measurements were conducted on a Risø TL/OSL DA-20 reader equipped with a 90Sr/90Y beta source with a dose rate of approximately 0.12 Gy/s. For feldspar stimulation, IR diodes (~870 nm) were used. The IRSL (infrared stimulated luminescence) signal was detected in the 320–480-nm wavelength range.

The activities of 238U, 232Th, and 40K, as well as of their daughter nuclides were measured on a dried sediment sample material in the Felsenkeller Laboratory in Dresden, Germany, using high-resolution gamma spectrometry. Additionally, the gamma-dose rate was measured *in situ* on the archaeological site using a LaBr3 detector to account for dose rate heterogeneity within the gamma-ray radiation field.

To account for feldspar alpha efficiency, an *a*-value of 0.11 ± 0.02 was used (Kreutzer et al., 2014). The internal potassium content was estimated to be 12 ± 0.5%. Dose rate conversion factors following Guérin et al. (Guérin et al., 2011) were used, and the cosmic dose rate was calculated by considering the longitude/altitude, height a.s.l. and thickness of the covering sediment layer (Prescott and Hutton, 1994).

The water content was estimated to be 15 ± 10%. The high error was chosen with respect to potential variations within the water content during the burial period.

Equivalent doses were determined by applying the pIRIR225-approach (Buylaert et al., 2009; Thomsen et al., 2008) to 1-mm-sized K-feldspar aliquots. Here, the feldspar signal was measured at elevated temperatures (225°C) after depleting the IR50 signal. Table B1 shows the measurement protocol used.

It was demonstrated that the so-called post-IR signals measured at elevated temperatures are only affected in a negligible amount by anomalous fading, but it was also demonstrated that the bleachability decreases with increasing stimulation temperatures. Therefore, the pIRIR225 approach was preferred over the pIRIR290 approach.

Prior to the measurements of *D*e, the pIRIR225-protocol used was tested for its reproducibility by applying dose recovery tests. Therefore, three aliquots of samples of L-Eva 1533, 1534 and 1535 were bleached under a solar lamp for 3 h. Thereafter, the aliquots were irradiated with a known dose close to the expected natural one, and how precisely the pIRIR225 approach could recover the inserted dose was assessed.

The measured-to-given dose ratios without subtracting residuals were 0.98 ± 0.01, 0.99 ± 0.001 and 0.98 ± 0.3. Additionally, if one can assume high stability of the pIRIR225-signal, the *g*-values were subsequently measured (Huntley and Lamothe, 2001). The pIRIR225 related *g*-values were all 1.5 (see Fig. B1).

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