1 Historical introduction and background

In 1980 the author started a study of Lower and Middle Palaeolithic surface finds from the southern part of the Netherlands, in a project supervised by Professor P.J.R. Modderman (Leiden). Part of this project consisted in visiting Pleistocene exposures in South Limburg in order to systematically study the local stratigraphy and to look for *in situ* occurrences of palaeolithic material. On September 29, 1980, in the course of these activities, which were supported by associates of the Geological Bureau at Heerlen (Geological Survey of the Netherlands), Mr W.M. Felder found an artefact at the boundary of the Saalian/Weichselian loess deposits in the Belvédère pit near Maastricht (fig. 1).

The Maastricht-Belvédère loess- and gravel-pit is situated NW of the town of Maastricht, on the left bank of the river Maas, and lies on the edge of the so-called Caberg plateau (figs. 1 and 2). The pit had been carved into the steep cliff between the Lower and the Middle Terraces of the river Maas.

Mr Felder's discovery inspired the author to carry out a thorough investigation of the pit sections, together with two amateur archaeologists, Mr K. Groenendijk (of Eckelrade) and Mr J.P. de Warrimont (of Geulle). Several horizons containing artefacts and animal remains were found. Most of these were in stratigraphical positions showing that they were older than the last i.e. the Weichselian glaciation.

The Belvédère research was started as an archaeological project by the Institute of Prehistory of Leiden University, but has since developed into a more comprehensive project, in which scientists of several disciplines and countries are now cooperating. Since 1981, excavations have taken place each year, often under considerable time pressure and sometimes right in front of the digging machines, because the pit is still being exploited by a commercial quarrying firm (fig. 3). The present paper will deal with the results of the 1981-1985 excavations; a short note will be presented on the 1986 and 1987 digs, which will be published *in extenso* elsewhere.

The area surveyed in 1980-1987 comprises approximately five hectares. Figure 4 shows two aerial photographs of the pit, one taken in February 1980, i.e. seven to eight months before its discovery, the other in May 1986. The majority of the data presented in this volume were obtained in investigations of the area that was quarried away in the period between these dates.

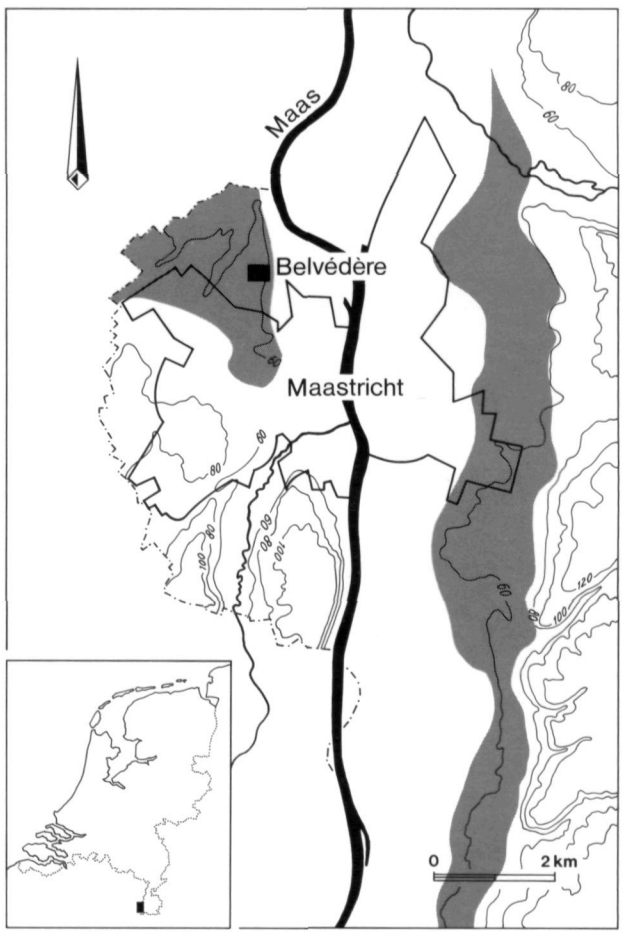

Fig. 1. Situation of the Maastricht-Belvédère pit. The shaded area shows the distribution of the Caberg Middle Terrace sediments (after: Brueren 1945). The Caberg plateau coincides with the western distribution of the Middle Terrace sediments.

At the time of the first investigations, the sites discovered were named according to their geographical position in the pit (East Trench, South Trench, etc.). After several years of fieldwork this system appeared to be impracticable, so we decided to name the different sites alphabetically, in the

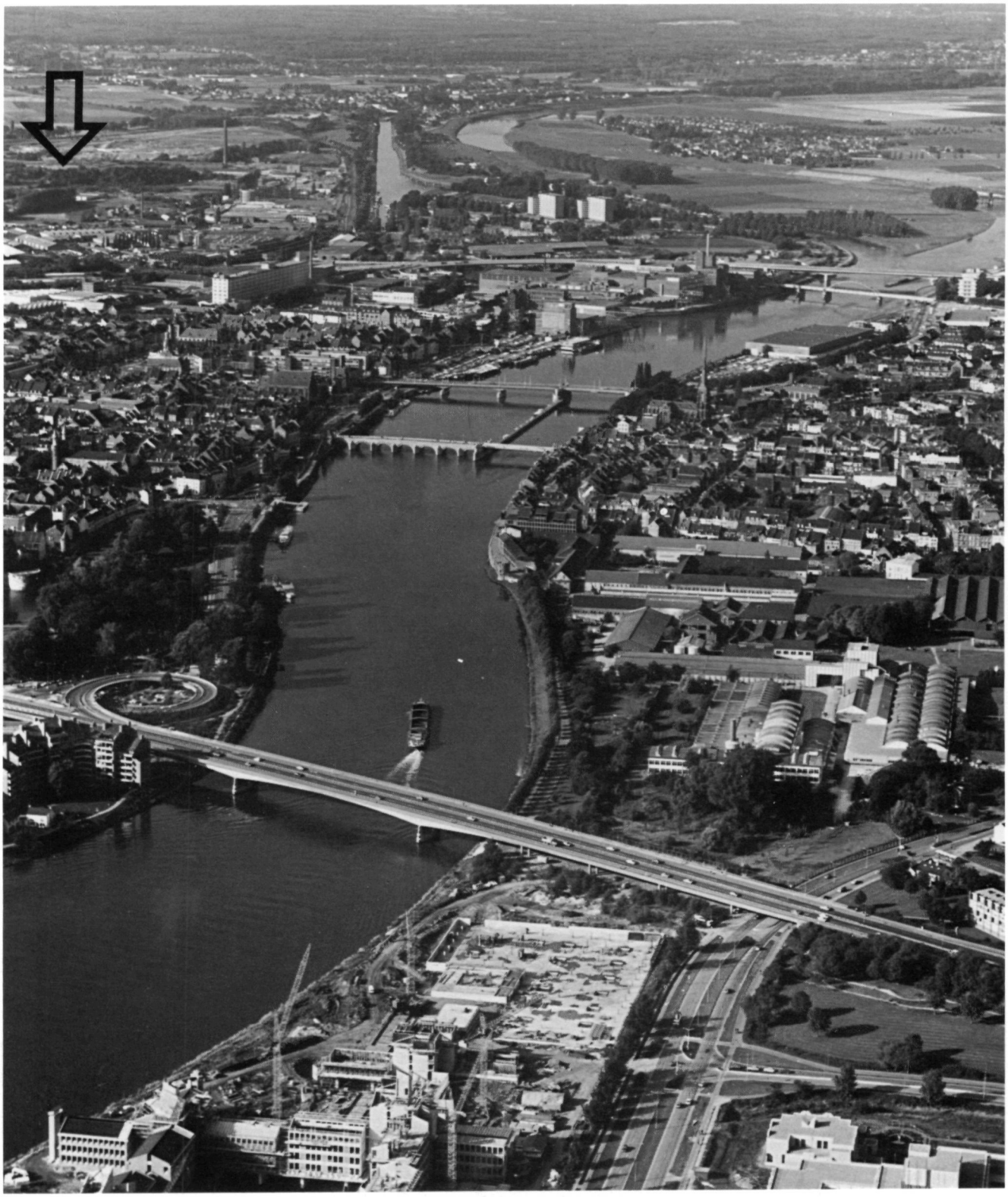

Fig. 2. Situation of the Maastricht-Belvédère pit (indicated by an arrow), a view from south of the city of Maastricht (from a colour slide by Airphoto Netten).

Fig. 3. Rescue archaeology at Maastricht-Belvédère: excavation of an Early Weichselian site (Site J) in front of the bulldozer, May 1986.

order of their date of discovery. Table 1 lists the sites, their approximate age, and the areas excavated, while figure 5 shows the exact situation of the sites.

The name 'Belvédère' is in all probability to be related to the view that the edge of the Caberg Plateau must once have afforded over the valley of the river Maas. A map of the siege of the town of Maastricht in 1748[1] shows a military fortification (*redoute de Belvédère*) at the site of the Belvédère pit. From that date onwards, 'Belvédère' appears often on maps of the immediate environs of Maastricht. On the cadastral plan of 'Oud-Vroenhoven'[2], dating from 1843, 'Belvédère' is a toponym for a larger area, centred around a large rectangular building, already visible on the 1748 map to the north of the *redoute de Belvédère*.

Before it became known as a Palaeolithic site, the Belvédère pit had attracted the attention of collectors for several generations because Pleistocene fossils had been found in its exposures. In the first half of the nineteenth century there were several loess- and gravel-pits in the Caberg region. From the 1850s onwards a number of -mostly small- brick factories were founded, which exploited the loess deposits of the area[3]. In the nineteenth century the Caberg plateau became well known for the mammal fossils found in its Quaternary deposits during the construction of the Zuid-Willemsvaart canal in 1823 and in the exposures of the quarries (Crahay 1823; Van den Ende 1835; Kerckhoffs 1884; Martin 1889; Rutot 1893). In 1823 a human jaw was found about 1000 m north of the Belvédère pit below 6.5 m of loess -according to the original publication- which became known as 'la machoire de Maestricht'. The jaw was the subject of a lively discussion (Crahay 1823; Schaaffhausen 1860; Kerckhoffs 1884; De Mortillet 1886; Martin 1889; De Mortillet/De Mortillet 1910; Van Doormaal 1945;

Fig. 4. Two KLM aerial photographs of the Belvédère pit, dating from February 1980 (the top photo) and May 1986, respectively. Scale 1:6000, published with the permission of KLM Aerocarto (1980: film 9672 – photo 9261, 1986: film 0556 – photo 8528).

Fig. 5. Situation of the archaeological sites (A-K) in the Belvédère pit mentioned in the text. Scale 1:2500. (the numbers refer to the coordinates of the topographical map, sheet no. 61F, 1:25.000).

Van der Vlerk 1955) concerning the presumed Pleistocene age of the fossil, which is, however, now considered to be a recent specimen. In 1860 Charles Lyell visited the Zuid-Willemsvaart section, to which he paid considerable attention in a paragraph on 'Human remains in loess near Maastricht' in the edition of 'The Geological Evidences of the Antiquity of Man' (1863: 338-340).

Other important finds -now lost- were made in 1815-1817, during the construction of the 'Willem' fortress at the foot of the Middle terrace of the Caberg plateau, about 1.5 km south of the Belvédère site. According to a report by De Burtin[4], remains of elephant were found, and Habets (1887) also mentions the presence of hippopotamus. The detailed description of the exposure in the manuscript mentions that the fossils were found below a layer of more than 6 m of loess.

Large-scale quarrying in the Belvédère pit started in the 1890s, when Mr Baeten and Mr Lalieu bought considerable areas of land for their Belvédère company, which was officially established in 1897. The pit soon became well known locally for its loess sections and for fossils collected from the gravels and the loess (Klein 1913; Reinhold 1916, 1923; Cremers 1925). Figure 6 shows photographs of the Belvédère pit taken in the 1930s when manual exploitation of the loess and gravel favoured the recovery of fossils; some of these are now in the Museum of Natural History at Maastricht. In the 1920s important Neolithic finds and associated features were discovered and excavated at Belvédère by the National Museum of Antiquities of Leiden (Holwerda 1926-1930). Iron Age and Roman sherds were also collected from the pit area in considerable quantities (Kengen 1928; Disch 1969, 1971/1972).

Van Doormaal (1945) paid much attention to the geology of the Caberg pits. More recently, exposures in the Belvédère quarry have been described by Paulissen (1973) and Bosch (1975). The discovery by Mr Felder, mentioned

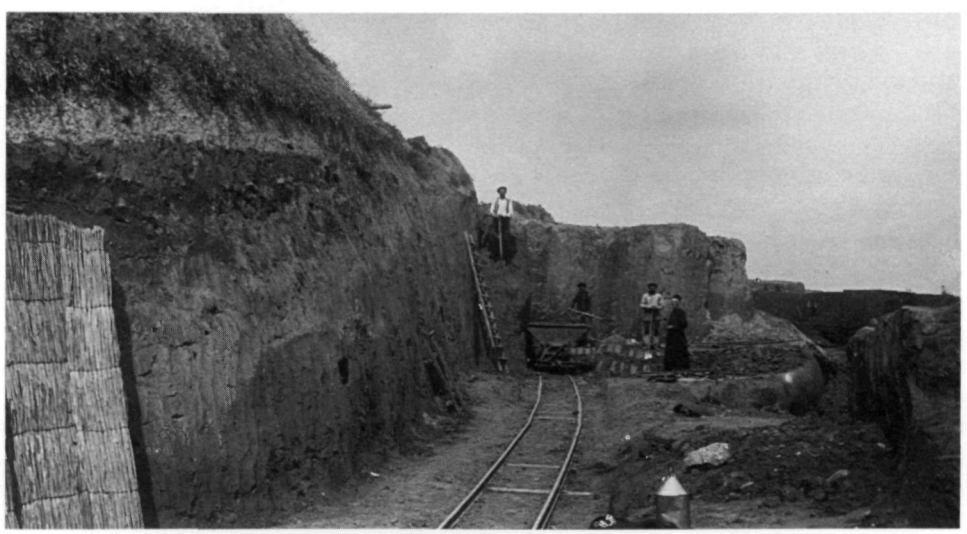

Fig. 6. A, B and C. The Belvédère pit: photographs taken in the 1930s (Municipal Archive of the city of Maastricht).

Table 1: Survey of the Maastricht-Belvédère Sites.

	Field name	'Dating'	Excavated area (m^2)	Period of excavation
Site A	Trench East I	Saalian	5	March 1981
Site B	North Trench	Saalian	19/23	July-Sept. 1981
Site C	South Trench	Saalian	264	1981-1983
Site D	Trench East II	Saalian	–	August 1982
Site E	Trench WG	Weichselian	60	Nov.-Dec. 1982
Site F	Trench East III	Saalian	42	June-July 1984
Site G	Site G	Saalian	50	1984/1985
Site H	Site H	Saalian	54	March 1987
Site J	Site J	Weichselian	210	May-June 1986
Site K	Site K	Saalian	370	Dec.'86-July'87

above, eventually led to the establishment of a multidisciplinary team that has been studying the exposures in the pit since 1980.

In 1982 an interim report on the multidisciplinary research at Maastricht-Belvédère was presented at a symposium on 'Palaeolithic Archaeology and Quaternary Stratigraphy in South Limburg', organized by the INQUA Commission for the Netherlands. Following this symposium some preliminary papers on the site were published (Roebroeks *et al.* 1983; Roebroeks 1984a). In 1985 the first synthetic review of the Belvédère Quarternary research was presented (Van Kolfschoten/Roebroeks 1985).

The specific reasons for investing a considerable amount of time, energy and money in the Belvédère project will, hopefully, become clear in this volume. In general terms it can already be said that we wanted to exploit the fact that several types of archaeological assemblages seemed to have been preserved rather well, especially in the Late Middle Pleistocene deposits in the pit. Over the years it became clear that this would enable us to compare archaeological assemblages formed within a small area over a short period of time, and to thus collect evidence of variability between 'sites' which in all probability had been formed by members of one and the same 'cultural system'. Furthermore, continuing the project also meant gaining a maximum output from the basic investments made in establishing the geological framework.

The methods used to record the archaeological phenomena at Belvédère could not be chosen freely, but were always the result of a compromise between the interests of the commercial exploiter of the pit and our own research aims, as will be shown in this volume. Particularly since 1985, the emphasis has been on the recording of large areas, instead of focussing our means on a very detailed survey of small areas.

Finally, a major drawback of this volume must already be pointed out here, in the introduction. The questions we tried to solve with the aid of our material have changed significantly in the course of the several years of rescue archaeology in the pit. At first, the major concern was to start the project and to coordinate the work of a number of prospectors and specialists, both in the field and afterwards. In the periods between the field campaigns attention was paid to the flint material, which was studied for a few basic variables such as maximum dimensions, presence/absence of a cortex and the type of striking platform. Subsequently the assemblages studied, which were limited in number through lack of the time in the field, were submitted to extensive refitting analysis. Now, many years later, we have assemblages from several sites which seem to be contemporaneous on a very fine time-scale. And we would now like to compare these assemblages using more variables than the few that seemed sufficient to answer our earlier questions. This means that in due time all the material presented in this volume will be studied again, using a greater list of variables in order to enable a detailed technological comparison of the various assemblages which were formed from the same raw material and in the same ecological environment. This 'starting all over again' will probably also involve the dissolution of some of the very complex conjoined blocks that were reconstructed from the Site C material. This will take some time, and therefore this volume has meanwhile been published as a kind of 'state-of-the-art' research intermezzo. As can be seen in the rest of this volume, not all of the sites known and excavated in the pit are treated here, so eventually there will be more publications on the archaeology of the pit, in which the flint material will be presented in a less 'impressionistic' way than has been done here.

In retrospect, this proved an incorrect approach from a systematic point of view. However, had we started with detailed analyses (like P.Callow in his presentation of the material from La Cotte de St.Brelade (Jersey) (in: Callow/Cornford 1986)) from the first excavation onwards, we would have covered a much smaller area and the refitting would have been done at a much later stage. The recording of as many sites as possible was (and still is) given utmost priority over analysis as long as fieldwork was possible.

Furthermore, the results of the refitting proved to be of great importance in the 'promotion' of the project, which, in turn, was a *conditio sine qua non* for the continuation of the excavations in the pit in the period 1981-1988. It should however be stressed that this way of working was the result of the author's lack of experience in dealing with these assemblages rather than of deliberate planning.

notes

[1] Municipal Archive of the Town of Maastricht, inv. no. 1106.
[2] Municipal Archive of the Town of Maastricht, inv. no. 1627, section A, page 2.
[3] Archive of the Municipality of Oud-Vroenhoven, Municipal Archive of the Town of Maastricht.
[4] Municipal Archive of the Town of Maastricht, Ms. collection no. 184.