



The Spy VI child: A newly discovered Neandertal infant

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ABSTRACT

Spy cave (Jemeppe-sur-Sambre, Belgium) is reputed for the two adult Neandertal individuals discovered *in situ* in 1886. Recent reassessment of the Spy collections has allowed direct radiocarbon dating of these individuals. The sorting of all of the faunal collections has also led to the discovery of the remains of a Neandertal child, Spy VI. This individual is represented by two mandibular corpus fragments. The left fragment is the most complete and both sides preserve the mental foramen. Four deciduous teeth are associated with these mandibular remains: three incisors and one canine. The lower left canine (Spy 645a) conjoins with the corresponding alveolar socket in the left part of the mandible. Following extant standards, the developmental stage of the preserved teeth indicate an age at death of about one and a half years. In addition to performing a classical morphometric comparative study of the mandible and teeth, we have evaluated the dental tissue proportions using high-resolution microtomographic techniques. Our results show that Spy VI generally falls within the Neandertal range of variation. However, this specimen also exhibits particular traits, notably in the dental internal structural organization, which reveals that variation in the immature Neandertal variation is larger than what was variation currently represented by the available fossil record. These observations demonstrate the need for investigating the frequency and expression of immature Neandertal traits in fossil anterior teeth, as well as their temporal and geographic variation. Direct radiocarbon dating of the Spy VI specimen has been conducted in two different laboratories. The results of Spy VI confirm the age previously determined for the two adults, making the Spy Neandertal remains the youngest ever directly dated in northwest Europe.

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Introduction

Since the 1886 *in situ* discovery of the remains of two adult Neandertals in the “B eche-aux-Roches” cave, the Spy site has acquired a worldwide reputation. Several excavation campaigns conducted throughout the twentieth century led to the acquisition of multiple collections by various Belgian institutions and private collectors (Rougier et al., 2004). Between 2004 and 2006, three projects (TNT, MARS and Spy Action 1) initiated a complete reassessment of all of the collections from Spy cave. This reassessment entailed an exhaustive sorting of the faunal remains derived from

the official and private excavations campaigns led at Spy. The results of these efforts have led to the discovery of nearly 2000 human remains, including 24 new Neandertal fragments (Semal et al., 2009). Some of these fragments can be associated with each of the two adult Neandertals and have been used to directly date these individuals (Semal et al., 2009). Six of the 24 newly recognized Neandertal fragments (two mandibular fragments and four teeth) can be attributed to an immature individual, designated as Spy VI. These new remains of a Neandertal child all come from the faunal collection from the 1952 to 1954 excavation campaigns of Fr. Twiesselmann, which he carried out on the slope facing the cave entrance (Fig. 1).

The immature Neandertal mandibular fragments and the four deciduous teeth come from different square-meter quadrants and

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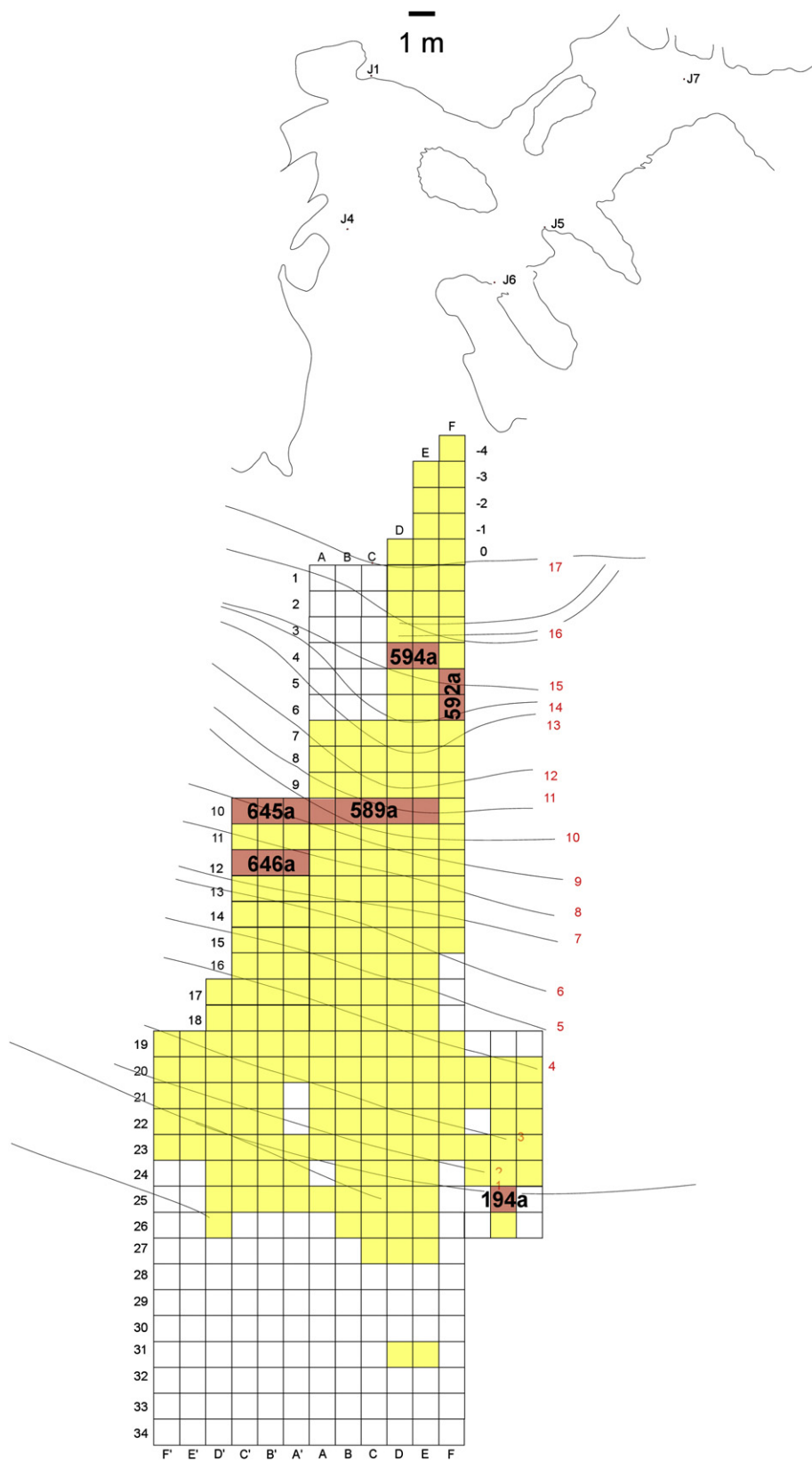


Figure 1. Map of the slope area in front of the Spy cave terrace excavated by Twisselmann (1952–1954), showing the location where the newly identified immature Neandertal remains were found.

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