

3. Saccopastore 1: the earliest Neanderthal? A new look at an old cranium

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Keywords: Neanderthal, Accretion model, Cranial morphology, OIS 5, Saccopastore, Italy

Abstract

The fossil cranium known as Saccopastore 1 was recovered in 1929 near Rome (Italy) in a gravel quarry that has been later replaced by building areas within the city. Its Neanderthal morphology was established early on, and detailed successive works described a combination of features in which traits that are recurrent among Würmian Neanderthals blend with those shared by Middle Pleistocene hominines. Recent computed analyses allowed the study of the endocranial structures through tomographic and digital approaches, and improved the ectocranial comparisons by using landmark-based multivariate techniques. This paper is aimed at synthesizing and describing the current information available about the Saccopastore 1 cranial morphology, through an integration of past and present data. This specimen represents the best-preserved and most complete cranium in Europe among those dated to OIS 5. Its recognized Neanderthal identity suggests that the impact of the preceding cold stage (OIS 6, around 200–130 ka) was probably decisive in the definition of the Neanderthal phenotype, modifying the extent of genetic variation of previous European populations toward a more homogeneous gene pool.

Saccopastore, Ever Since 1929

A gravel quarry was active during the late 1920s in a locality known as Saccopastore, which was just outside Rome at the time, since the city’s great expansion took place only in the last fifty years. The quarry was delimited by a meander of the river Aniene (tributary of

the Tevere), about 3.5 km from the northeastern border of the city. It was removing gravels and sands pertaining to the lower and more recent terrace of a fluvial valley.

In April 1929, the workmen of the quarry found a fossilized human cranium (SCP1; Figure 1A) that was immediately removed from the deposit. The specimen was then

delivered to the anthropologist Sergio Sergi (Figure 1B), who recognized its Neanderthal features (Sergi, 1929) and started a long-term series of studies (e.g., Sergi, 1934, 1944, 1947, 1948a, b, 1962). Another, less complete cranium of Neanderthal morphology (SCP2) was later discovered in the same locality by A.C. Blanc and H. Breuil, while they were visiting the abandoned quarry in the summer of 1935 (Breuil & Blanc, 1936; Blanc, 1948; Sergi, 1948c). During the following year (1936), a brief excavation campaign was carried out by the Istituto Italiano di Paleontologia Umana. Faunal and plant fossil remains were added to the material previously collected by the workmen, and a few flake instruments of Mousterian typology were also discovered (Blanc, 1948). Moreover, the stratigraphy of the area was studied in further detail (e.g., Blanc, 1948, 1957; Segre 1948), enriching the initial observations made by Koppel (1934) and Sergi (1935).

According to the stratigraphic profile furnished by A.G. Segre (1983) and reported in Figure 1C, the two human specimens appear embedded in the same stratigraphic span of gravels, which belong to the last interglacial cycle. An alluvial lens of mud, including terrestrial mollusks, separates the two crania, but it simply represents the occurrence of a rapid fluvial event interposed in the sequence of gravels. Consequently, the two crania should date to the Eemian and, more precisely, to one of the warmest phases of oxygen isotope stage 5 (OIS 5), most probably between the sub-chrons 5e and 5c (Caloi et al., 1998). This corresponds to a chronology of about 100–130 ka.

Despite some visible damage, SCP1 is a remarkably well-preserved fossil specimen. The cranium lacks the mandible and both the zygomatic processes. Many maxillary teeth and alveolar structures are broken, but both molar series have been preserved, with the exception of the crown of the right M1. The

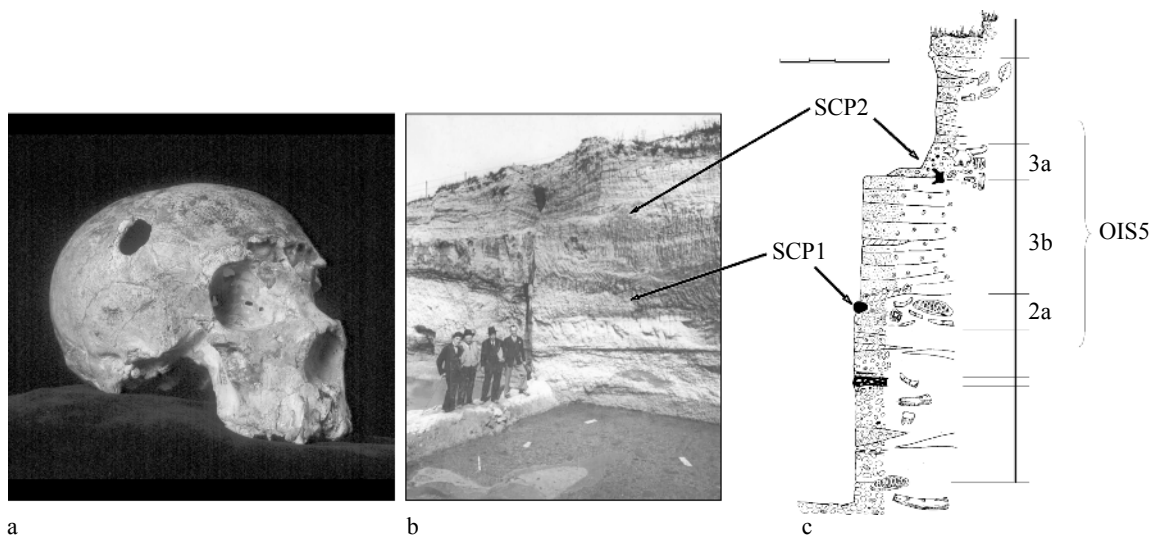


Figure 1. Saccopastore: a) fossil cranium found in 1929; b) the site visited by S. Sergi (first on the left) after the discovery of the specimen; c) stratigraphic profile based on that elaborated by A.G. Segre (1983), where the levels referred to the OIS 5 are evidenced. These include (from above): level 3a, cemented gravels with large mammal remains; level 3b, slime lens with terrestrial mollusks; level 2a, fine gravels with faunal assemblage similar to that in 3a (except for the presence of *Palaeoloxodon antiquus*). The arrows indicate the position of the Neanderthal crania, labeled SCP1 and SCP2, discovered in 1929 and in 1935 respectively.