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# Study of deciduous teeth discovered in the 19<sup>th</sup> century in Saint-Acheul (Somme, France)

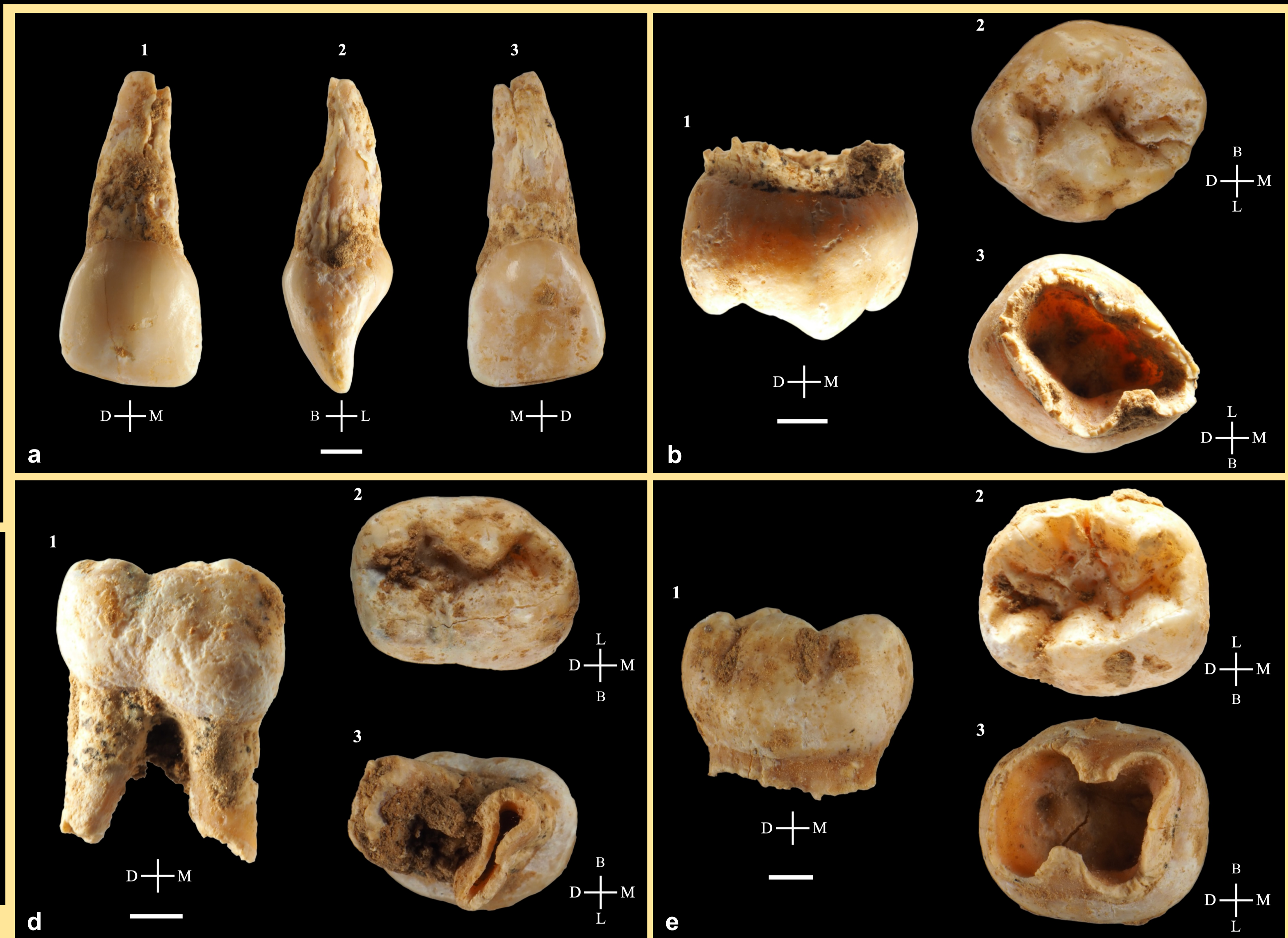
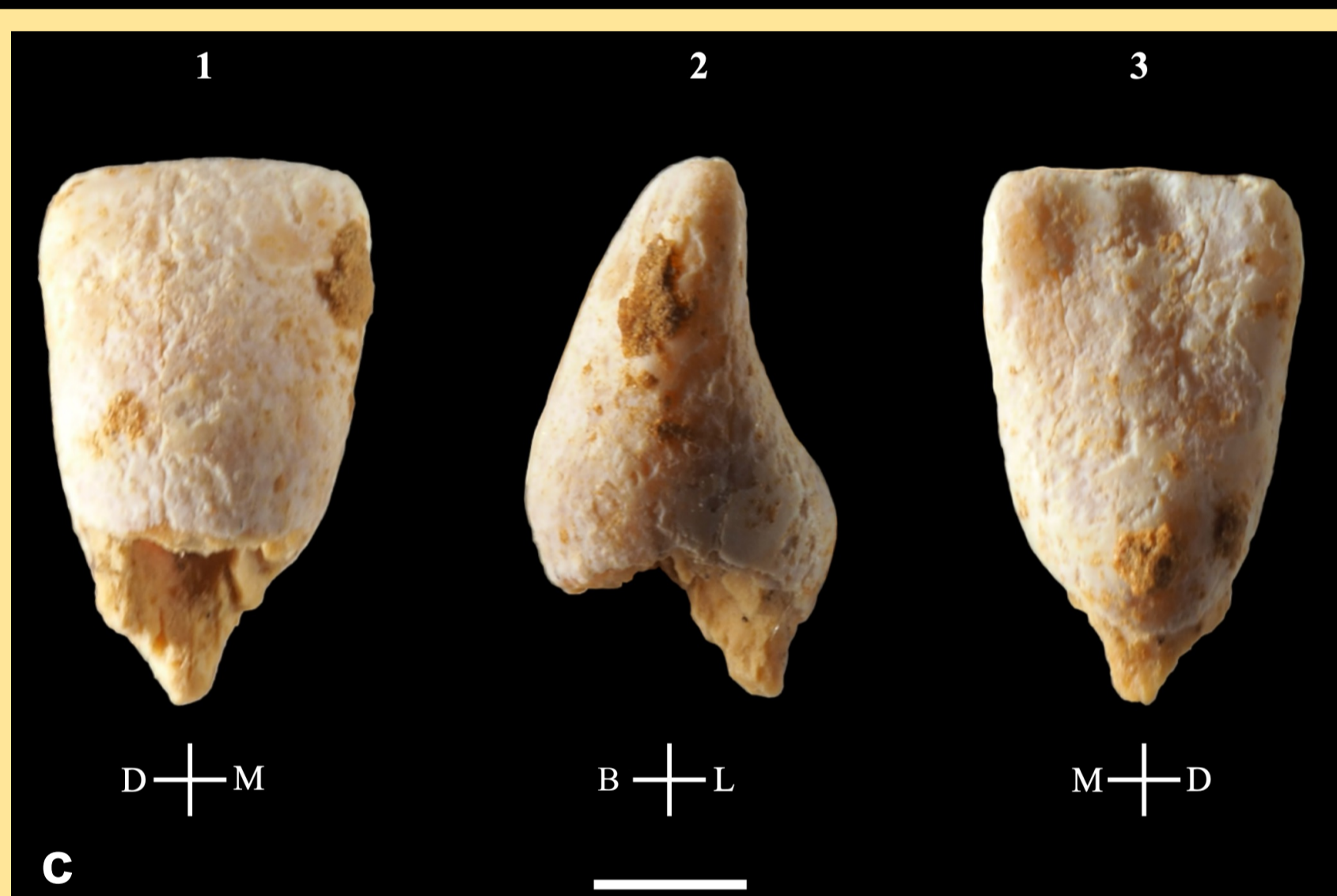
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**Introduction** Five isolated human deciduous teeth (Fig. 1) have been identified in the collections of the Museum of Toulouse. An associated label mentioned the site of **Saint-Acheul**, the name of **Lartet** and the date of **1869**. Moreover, the teeth were stored with a biface, an equid tooth, several pebbles and two fossil sea urchins used as hammerstones. No more information is known about the context of their discovery. The series includes an upper right central incisor (**di<sup>1</sup>**), an upper right second molar (**dm<sup>2</sup>**), a lower right central incisor (**di<sub>1</sub>**), a lower right first molar (**dm<sub>1</sub>**) and a lower right second molar (**dm<sub>2</sub>**). The objective of this study is to determine the biological characteristics of these teeth, their taxonomic attribution and the taphonomic processes that would have affected them.

**Materials & methods** The study of the Saint-Acheul teeth includes observations of their **metric** and **non-metric anatomical traits** compared to bibliographic data of **93 fossil individuals** from the Middle (n=62) and Late Pleistocene (n=31), representing a total of **160 teeth** including 29 di<sup>1</sup>, 36 dm<sup>2</sup>, 16 di<sub>1</sub>, 36 dm<sub>1</sub> and 43 dm<sub>2</sub>. The Liversidge and Molleson table was used to determine the **age at death**<sup>1</sup>.

**Figure 1.** Saint-Acheul deciduous teeth. a. Upper right central incisor; b. Upper right second molar; c. Lower right central incisor; d. Lower right first molar; e. Lower right second molar. For the incisors: 1. Buccal face; 2. Mesial face; 3. Lingual face. For the molars: 1. Buccal face; 2. Occlusal face; 3. Apical face. D = distal side; M = mesial side; L = lingual side; B = buccal side. Scale bars: 2 mm. © G. Fleury, MNH-Toulouse.



**Results** Comparative morphometric analysis reveals many similarities between the Saint-Acheul teeth and those belonging to **Neanderthals** (rhomboidal crown shape of dm<sup>2</sup> with

prominent hypocone<sup>2</sup>) and **Upper Paleolithic humans** (absence of shoveling and lingual tubercles of the incisors<sup>3</sup>, no taurodontism of the molars<sup>4</sup>). They are more clearly

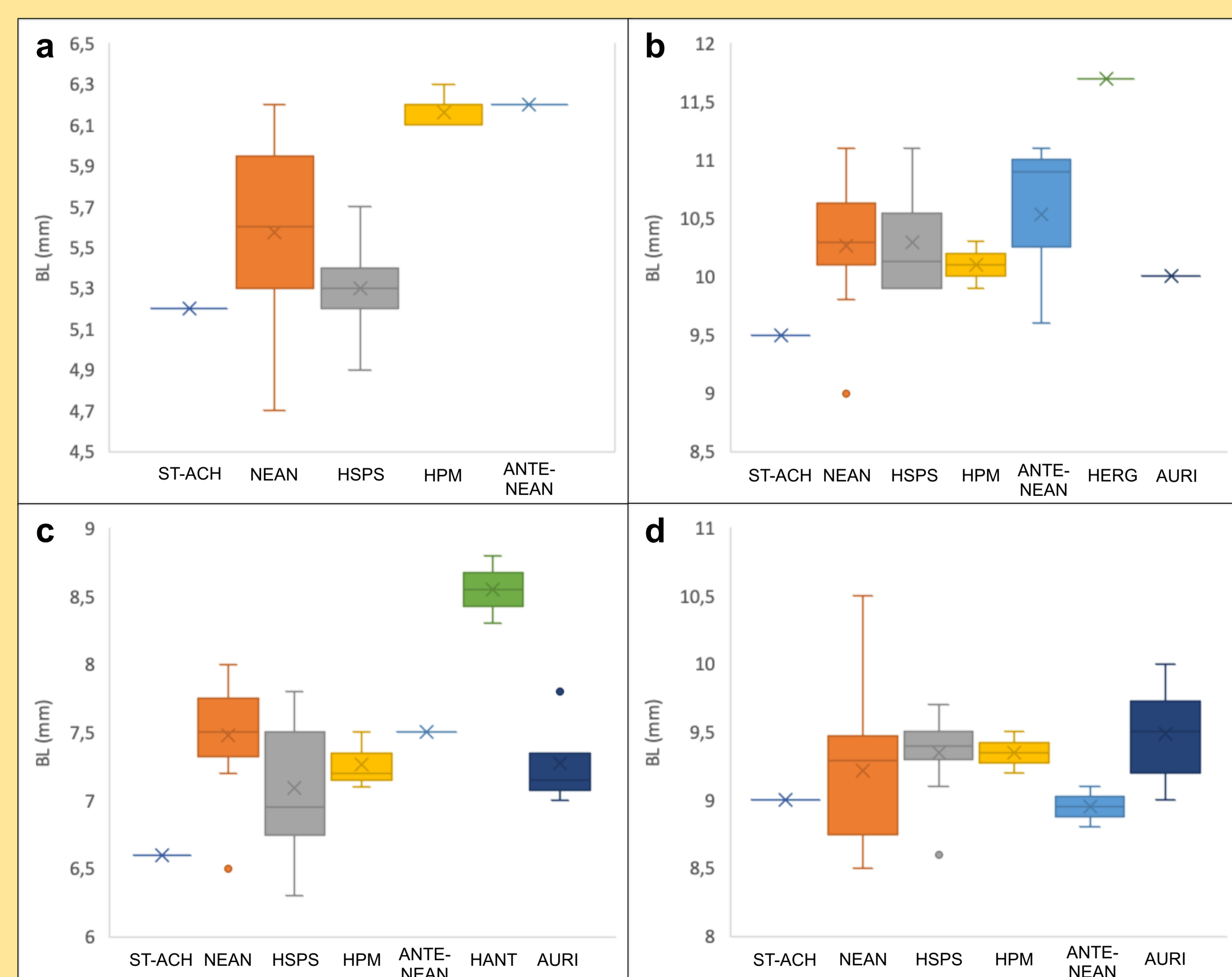
due to the excessive degradation of its root, it was not possible to determine the developmental stage of di<sub>1</sub>.

The enamel alteration observed could correspond to a predator **partial digestion** especially explained by differential erosion of dentine and enamel at the cervix<sup>5</sup> (Fig. 3).

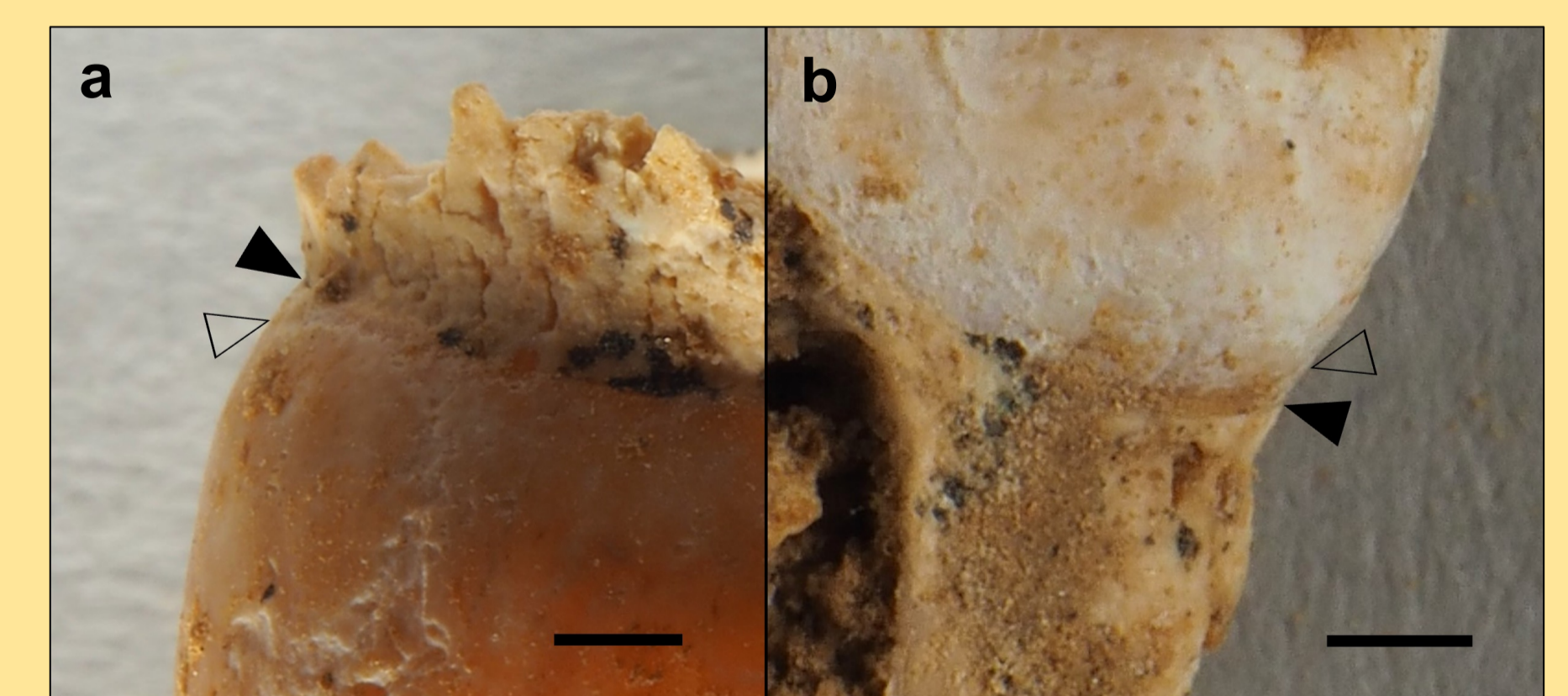
distinguished from the teeth of Lower and Middle Pleistocene specimens (Fig. 2).

Based on the study of the root growth stages of the Saint-Acheul teeth (di<sup>1</sup>, dm<sup>2</sup>, dm<sub>1</sub>, dm<sub>2</sub>), we estimate that they could belong to the same individual aged from **1.23 to 1.41 years**. However,

Due to the lack of data on the discovery context of these teeth, their chronological attribution is still unknown.



**Figure 2.** Box plots of buccolingual diameters. a. Upper central incisor; b. Upper second molar; c. Lower first molar; d. Lower second molar. ST-ACH = Saint-Acheul; NEAN = Neanderthals; HSPS = *H. sapiens*; HPM = Middle Pleistocene hominins; ANTE-NEAN = ante-Neanderthals; HERG = *H. ergaster*; HANT = *H. antecessor*; AURI = undetermined Aurignacians.



**Figure 3.** Examples of digestion marks on Saint-Acheul teeth. a. Upper right second molar; b. Lower right first molar. White arrow: apical enamel limit, black arrow: anatomical cervix. Scale bars: 1 mm.

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