Stone-age dental filling identified

6,500-year-old human mandible shows evidence of beeswax used to seal a cracked, upper canine

By Robert Selleck, Managing Editor

A team of Italian and Australian researchers appears to have found physical proof that restorative dentistry dates to the Stone Age.

The researchers identified traces of a dental filling made of beeswax in a Neolithic human tooth discovered in Slovenia — and they are saying it may be the "earliest known direct evidence of [a] therapeutic-palliative dental filling."

The research findings were published Sept. 19 in PLoS ONE, the peer-reviewed, open-access journal, accessible at www.plosone.org.

The team acknowledged in its paper that it cannot be absolutely certain that the beeswax filling was placed in the tooth in an effort to address a dental problem the individual was experiencing while alive. But the paper identifies that as being the most likely scenario that would have had exposed dentin.

"The tooth probably became very sensitive, limiting the functionality of the jaw during occlusion. The occlusal surface could have been filled with beeswax in an attempt to reduce the pain [by] sealing exposed dentin tubules and the fracture from changes in osmotic pressure (as occurs on contact with sugar) and temperature (hot or cold relative to the oral cavity)," the team wrote.

The piece of jawbone with five teeth still attached was discovered long before the team’s research was conducted. It was excavated from a cave wall near the village of Loče, Istrija, in Slovenia and was initially dated based on associated fauna remains, which traced to the Upper Pleistocene era.

The team reported that the specimen was considered to be “one of the most ancient anthropological remains from the northern-Adriatic area.” But the find had never been subjected to detailed analysis until the researchers secured permission to study the mandible using state-of-the-art scanning technology and radiocarbon dating techniques.

The American Dental Association’s 95th Annual Session and World Marketplace Exhibition is Oct. 18–21 at San Francisco’s Moscone Center. The meeting brings together leaders in dental practice, research, academia and industry and includes more than 280 continuing education courses and more than 600 suppliers of dental products and services. Photo/Provided by California Travel and Tourism Commission/Christian Hedeb

• See page A4

• See FILLING, page A2
Permission was granted by Italy’s Natural History Museum of Trieste, to whom the original finders had donated the specimen. The mandible, determined to be from a male who died in his 20s, was described by the team as, “the left portion of an isolated adult mandible bearing a canine, two premolars, and the first two molars.”

The 12-person team of researchers from university and governmental facilities in Italy and Australia used dental technology to analyze the mandible. They found that the mandible was covered in beeswax, which filled a cavity in the exposed dentin and upper part of a crack. The beeswax was found to be 2 mm thick.

Various views of the mandible discovered in a cave in southern Slovenia. Scale bar, 10 mm.

See FILLING, page A1

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Dear Fellow Dentist,

I want to share with you 6 reasons why...
A dilemma. We now have so many dental groups that we have almost run out of letters of the alphabet. As group after group abbreviates its name, we are at a loss to tell one from another without a scoreboard. Either we need a new alphabetical language or more exotic sounding dental organizations with as yet, unused letters.

History relates its alphabet beginnings to Mesopotamia, where early transcribers used grooved lines on a bulla, or gourd-like container. These scratches of lines became the beginnings of written communication.

Flashing forward to mobile communications of today, where time pressures have abbreviated words, and we have a lingo all of one’s own: Abbreviating is a modern necessity.

To begin with, you cannot tweet — under tweeting rules — over a certain number of characters. Also, texting so- phistication requires not only abbreviating, but also doing it creatively, to stump the recipient.

Fortunately, having a college-aged daughter has given me a little head up in this language. For example, CUL means “see you later” and POS means “parent over shoulder.” Everyone is in a rush — but to where? Tired thumbs? And communication, but also doing it creatively, to stump the recipient.

We have abbreviated words, and we have used letters. As group after group abbreviates its name, we are at a loss to tell one from another without a scoreboard. Either we need a new alphabetical language or more exotic sounding dental organizations with as yet, unused letters.

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> FILLING, page A2

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