FOR 3200 years they have guarded their secret. The deities carved in limestone near the ancient city of Hattusa are as enigmatic as they are beautiful.

Perhaps no longer. A controversial theory suggests the ancient carvings may have functioned as a calendar, with a level of sophistication way ahead of its time. “It’s not only a striking idea, it’s reasonable and possible,” says Juan Antonio Belmonte, an international non-profit director of the Griffith Observatory in Los Angeles. But he says it is odd that there are no traces of such an astronomer in the vast archives of ancient texts that have been discovered in Hattusa. It is one reason why he is sceptical – although open-minded – about the calendar idea.

Belmonte, however, is enthusiastic. He has previously shown that many Hittite buildings are aligned to important astronomical events like the summer solstice. He envies Zangger and Gautschy’s knowledge of the 19-year cycle in which the calendar can be brought roughly back in line with the solar year – making the timepiece run up to only about 365.24 days. The calendar can be brought back roughly back in line with the solar year – making the timepiece run up to only about 365.24 days. The calendar can be brought roughly back in line with the solar year – making the timepiece run up to only about 365.24 days.

When the marker lay below the deity at the rear of the procession, the month was up and the Hittites would have moved the marker back to the front of the procession to start again, say the researchers. At the same time, the Hittites moved a second marker that lay below the procession of 12 deities, and so helped them track the passing months.

But performing these two operations alone isn’t enough to make an accurate calendar, because 12 lunar months add up to only about 354.36 days. The calendar can be brought roughly back in line with the solar year – making the timepiece run up to only about 365.24 days. The calendar can be brought roughly back in line with the solar year – making the timepiece run up to only about 365.24 days. The calendar can be brought roughly back in line with the solar year – making the timepiece run up to only about 365.24 days.

3. The marker moved along this procession once a year to help the Hittites work out when to add extra months over a 19-year cycle. (Journal of Skyscape Archaeology, DOI: 10.1558/jsa.197641)

4. Gerdekkaia is a tomb in the same area and time period as Yazılıkaya. (GETTY IMAGES)

In fact, says Rutherford, the Hittite written records seem to paint a picture of a society that was remarkably unconcerned about the heavens. “That may have something to do with the climate: it rains a lot in the Anatolian highlands,” he says. Claudic might have impeded careful astronomical observations.

But Zangger thinks Hittite scholars place too much emphasis on the texts. For instance, archaeological evidence shows the Hittites were impressive hydraulic engineers, but Zangger says they left no records on the subject. “Hittite society consisted of more than is reflected in the documents,” he says. “Perhaps the carvings really are just gods walking in a certain sequence – but there seems to be so much more to it.”