

Errata and reply to Guest Editor's notes

With 1 fig.

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The "Instructions for authors" indicate that the correspondence between CFS and the authors of the articles is through the editor of a volume; this includes the correction of proofs. Unfortunately, I never received the print proofs of my papers on the aardvarks and suoids in the monograph on the geology and vertebrate paleontology of Çandır (VAN DER MADE 2003 a & b). As a consequence, some errors slipped through, which could have been corrected, and the photographs in the plates and many figures were reproduced much too large (up to more than twice as large as was the intention), resulting in figures A and E in Plate 4 (p. 177) being cut off. However, another result of my not receiving print proofs is the inclusion in the texts of these papers of notes by the guest-editors which contain irrelevant and even false information.

Errata

Minor errors in the texts of both papers include:

- p. 134, right column, synonymy. "1992 *Orycteropus seni*", *seni* should be with s with a cedille.
- p. 136, first line figure caption. "lower cheek teeth" should be "cheek teeth".
- p. 140, left column, 2nd line from the bottom: "dispersd" should be "dispersed".
- p. 140, right column, line 7: "late Miocene" should be "Late Miocene".
- pp. 144–147, plates 1–2. The size of the scale bars is 1 cm.
- p. 151, middle of right column: "The tooth differs ... hypopreconulid)." This is a single sentence and not two sentences of two different paragraphs.
- p. 151, table 1. Figure caption: "Schizochocrus anatolien-sis" should be in italics.
- p. 151, table 1. The table is printed in a different way than submitted. The left I_1 and its values moved to the right;

the values are DMD and DLL. The values given for the I_3 and I_2 are DMD and DLL.

p. 152, right column. A new paragraph should start with "The I_3 tends".

p. 153, right column, discussion, last but one line of first paragraph. "its wide P_3 " should be "its wide P^3 ".

p. 155, table 2. A value given as 187.9 should be 17.9. Where "AÇH" is indicated, "AÇHÜ" should be indicated.

p. 156, table 2. "Fortsetzung" should be "Continuation". Where "AÇH" is indicated, "AÇHÜ" should be indicated.

p. 157, right column, line 8. "... crown of the C^m ..." should be "... crown of the C^f ...".

p. 158, table 3. A D^4 and its values moved one column to the left (resulting in the value for DTa being given in the column for DAP , etc.). Where "AÇH" is indicated, "AÇHÜ" should be indicated.

p. 159, table 3. "Fortsetzung" should be "Continuation". Where "AÇH" is indicated, "AÇHÜ" should be indicated.

p. 159, table 3, line 29. MTA -- is a right maxilla with D^{3+4} . Everything in the line of the D^4 has moved one column to the left.

p. 162, right column, line 3. *Lophidon* should be *Lophidodon*.

p. 164, left column, line 15. "... tend defend" should be "... tend to defend".

p. 164, right column, 4th line from the bottom. A new paragraph should start with "Certain ages ...".

p. 165, right column, 5th line from the bottom. *Tucroceros* should be *Turcoceros*.

pp. 172–173, plate 2. The scale bar represents approximately 1.25 cm.

pp. 176–177, plate 4. The scale bar represents approximately 2.5 cm, save for figure E, which is not to scale.

Guest-editor's notes

A long time after the manuscripts were submitted to one of the guest-editors and about three years prior to publication, I was contacted by D. BEGUN, one of the guest-editors of the volume. He insisted very much on that I should place Çandır (and other Turkish localities, including Paşalar) in MN5 instead of MN6 and that these MN units should be much older than I assumed. In addition, he asked me to write sections on the ecology of the suoids and aardvarks, which I did. On the assignation of Paşalar and Çandır to MN units and the age of the MN units, we had a lengthy exchange of e-mails, in which I explained the arguments for my opinion in great detail, including the timing of the origin of *Listriodon* in Pakistan and its subsequent dispersal in Eurasia.

This intense exchange of e-mails, lasting for over a year, did not make me change the assignation of Çandır and Paşalar to MN units, since in my opinion no convincing reasons were offered for changing the widely accepted assignation to MN6. The ages of the MN units have been much debated for a decade since long palaeomagnetic sections in Spain suggested much younger ages for the MN 3-4, 4-5 and 5-6 transitions than previously believed (KRIJGSMAN et al. 1994 1996, DAAMS et al. 1999a 1999b). This coincided with correlations proposed on the basis of the evolution of the Suoidea (VAN DER MADE 1992 1996 1999). Though my manuscript contained already a paragraph that indicated the different views on the ages of the MN units (p. 164, right column, 4th line from the bottom, starting with "Certain ages ..."), I tried to satisfy BEGUN by adding in two places a reference to the final chapter by BEGUN et al., who favour the other view (p. 165, left column "but see BEGUN et al., this volume"; p. 166, left column "see BEGUN et al., this volume for an alternative interpretation"). Nevertheless, the guest-editors added in three other places comments in my texts. These notes are redundant and contain erroneous information while at least one of the guest editors knew that the information was erroneous. Though several other authors in the volume do not seem to favour the editor's views on the stratigraphy, no notes were inserted in their texts.

On page 139, the guest editors of the volume inserted two "editors' notes" in my text on "Evolution and biogeography of the aardvarks". One note merely states that an evolutionary pattern described on that page, even holds with the older age of Çandır preferred by the guest editors. If the difference of opinion in dating is irrelevant here, why still insert a note? The other comment is on a minor detail in aardvark evolution and biogeography, bringing the aardvarks a little more in line with the guest-editors ideas on general biogeography in relation to hominid dispersals and evolution.

On page 164, a study of listriodont evolution is cited (VAN DER MADE 1996), in which the sublophodont *Bunolistriodon guptai* is again considered as a valid species, different from, and giving rise to *Listriodon pentapotamia*.

The synonymies of the two species are given, the holotype of *B. guptai* is figured and the reasons for the evolutionary and biogeographic model are explained in great detail. In this study, the lophodont suid *Listriodon* is assumed to have originated around 13.8 Ma ago from the sublophodont *Bunolistriodon* in an area that includes Pakistan, after which it dispersed to Anatolia and other areas of Eurasia, evolving into the species *Listriodon splendens*. This scenario implies that Paşalar and Çandır should be younger than 13.8 Ma which would confirm the guest edition opinion and contradict mine. Two to three years previous to publication of the paper, this theme was discussed by BEGUN and me in a lengthy exchange of e-mails. Nevertheless, the guest-editors inserted a note in my text, citing a paper that indicates the appearance of *L. pentapotamia* around 16.9 and not 13.8 Ma. However, that paper (FLYNN et al. 1995) did not treat details of listriodont evolution, did not discriminate between *B. guptai* and *L. pentapotamia* and did not, and could not, cite VAN DER MADE (1996). All this should be very clear to at least one of the guest-editors.

The guest-editors have two final chapters in the volume, treating palaeoecology, stratigraphy and palaeobiogeography, where they could have developed their ideas on the evolution and biogeography of the aardvarks and suids, providing the arguments for their opinions. The privileged position of editor should not be used to insert false information in the text of authors who do not agree with the editor's point of view, nor for introducing any other kind of remarks with the aim to discredit an author. Neither should "editor's notes" be used as a gratuitous way to make propaganda for the editor's ideas at the cost of the work of other authors.

The guest-editor's final chapter

One of the papers most frequently cited in the guest editor's final chapter (BEGUN et al. 2003) is VAN DER MADE (2003 b). However, this is a dubious honour.

BEGUN et al. (2003, p. 252 r) repeated the remark on the age of the origin of *Listriodon* in Pakistan which was put into my text at page 164 as a guest-editor's note. As pointed out above, the remark is erroneous and D. BEGUN should have known this.

BEGUN et al. (2003: 253, left, lines 16-20) state that VAN DER MADE (2003 b) considered Çandır younger than İnönü I, but that the "small sample from Çandır precludes a definitive judgement, as Van der Made himself notes." This probably refers to p. 158, right column, where it is clearly stated that there is much difference between the samples from İnönü and Paşalar, but where it is also stated that there might be overlap between the Paşalar and Çandır samples, if these samples were larger (which does not imply that there should be any doubt on that the average and extreme values in Çandır are higher). Unlike, what BEGUN et al. suggest, it was not stated that the small

sample size of Çandır precludes a definitive judgement of the age of Çandır relative to İnönü I. For many years I hold the opinion that İnönü I is older than Çandır on the basis of the *B. latidens* - *B. meidamon* lineage (VAN DER MADE 1993) and this has not changed. This opinion is not only based on the meso-distal diameter of the incisors, but also on their morphology and index, on the shape and size of the canines and the morphology and degree of elongation of the cheek teeth of *Bunolistriodon*, and the evolution of other mammal lineages.

BEGUN et al. (2003: 253, right, lines 2-5 from the bottom) state "Two of the suoid species are only known from Turkey (the exception being *Listriodon splendens*), ..." However, *Bunolistriodon meidamon* is also present in Prebreza in Serbia (FORTELIUS et al. 1996a 1996b, VAN DER MADE 1996, VAN DER MADE & RIBOT 1999). Prebreza is assigned to MN6 (MEIN 1975 1977 1990, DE BRUIJN et al. 1992) and its *B. meidamon* is more primitive than that from Çandır, supporting a correlation of Çandır to MN 6.

BEGUN et al. (2003: 256) stated: "While Çandır is said to be later than Sansan (VAN DER MADE, this volume), the incisors from both localities appear to be statistically indistinguishable in size (MADE, this volume, Figure 6). However, no incisors from Sansan appear in this figure, since it treats *Bunolistrion*, which is not present in Sansan. *Listriodon splendens* is present in both Sansan and Çandır, but there are no incisors of that species in Sansan, and accordingly such incisors do not appear in figures 7 and 8. Figures 2 and 3 treat the incisors of the Schizotherini and there incisors from Sansan and Çandır are compared. However, nowhere it is stated that the that the sizes of these incisors have any implications for age of Çandır relative to Sansan.

Çandır and Paşalar: assignation to MN units and age

The main conclusion of BEGUN et al. (2003) seems to be that Çandır (and Paşalar and İnönü I) are much older than previously thought.

BECKER-PLATEN et al. (1975) recognised a sequence of faunal units (Faunen Gruppen) for Turkey, each one called after a reference locality. Paşalar and Çandır were reference localities of subsequent units. Paşalar was correlated to Sansan and Prebreza and Çandır was correlated to La Grive M, Tung Gur, the middle series of the Oberen Süsswasser-Molasse and Belometchetskaia. Most or all later authors accepted Çandır being slightly younger than Paşalar. After MN units were introduced, Paşalar was usually placed low in MN 6 and Çandır higher in MN6 in general studies and in specialised ones (eg. MEIN 1975 1977 1990, DE BRUIJN et al. 1992, BERNOR & TOBIEN 1990, STEININGER et al. 1996, FORTELIUS et al. 1996a 1996b, VAN DER MADE 1996 1999a 1999b, RUMMEL 1998). This still seems to be the opinion of most persons who studied material from these localities, but not of BEGUN et al. (2003).

Most authors dealing with the fauna in the Çandır monograph either seem to be inclined to assign Çandır to MN6 (eg. NAGEL 2003: 113, VAN DER MADE 2003b) or leave the assignation to an MN unit open (eg. various chapters by GERAADS), while DE BRUIJN seems to be the only one who clearly prefers an assignation to MN5, and in this differs from his co-authors (2003: 66, right, line 9: "I (H.d.B.) am inclined"). BEGUN, et al. (2003) added very little positive to this opinion of DE BRUIJN, save for inflating the importance of arguments in favour of placing Çandır in MN5 and doing the opposite with arguments in favour of placing it in MN6.

The inflation of the importance of an argument is illustrated by BEGUN et al. (2003) stating that the *Democricetodon* and *Keramidomys*, described by DE BRUIJN et al. (2003), "suggest to them an earlier age for the site." However, as we have seen, it does not suggest this to *them*, but to DE BRUIJN (2003: 66, right, line 9: "I (H.d.B.) am inclined") and apparently not to (all of) his co-authors. The other main argument of BEGUN et al. (2003, p. 256 r) concerns the *Heteroprox* teeth from Çandır that are more primitive than those from Sansan. However, GERAADS (2003: 186 left), who described the teeth, assumed that the European and Turkish *Heteroprox* belonged to different lineages. So the relative state of evolution of the *Heteroprox* teeth cannot be used for correlation.

Half a tooth serves for a correlation, provided it is a correlation favored by BEGUN et al. (2003), whereas much larger samples are considered to be too small to be used in correlation, if they do not like the result. The *Bunolistriodon* lineage, discussed above, that places Paşalar and Çandır plainly in MN6 is considered to be based on samples that are too small for "definitive judgement". However, on page 260 (left, lines 6-7 from the bottom), the similarity of half a hominid tooth from Engelswies (MN5) to the Paşalar sample seems to be considered an argument for assigning Paşalar to MN5.

In their discussion, BEGUN et al. (2003) focussed much on the possibility that a taxon present in Çandır, is also present in MN5, but did not indicate that the taxon is also present in MN6. For instance, on p. 254 (left, lines 2-3) they stated: "while *Giraffokeryx* and *Hypsodontus*, both unknown from Western Europe but with records in Eastern Europe, have MN 5 distributions". However, these taxa are present in the MN 6 locality Prebreza (PAVLOVIĆ 1969), and do thus not provide a reason for placing Çandır in MN5.

The bovid *Turcoceros* might provide a new argument in the discussion on the age of Çandır. BEGUN et al. (2003: 254, left, lines 1-2) stated: "The genus *Turcoceros* is not known from Europe at all." Though part of the material was published as *Eotragus* (THENIUS 1951), *Turcoceros* is present in Mannersdorf and St. Margarethen, both MN 6 localities with *Listriodon splendens*.

BEGUN et al. (2003) ignored some of the arguments in favour of placing Çandır in MN6, represented others in an incorrect way (so that they do not appear good arguments) and inflated the evidence in favour of placing the locality

in MN5. If Çandır is accepted to be slightly younger than Paşalar, four to five suoid lineages suggest that these localities should be MN6 (Figure 1), and there is additional evidence from other groups.

The age of the MN units, and thus of the localities assigned to them, is treated by BEGUN et al. in a similar way as the assignation of Paşalar and Çandır to MN units. Just an example. BEGUN et al. (2003: 258-259) on the one hand insist on a particular correlation of the Sansan palaeomagnetic section, but do not mention that nearly one third of this 46 m section is hiatus, and on the other hand discredit the Aragon and Vargas sections by stating that "The difficulty is that the Aragon and Vargas sections have gaps ...". The Aragon section has a gap of some 6 meters and a total length of 170 m (which is less than 4%), the Vargas section has a gap of some 10 m and a total length of 108 m (9%). It is obvious that there are problems in correlation, but a discussion of this type is not the way of resolving these problems. Neither does it seem useful to give great weight to correlations that consist of several steps (DAAMS & FREUDENTHAL 1981).

KRIGSMAN (2003), who studied palaeomagnetism in the Çandır section, presented two best fit correlations for Çandır to chrons C5ACn and C5ABn, resulting in the ages 14.1 and 13.5 Ma, respectively. Two alternative correla-

tions were offered, which assume that the sedimentary cyclicity in the Çandır section is related to precessional cyclicity, though this cannot be proven to be the case. These result in estimated ages of 16.3 and 16.5 Ma for the locality. Here it is considered that an age of 13.5 Ma is the more likely age for Çandır. Figure 1 shows the suoid and some bovid lineage studied by me and the correlations to the GPTS that are here considered more reliable and relevant. One of the changes with Figure 9 (VAN DER MADE 2003) is that Çandır is placed at 13.5 and not around 12.7 Ma. Also Aroyo del Val and Manchones are considered to be a little older. The model of evolution of these suoids and bovids and the correlations proposed fit very well the more reliable palaeomagnetic data.

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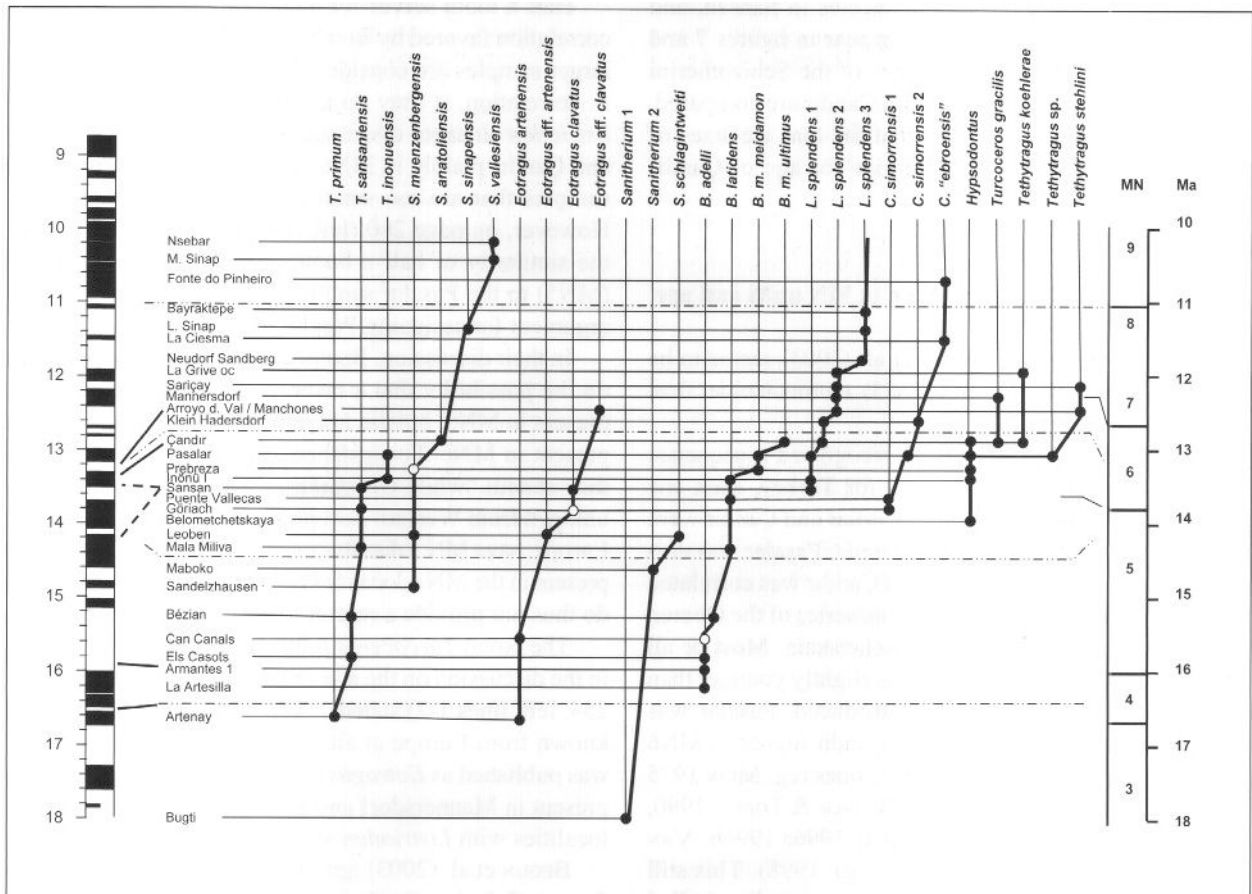
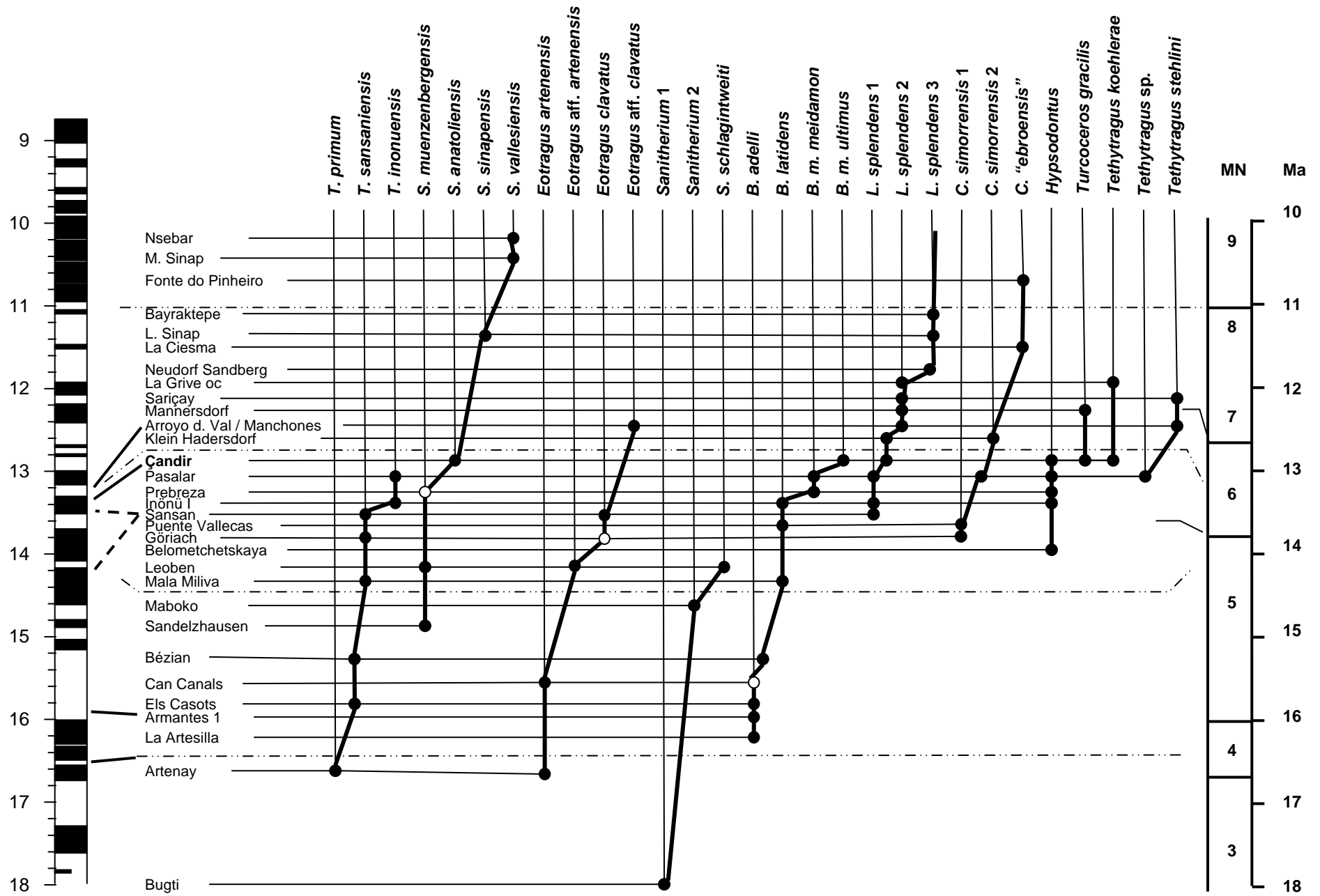


Fig. 1: Middle and Late Aragonian Suoidea and some of the Bovidae and their distribution in some of the localities. Modified from VAN DER MADE (2003b: Figure 9). Correlations to the GPTS according to DAAMS et al. (1999a 1999b).



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