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Case 3847 – Simopithecus oswaldi Andrews, 1916 (currently Theropithecus oswaldi; Mammalia, Primates, CERCOPITHECIDAE), proposed conservation by reversal of precedence with Cynocephalus atlanticus Thomas, 1884.

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Abstract. The purpose of this application, under Articles 23.9.3 and 81.1 of the Code, is to conserve the usage of the species-group name *Simopithecus oswaldi* Andrews, 1916 by giving it precedence over its senior subjective synonym *Cynocephalus atlanticus* Thomas, 1884. *Theropithecus* is a common to dominant member of the extinct primate community across Africa after 4 million years ago (Jablonski & Frost, 2010) and often co-occurred with extinct humans (Hominini); fossils are also known rarely across Eurasia (Roberts et al., 2014). Most fossil samples are currently included in *Theropithecus oswaldi* (Andrews, 1916), which is often divided into chrono-geographic subspecies. *Cynocephalus atlanticus* Thomas, 1884 was not recognized as a member of *Theropithecus* until 1973, and this nomen has seldom been used, but if it were shown (as seems likely) to be conspecific with *Simopithecus oswaldi* Andrews, 1916, widespread paleontological usage would be

upset. It is thus proposed to give conditional precedence to the later name, which would still permit the use of *Theropithecus atlanticus* as a distinct species or subspecies of *Theropithecus oswaldi*. Lectotypes are designated for *Simopithecus oswaldi olduvaiensis* Leakey & Whitworth, 1958 and *Simopithecus oswaldi hopefieldensis* Singer, 1962.

Keywords. Nomenclature; taxonomy; Mammalia; Primates; Cercopithecidae; *Theropithecus*; Africa; Eurasia; Pleistocene.

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1. Thomas (1884: 14, pl. IV, fig. 4), in a description of fossil material recovered from the area of Constantine, Algeria, reported the presence of a single isolated lower molar (said to be last [third] but actually first or second) in the sandy conglomerate layer at Aïn Jourdel. He stated (p. 14) that: «Ils ne sont représentés, jusqu'à présent, que par une seule arrière-molaire inférieure provenant du conglomérat gréseux d'Aïn-Jourdel (Planche IV, fig. 4). Cette dent, d'après M. A. Gaudry, qui a bien voulu l'examiner, indique un singe beaucoup plus grand que le Magot actuel d'Algérie; de plus, elle présente des caractères qui rappellent assez exactement ceux du *Cynocephalus porcarius*, Desm., actuellement relégué dans l'Afrique australe. Nous désignerons ce singe, provisoirement tout au moins, sous le nom de *Cynocephalus atlanticus*. [This tooth, according to Mr. A. Gaudry, who kindly examined it, indicates a monkey much larger than the extant Barbary ape [*Macaca sylvanus*] of Algeria; moreover, it presents characters which recall nearly exactly those of *Cynocephalus porcarius* [now *Papio ursinus*], Desm., today restricted to southern Africa. We designate this monkey, provisionally at least, under the name *Cynocephalus atlanticus*."] (The original uses the term "singe", which in context we translate as "monkey".) The figure legend says crown and internal (lingual) views, but in fact only the external (buccal) view is shown. The tooth has only a slight distal projection but not the hypoconulid lobe which would indicate a third lower molar. The tooth was accessioned into the paleontology collections of the Muséum national d'Histoire naturelle in Paris, at first without a formal number but later as MNHN-F AJO 001.

2. The first mention of the Aïn Jourdel specimen after Thomas (1884) was by Romer (1928), who included *Papio atlanticus* in a faunal list. Hill (1970: 357–358) showed Thomas's buccal view of the tooth alongside those of the lower third molars of *Papio* and *Mandrillus*. He noted that the crown was "hypsodont" [actually mesodont] with "deep vertical grooves between mesial and distal pairs of cusps", which suggested that "an allocation to Theropithecini [*Theropithecus* in today's usage] would be more appropriate."

3. In his unpublished dissertation, Delson (1973) stated that the Aïn Jourdel specimen could be identified as *Theropithecus* and then, in a list of circum-Mediterranean fossil cercopithecids, Delson (1974: 133) included *Cynocephalus atlanticus* under the heading *Theropithecus* sp. The specimen was termed *Theropithecus* sp. indet. by Szalay & Delson (1979: 374). Geraads (1980: 82) noted that *Theropithecus* (*Simopithecus*) *atlanticus* was the first fossil species of this genus ever described and suggested that this nomen might be used for North African fossils (from Thomas Quarries and perhaps Tighennif [formerly Ternifine]) or might even be the senior synonym of *Theropithecus* (*Simopithecus*) *oswaldi*. The Aïn Jourdel tooth was briefly discussed as *Theropithecus atlanticus* by Geraads (1987: 22), while Raynal et al. (1990) suggested the taxon's presence in the first report of the fauna from Ahl al Oughlam, Morocco.

4. The proceedings of a 1989 conference on the evolution of *Theropithecus* were published as a book (Jablonski, 1993), with numerous discussions of the fossil record. Delson (1993: 169, figs. 5.4, 5.5) described and illustrated the Aïn Jourdel tooth in detail, noting that it had a distinctive shape of the lingual notch between the cusps; he termed it *Theropithecus* sp. indet. In addition, Delson (1993: 183–184) recognized the potential nomenclatural disturbance that recognition of *Theropithecus atlanticus* as a senior synonym of *Theropithecus oswaldi* might cause, and wrote that he would make a formal request to the ICZN for suppression, but that was not done until now. He further noted that "Pursuant to the Code, current terminology may be continued pending a ruling." Pickford (1993) included *Theropithecus atlanticus* in his discussion of fossil species, while Delson et al. (1993: 501) catalogued most known fossil specimens of *Theropithecus* and listed "*Cynocephalus atlanticus*" but declined to allocate it to a known species. Other authors (e.g., Eck, 1993; Jablonski, 1993; Leakey, 1993) did not mention the taxon at all. Alemseged & Geraads (1998: 610, figs. 1–3) described numerous fossil specimens from Ahl al Oughlam, which they referred to *Theropithecus atlanticus*, listing additional supposedly diagnostic features to distinguish it from *Theropithecus oswaldi*.

5. Following the work of Alemseged & Geraads (1998), a limited number of other authors have recognized *Theropithecus atlanticus* as a distinct taxon. Delson et al. (2000b: 75) listed *Theropithecus* "*atlanticus*" from Ahl al Oughlam in a table of estimated mass but in the text, they were not certain of its specific distinction. They wrote (Delson et al., 2000b: 80) that it "may represent a population transitional between *T. darti* and *T. oswaldi* that shows some distinctions due to geographic isolation", echoing the view of Alemseged & Geraads (1998). Frost & Delson (2002: 714) discussed the nomenclatural priority of *Theropithecus atlanticus* over *Theropithecus oswaldi* and noted that it was unclear whether the former was a synonym of, or specifically distinct from, the latter. They thought that the Ahl al Oughlam sample could fit within the known variation of *T. oswaldi*, while Alemseged & Geraads (1998) did not. Thus, Frost & Delson (2002: 714) declined to recognize *Theropithecus atlanticus* "for the sake of clarity", but did not "imply the specific distinction of *T. atlanticus*." The majority of later authors did not even mention *Theropithecus atlanticus* (see para. 11 and list in Appendix), although several have done so: Elton (2002) focused on *Theropithecus oswaldi* but listed *Theropithecus atlanticus* as one of six recognized species; Rook et al. (2004) recognized both *Theropithecus atlanticus* and *Theropithecus oswaldi* as valid species; Geraads (2006, 2010) again mentioned *Theropithecus atlanticus* from Ahl al Oughlam in faunal summaries; Hughes et al. (2008) discussed the taxonomic distinction of *Theropithecus atlanticus* from *Theropithecus oswaldi*; Geraads et al. (2010) reported *Theropithecus atlanticus* from Ahl al Oughlam and *Theropithecus oswaldi* from Thomas Quarries; Sahnouni et al. (2011) included both *Theropithecus atlanticus* and *Theropithecus oswaldi* in a figure showing occurrence of taxa at North African sites; and Beaudet et al. (2015) included one specimen of *Theropithecus atlanticus* from Ahl al Oughlam in an analysis which mainly included *Theropithecus oswaldi* and other cercopithecid taxa. In an analysis of *Theropithecus oswaldi* teeth from Spain, Martínez et al. (2020) appears to have followed the ideas of Geraads (1980), although this paper was not cited, when they referred to *Theropithecus atlanticus* from Ternifine (Algeria) and Thomas Quarries (Morocco). However they mistakenly mentioned the "Pliocene" of Ternifine, citing Alemseged & Geraads (1998); in fact, the Ternifine (or Tighennif) fossils may be of late Early or early Middle Pleistocene age and are accepted as *Theropithecus oswaldi leakeyi* by all

recent authors including Alemseged & Geraads (1998). All of these authors discussed *Theropithecus oswaldi* in addition to *Theropithecus atlanticus*, and none considered the latter taxon the senior synonym of the former; all publications are listed in the Appendix.

6. Andrews (1916: 410, pl. XV, figs. 1–6) named *Simopithecus oswaldi* for fossil specimens from the site of Kanjera, Kenya. He proposed that two of those specimens were the upper and lower jaw of a single individual and treated them jointly as the "type specimens". They exist in the paleontology collections of the Natural History Museum UK, as M 11537 and M 11539, respectively. Jolly (1972: 15) did not explicitly state that he considered the two specimens to have been derived from different individuals, but he selected the mandible, now NHMUK-P M 11539, as lectotype.

7. The generic name *Simopithecus* was widely used in the middle third of the 20th century. Hopwood (1934: 547) named *Simopithecus leakeyi* for a partial lower jaw from Olduvai Gorge (Tanzania, then Tanganyika), differentiating it from *Simopithecus oswaldi*. Dietrich (1942: 52, fig. 38) named *Papio* (*Simopithecus*) *serengetensis* for a female mandible from the Vogel River area (now Laetoli), also referring to *Simopithecus oswaldi* while treating that genus as a subgenus of the extant *Papio*. Broom & Jensen (1946: 340, figs. 1–2) named *Papio darti* for a partial lower jaw from Makapan (South Africa). Freedman (1957) reviewed the fossil Cercopithecoidea of South Africa, with notes on fossils from eastern Africa. He recognized that "*Papio*" *darti* belonged with *Simopithecus* and defined the new species *Simopithecus danieli* (Freedman, 1957: fig. 92) from Swartkrans (South Africa), comparing both taxa to *S. oswaldi*.

8. Leakey & Whitworth (1958) reviewed the systematics of *Simopithecus* and included *S. leakeyi*, *S. serengetensis*, *S. darti* and *S. danieli* within *S. oswaldi*, recognizing that some of those samples might be recognized at the subspecific level. They proposed two other nomina for subspecies of *Simopithecus oswaldi*, but no individual specimens were included for either taxon. *S. o. mariae* was named for specimens from Olorgesailie, Kenya, and *S. o. olduvaiensis* for material from the lowest horizons at Olduvai, said to be older and smaller than *S. leakeyi*. One specimen was illustrated (pl. VII, fig. 6) as an example of *S. o. mariae*, and it can be identified as KNM-OG 002, which is the same jaw that Jolly (1972: 96 [see para. 9]) selected as holotype (not a lectotype as it was the only specimen in the type series). Five specimens were illustrated (pl. VII, figs. 2–5, 7) as examples (syntypes) of *S. o. olduvaiensis*, and one of these can be readily identified (and is here selected as lectotype) as NHMUK-P M 14953 (fig. 4), but the others are not definite. Leakey & Whitworth (1958) also named *Simopithecus jonathani* for a very large mandible from the upper levels at Olduvai, distinguishing it from *Simopithecus oswaldi*. Singer (1962) discussed fossils from Hopefield (= Elandsfontein), South Africa, proposing the name *Simopithecus oswaldi hopefieldensis* and considering it and the previously named South African taxa *S. o. darti* and *S. o. danieli* as regional subspecies of *Simopithecus oswaldi*. No holotype was selected but among the syntypes is the partial mandible SAM 3409 (fig. 3 b–d), which is here selected as the lectotype of *Simopithecus oswaldi hopefieldensis*.

9. Jolly (1972) undertook a major revision of *Simopithecus*, beginning with the recognition that it was closely related to the extant *Theropithecus* and considering it a subgenus; he did not mention *Cynocephalus atlanticus*. As noted above (see para. 8), he selected a lectotype for *Theropithecus* (*Simopithecus*) *oswaldi* from the two specimens mentioned by Andrews (1916). Jolly (1972: 96) selected a holotype for *T.* (*S.*) *o. mariae* from the Olorgesailie sample, and he formally recognized *T.* (*S.*) *o. leakeyi* (in which he

included *S. o. olduvaiensis*, *S. jonathani* and probably the Hopefield sample), as well as *T.* (*S.*) *darti darti* and *T.* (*S.*) *darti danieli*. Freedman (1976) considered a number of newly recovered South African fossils and followed most of Jolly's (1972) suggestions, although he considered *Simopithecus* generically distinct from *Theropithecus*. He recognized the same species and subspecies, formally including the Hopefield sample as *Simopithecus darti hopefieldensis*. Dechow & Singer (1984) later discussed the Hopefield material again and declined to recognize a nomen for it at all.

10. Szalay & Delson (1979: 374), as part of their review of all then-known fossil primates, accepted Jolly's (1972) generic taxonomy and included almost all of the above-mentioned populations (and species-group taxa) within *Theropithecus* (*Simopithecus*) *oswaldi*. Only *T.* (*S.*) *darti* was held aside as a species distinct from *T.* (*S.*) *oswaldi* on morphological grounds. Delson (1984) and later authors dropped the use of *Simopithecus* for fossil *Theropithecus*. Leakey (1993) reviewed the *Theropithecus* remains from the Turkana Basin of northern Kenya and southern Ethiopia. She argued that *Theropithecus darti* was best considered as another subspecies of *Theropithecus oswaldi*, a suggestion which was discussed by several authors in the same book: Jablonski (1993) accepted that view, while Eck (1993) and Delson (1993) retained *Theropithecus darti* as a distinct species. Most later authors (starting with Frost & Delson, 2002) also followed Leakey's (1993) approach, although Jablonski & Frost (2010: 417) retained *Theropithecus darti* as a separate species.

11. A partial list of publications written since Alemseged & Geraads (1998) advocated the use of *Theropithecus atlanticus*, which recognized *Theropithecus oswaldi* as part of their analyses but did not discuss *Theropithecus atlanticus* at all, is provided in the Appendix.

12. *Cynocephalus atlanticus* was proposed before 1899, but as discussed above in paras. 4 and 5, the name has been employed as valid several times since then. Thus, this name does not fulfill the requirements of Article 23.9.1.1 of the Code to invoke prevailing usage. If this name is retained as the primary synonym in cases where *Cynocephalus atlanticus* is considered a subjective synonym of *Simopithecus oswaldi*, significant confusion would result in the literature of primate paleontology, as well as in human and broader mammalian paleontology of the Pliocene and Pleistocene of Africa. *Theropithecus* is a common to dominant member of the extinct primate community across Africa after 4 million years ago (Jablonski & Frost, 2010; Frost et al., 2020) and often co-occurs with extinct humans (Hominini); *Theropithecus* fossils are also known rarely across Eurasia (Roberts et al., 2014). Most fossil samples are currently included in *Theropithecus oswaldi* (Andrews, 1916), which is often divided into chrono-geographical subspecies. Since 1998, when the name *Cynocephalus atlanticus* Thomas, 1884, was used for fossils other than the holotype, this species name has only been used 11 times (always in addition to *Theropithecus oswaldi*), while *Simopithecus oswaldi* Andrews, 1916, was considered a valid and widespread taxon in 70 publications listed in the Appendix. In the interest of nomenclatural stability, it is therefore necessary to invoke Art. 23.9.3 and request the Commission to use its Plenary Power to maintain common usage and conserve the widely used species-level nomen *Simopithecus oswaldi* Andrews, 1916 [now *Theropithecus oswaldi* (Andrews, 1916)] by conditional reversal of precedence with *Cynocephalus atlanticus* Thomas, 1884. As a result, should an author determine that *Theropithecus atlanticus* is a subjective synonym of *Theropithecus oswaldi*, the former nomen would either not be the valid name of the species or could be used for a

subspecies of the latter different from the nominotypical one. If they are not considered conspecific, *Theropithecus atlanticus* would of course be a valid nomen.

13. The International Commission on Zoological Nomenclature is accordingly asked:
    (1) to use its plenary power to give the specific name *oswaldi* Andrews, 1916, as published in the binomen *Simopithecus oswaldi*, precedence over the specific name *atlanticus* Thomas, 1884, as published in the binomen *Cynocephalus atlanticus*, whenever the two are considered synonyms;
    (2) to place on the Official List of Specific Names in Zoology the following names:
        (a) *oswaldi* Andrews, 1916, as published in the binomen *Simopithecus oswaldi*, with the endorsement that it is to be given precedence over the name *atlanticus* Thomas, 1884, as published in the binomen *Cynocephalus atlanticus* whenever the two are considered synonyms, as ruled in (1) above; and
        (b) *atlanticus* Thomas, 1884, as published in the binomen *Cynocephalus atlanticus*, with the endorsement that it is not to be given priority over the name *oswaldi* Andrews, 1916, as published in the binomen *Simopithecus oswaldi*, whenever the two are considered synonyms, as ruled in (1) above.

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Comments on this case are invited for publication (subject to editing) in the Bulletin; they should be sent to the Secretariat, International Commission on Zoological Nomenclature, c/o Lee Kong Chian Natural History Museum, 2 Conservatory Drive, Singapore 117377, Republic of Singapore (e-mail: iczn@nus.edu.sg).

Appendix

Publications since 1998 including *Theropithecus atlanticus* as a valid species (but also including *Theropithecus oswaldi*):

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