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# A new genus of snake (Serpentes: Boidae) from the Upper Eocene of Hordle Cliff, Hampshire, England

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Abstract. A new genus and species of boid snake, *Paraplatyspondylia batesi* gen. et sp. nov., is described from the Rodent and Mammal Beds of the Totland Bay Member, MP17 (Headon Hill Formation) of Hordle Cliff, Hampshire (Upper Eocene), England. The new genus appears to be related to the genus *Platyspondylia* RAGE, 1974 from the Upper Eocene and Oligocene of the Phosphorites of Quercy, France. *Paraplatyspondylia* shares the flattened vertebral neural arch condition as well as several other trenchant characters with *Platyspondylia*. But *Paraplatyspondylia* differs from *Platyspondylia lepta* RAGE, 1974 in having a lower and longer neural spine that extends onto the base of the zygosphene, and from *P. lepta* and *P. sudrei* RAGE, 1988 in the more anteriorly constricted neural spine, the truncated free edges of the prezygapophyses, and the deep cavities on either side of the cotyle.

Key words: fossil snakes, Upper Eocene, Boidae, England.

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## I. INTRODUCTION

MILNER et al. (1982) and MILNER (1986) presented a preliminary list of snakes from the Upper Eocene of Hampshire and the of Isle Wight, England. Nine of the eleven taxa reported by MILNER (1986) were not identified to the specific level. In 1991 and 1992 D. L. Harrison sieved large quantities of sediment from a horizon at Hordle Cliff, Hampshire, referred to as the Rodent Bed (MILNER et al. 1982). This horizon yielded the remains of a unique genus of diminutive boid snake (HOLMAN 1996a). Further collecting at the Rodent Bed as well as the Mammal Bed (see CRAY 1973) at Hordle Cliff by Harrison parties from 1993 to 1996 yielded the remains of a new genus of boid snake described herein.

Both the Rodent and Mammal beds at Hordle Cliff are within the Totland Bay Member, MP 17 (formerly Lower Headon Beds) of the Headon Hill Formation, Upper Eocene (INSOLE & DALEY 1985). The process used for extracting and processing the small fossils from these beds was the same as that reported by HOLMAN (1993:151) for herpetological fossils collected from the Upper Eocene of Headon Hill, Isle of Wight, England. HOLMAN (1996a: 1) summarized current publications on Upper Eocene amphibians and reptiles from the Upper Eocene of Britain except for reports by MILNER (1986) and HOLMAN (1996b).

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## II. SYSTEMATIC PALEONTOLOGY

The taxonomic nomenclature of the present paper follows that of RAGE (1984).

Class: Reptilia LAURENTI, 1768

Order: Serpentes LINNAEUS, 1758

Suborder: Alethinophidia NOPCSA, 1923

Superfamily: Booidea GRAY, 1825

Family: Boidae GRAY, 1825

Subfamily indeterminate sedis

Genus *Paraplatyspondylia* gen. nov.

Type species: *Paraplatyspondylia batesi* sp. nov.

Etymology. The generic name refers to the fact that the new taxon is morphologically similar to but probably not ancestral to the Upper Eocene and Oligocene *Platyspondylia* RAGE, 1974.

Diagnosis. The diagnosis is the same as for the type and only known species.

### *Paraplatyspondylia batesi* sp. nov.

Figs. 1 and 2

Holotype. A single middle trunk vertebra: Michigan State University Museum Vertebrate Paleontology (MSUVP) 1434 (Fig. 1) collected by Harrison Museum field parties in 1995.

Type locality and horizon. Hordle Cliff, Hampshire, England. Rodent Bed in the upper part of the Totland Bay Member, MP17, of the Headon Hill Formation (Upper Eocene).

Paratypes. Nineteen trunk vertebrae (MSUVP 1435-1453) from the Hordle Cliff Rodent Bed and four trunk vertebrae (MSUVP 1454-1457) from the Hordle Cliff Mammal Bed, all collected by D. L. HARRISON and his field parties.

Etymology. Named for Paul J. J. BATES in recognition of his vertebrate paleontological field work in the British Eocene.

Diagnosis. A very small boid snake whose vertebrae are wider than long and have a very depressed neural arch. Neural spine moderately thick, constricted anteriorly, very low and long and extending from the posterior edge of the neural arch onto the zygosphene to well anterior to the posterior border of the prezygapophyseal articular facets; prezygapophyseal articular facets well

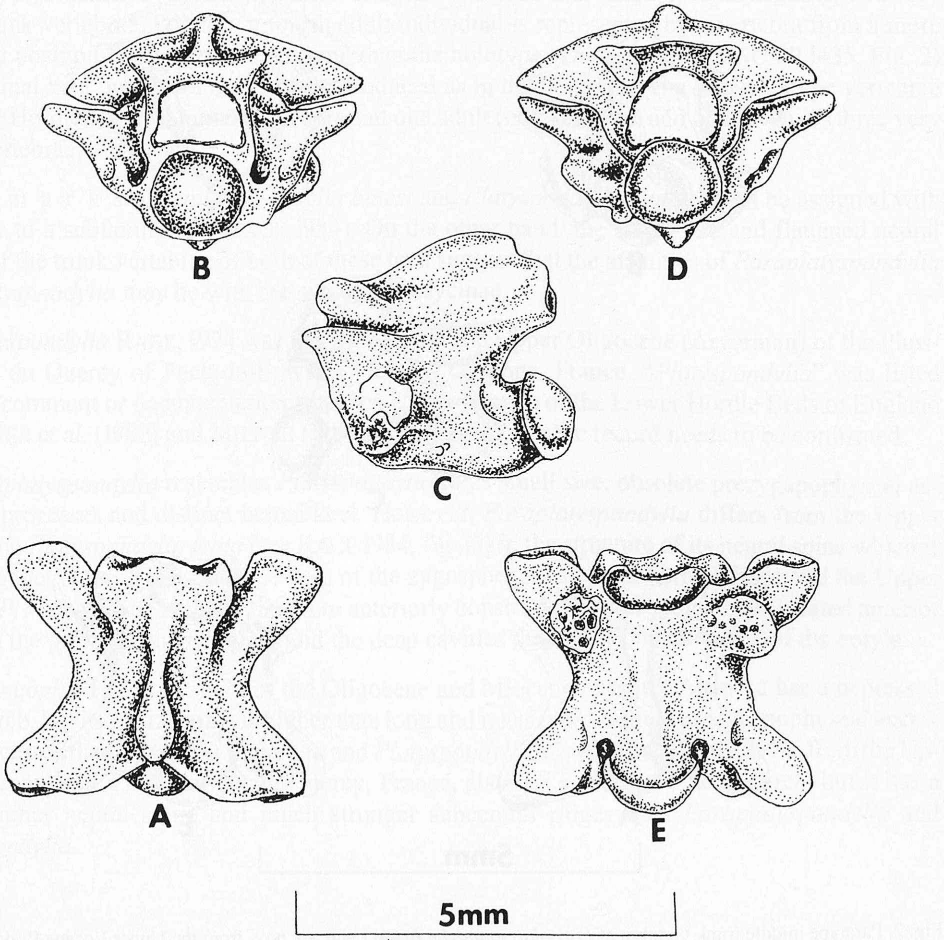


Fig. 1. Holotype middle trunk vertebra of *Paraplatyspondylia batesei* gen. sp. nov. from the Upper Eocene Rodent Bed of Hordle Cliff, Hampshire, England. A – dorsal; B – anterior; C – lateral; D – posterior; E – ventral views.

developed and with truncated anterior edges; prezygapophyseal accessory processes present but obsolete; deep depressions on either side of cotyle, paracotylar foramina absent; hemal keel moderately wide, distinct and ventrally produced.

D e s c r i p t i o n. In dorsal view: vertebra wider than long; prezygapophyses oriented anterolaterally, with articular facets with truncated anterior edges; prezygapophyseal accessory processes present but obsolete; anterior edge of zygosphene convex; neural spine moderately thick, constricted anteriorly, very low and long, extending from the posterior edge of the neural arch to well onto the zygosphene anterior to the posterior borders of the prezygapophyseal articular facets; posterior border of neural arch broadly V-shaped. Measurements: greatest width through prezygapophyseal articular facets, 4.3 mm; greatest length through pre- and postzygapophyses, 3.5 mm.

In anterior view: neural arch depressed; neural spine moderately thick, very low; dorsal border of zygosphene very slightly concave; prezygapophyses tilted slightly upward; neural canal loaf-of-

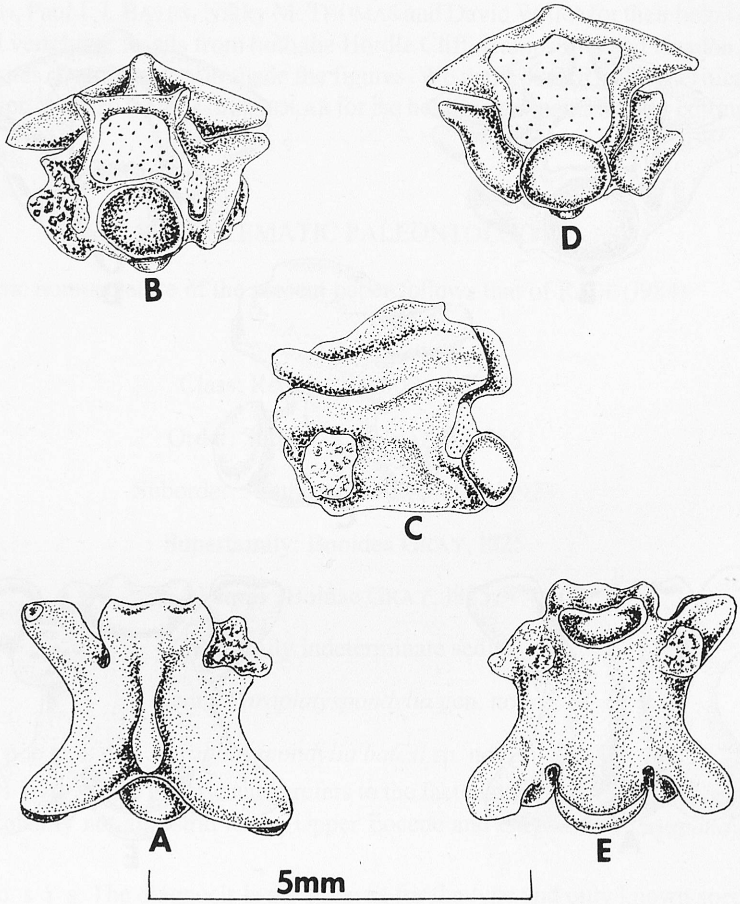


Fig. 2. Paratype middle trunk vertebra of *Paraplatyspondylia batesei* gen. sp. nov. from the Upper Eocene Rodent Bed of Hordle Cliff, Hampshire, England. The size and shape of the neural canal is obscured by adherent, cemented matrix. A – dorsal; B – anterior; C – lateral; D – posterior; E – ventral views

bread shaped about equal in size to the round cotyle; deep depressions on either side of cotyle; hemal keel distinct and produced ventrally.

In lateral view: neural spine very long, low and curved with its posterior portion higher than its anterior portion; posterior border of neural arch slopes downward very steeply; zygosphenal facets directed upward, hemal keel produced ventrally; synapophyses eroded.

In posterior view: neural arch depressed; neural spine very low but moderately thick; neural canal loaf-of-bread shaped and slightly larger than round condyle; hemal keel ventrally produced.

In ventral view: prezygapohyseal articular facets truncated anteriorly; prezygapophyseal accessory processes present but obsolete; hemal keel distinct; subcentral ridges indistinct; postzygapophyseal facets semiovaloid; subcentral foramina absent.

P a r a t y p e s. The Rodent Bed vertebrae may represent four individuals. Twelve Rodent Bed anterior trunk vertebrae are so similar in size, structure, and texture to each other and to the holotype that it appears that they represent the same individual as the holotype. A second adult is probably represented by a darkly stained vertebra. A juvenile indivudual is represented by five very small trunk vertebrae. Possibly a fourth adult individual is represented by a vertebra from a more posterior position in the vertebral column than the holotype. This vertebra (MSUVP 1435, Fig. 2) has a hemal keel that is not as ventrally produced as in the holotype. The four paratype vertebrae from the Hordle Cliff Mammal Bed represent one adult (one vertebra) and one juvenile (three very small vertebrae).

R e m a r k s. *Paraplatyspondylia batesi* and *Platyspondylia lepta* cannot be assigned with certainty to a subfamily (see RAGE 1984). On the other hand, the small size and flattened neural arches of the trunk vertebrae of both of these taxa suggest that the affinities of *Paraplatyspondylia* and *Platyspondylia* may be with the subfamily Erycinae.

*Platyspondylia* RAGE, 1974 was described from the Upper Oligocene (Arvernian) of the Phosphorites du Quercy of Pech-du-Fraysse, Tarn-et- Garonne, France. "*Platyspondylia*" was listed without comment or documentation from the Upper Eocene of the Lower Hordle Beds of England by MILNER et al. (1982) and MILNER (1986). This British Eocene record needs to be confirmed.

*Paraplatyspondylia* resembles *Platyspondylia* in its small size, obsolete prezygapophyseal accessory processes and distinct hemal keel. However, *Paraplatyspondylia* differs from the Upper Oligocene *Platyspondylia lepta* (see RAGE 1984, fig. 19) in the structure of its neural spine which is lower, longer and extends onto the base of the zygosphene, and from both *P. lepta* and the Upper Eocene *P. sudrei* RAGE, 1988 in the more anteriorly constricted neural spine, the truncated anterior edges of the prezygosphenal facets and the deep cavities that occur on either side of the cotyle.

*Geringophis* HOLMAN, 1976 of the Oligocene and Miocene of North America has a depressed neural arch, but its neural spine is higher than long and it has more distinct prezygapophyseal accessory processes than *Paraplatyspondylia* and *Platyspondylia*. *Cadurcoboa* RAGE, 1978, from the Upper Eocene of the Phosphorites du Quercy, France, also has a depressed neural arch, but it has a much higher neural spine and much stronger subcentral ridges than *Paraplatyspondylia* and *Platyspondylia*.

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Remarks. *Paraplatyspondylia* batesi and *Platyspondylia* spp. cannot be assigned with certainty to a subfamily (see RAGE 1984). On the other hand, the small size and flattened neural arches of the trunk vertebrae of both of these taxa suggest that the affinities of *Paraplatyspondylia* and *Platyspondylia* may be with the subfamily Erycinae.

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