

**PROXIMAL CERVICAL VERTEBRA OF A NEW BIG  
SAUROPOD (SAURISCHIA) FROM THE THITONIAN-BERRIASIAN  
(JURASSIC-CRETACEOUS TRANSITION)  
FROM GALVE (TERUEL, SPAIN)**

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The new sauropod from Galve was found in the Cuesta Lonsal locality, situated in the base of the Villar del Arzobispo Formation (Thitonic-Berriasian). This formation includes the Jurassic-Cretaceous boundary, and, at least, its basal part, in which has been founded the dinosaur, is dated as Jurassic. This means that the sauropod from Cuesta Lonsal is, further the older from Aragón, one of the last dinosaurs from the Jurassic period found until today in Spain. Villar del Arzobispo Formation has been identified as subtidal, intertidal and supratidal facies and means the end of the gradual transition from shallow carbonated marine platform to continental facies (Aurell, 1990). Lithology in Cuesta Lonsal locality is green marls and clays intercalated with white sandstones deposited in intertidal environment.

Amateurs excavated the remains of the sauropod in a discontinuous way, in the 80s. In 1992 Gloria Cuenca-Bescós, from the University of Zaragoza, begun a systematic excavation whit the help of Michael Brunet and some students, and they recovered a badly cervical vertebra and fragments of one destroyed by the previous non-professional excavation. The bones unburied until today that we have knowledge are: two cervical vertebrae, one scapula and other remains from the pectoral girdle, the two humeri, one dorsal vertebra, some ribs, four caudal vertebrae (two of them joined for a crust and to the chevron between them), and many pieces unclassified.

Dorsal and caudal vertebrae of this sauropod have been studied previously by Pérez-Oñate *et al.* (1994), which made a previous classification of the sauropod from Cuesta Lonsal as Camarasauridae indet. They observed that the spine of the dorsal vertebra is not bifurcated and the neural arch is laterally expanded. Anyway the dorsal spine and the lateral processes are missing. The caudal vertebra is amphicoelus, whit quite short body without pleurocoels, and remarked hemal facets, and they keep the

transverse processes until the 22nd one, while in all the known sauropods they disappear in the 13th to 15th caudal vertebra. The people who excavated them have restored the two humeri, but they are not been studied, anyway in a previous view, some measurements have been taken. They humeri are very long (about 150 cm), which means a really big sauropod dinosaur and, although they have suffered some deformation, they are also quite thin and stylised. The main objective of this paper is one of the cervical vertebrae. After an initial cleaning and consolidation, a previous description can be done, although the lamination of the neural arch cannot be seen yet and the vertebra is quite deformed. The centrum, strongly opisthocoelous, has subcircular cross-section, which indicates a proximal position -4th or 5th- (Upchurch, 1993). The vertebra is fractured due to actual roots that have colonised it, and they have been damaged, specially, the cranial face. This fact allows seeing, in this cranial part of the body, that the vertebra is a spongy bone. Pleurocoelous are excavated and divided by small laminae. Although it is not complete, clearly the spine is simple. The postzygapophysial lamina is elongated and consequently the parapophysis are situated in a high position.

The characters of the cervical vertebra are not clear enough at the moment. The only evident fact is the simple spine. Cervical spines of cetiosaurids, brachiosaurids and titanosaurids are simple, but in camarasaurids and diplodocids, they are bifids (McIntosh, 1990). This fact only allows the classification of this specimen as Sauropoda indet. (whereas Perez Oñate *et al.* classified it as Camarasauridae indet.), due to the existence of a simple spine in the cervical vertebra, and no any other definitely character found in the known bones.

Anyway we are almost sure that we are in front of new dinosaur specie, because the dinosaur from Cuesta Lonsal has some unclassified characters like the processes until the 22nd caudal vertebra. The other known characters, does not allow to introduce the specimen in any of the known genera by the moment.

**Aurell, M.** 1990. *El Jurásico superior de la Cordillera Iberica central (Provincias de Zaragoza y Teruel), Analisis de Cuenca*. Secretariado de Publicaciones. Universidad de Zaragoza. 389 pp.

**McIntosh, J.S.** 1990. Sauropoda. In D.B. Weishampel, P. Dodson, and H. Osmolska (eds.), *The Dinosauria*, pp. 345-401. Berkeley: University of California press.

**Pérez-Oñate, J., Cuenca-Bescós, G & Sanz, J.L.** 1994. *Un nuevo sauropodo del Jurásico superior de Galve (Teruel)*. Comunicaciones de las X Jornadas de Paleontología, Madrid, 159-162.

**Upchurch, 1993.** *The Anatomy, Phylogeny and systematics of the Sauropod Dinosaurs*. Doctoral thesis, University of Cambridge, 489 pp.