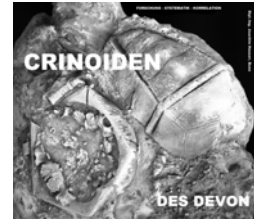


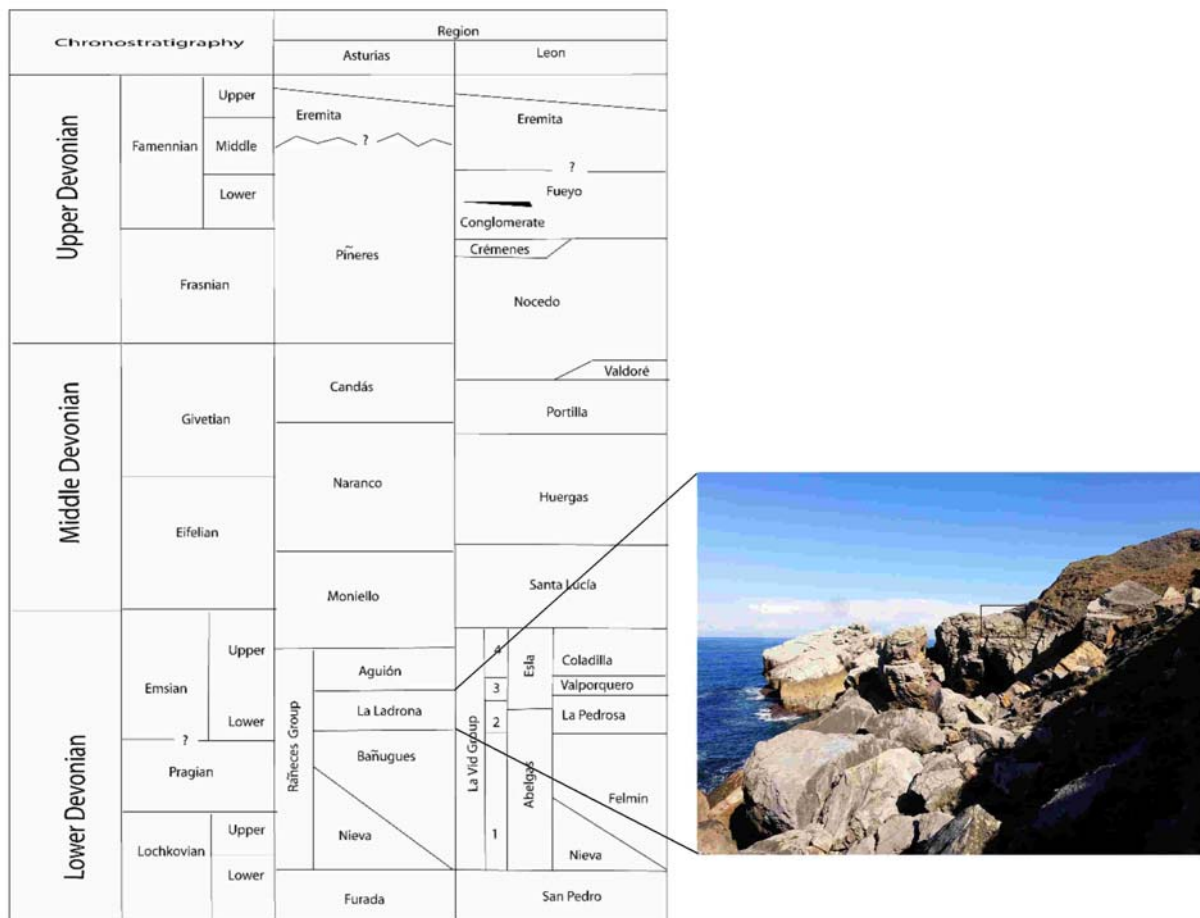
***Thylacocrinus sitteri* n.sp. (Crinoidea, Camerata) in the La Ladrone-Formation (Lower Devonian) of Asturias, Northern Spain**

Dipl.-Ing. Joachim HAUSER, Von-Sandt-Street 95, Germany 53225 Bonn,
E-Mail: crinoiden-aus-dem-devon@arcor.de; Internet: www.devon-crinoiden.de
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Introduction (by Fernando Gómez LANDETA)

In the middle – upper part of Ladrone Formation (middle-upper Emsian), there appears one crinoidal fauna with generic affinities with that described in the Devonian of Brittany. The main difference is that there the genera *Dimerocrinites* (LE MENN, 1985), is cantoned in the Gedinian (Lochkovian), since in the Cantabrian Devonian it appears in the Emsian (HAUSER & LANDETA 2013), and the genera *Thylacocrinus* (OEHLERT, 1882), (LE MENN, 1974), there in the lower Siegenian (Pragian), is cantoned here also in the Emsian (HAUSER, this paper). To the author knowledge both genera are not known in other North Gondwana outcrops, the meaning of this fact as the above indicated difference of ages, must be integrated in a study of the Devonian crinoidal faunas of this and others sectors to be explained, but that work cannot be done till finish the study of their components.



↑Text-Figures 1: Chronostratigraphy of the north-spanish Devonian (Asturias und León) after GARCIA-ALCALDE, J.L., CARLS, P., ALONSO, M.U.P., LÓPEZ, J.S., SOTO, F., TRUYOLS-MASSONI, M. & VALENZUELA-RIOS, J.I. (2002): p. 69, fig. 6.2; added (right) is a photography of the top of Ladrone Formation in El Cabo La Vela cliff outcrop where the crinoid was founded.

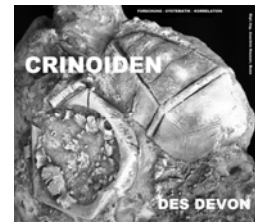
Kurzfassung: Aus der La Ladrone Formation wird ein neuer Vertreter der Thylacocriniten (*Thylacocrinus sitteri* n.sp.) beschrieben. Dieses neue Taxon zeichnet sich durch stark wulstförmig ausgebildete Tafeln und durch tiefe Plattengrenzen aus. *Thylacocrinus sitteri* ist der bisher jüngste Vertreter dieser Gattung.

Abstract: A new *Thylacocrinus* (*Thylacocrinus sitteri* n.sp.) is described from the top of the La Ladrone Formation (Lower Emsian) in the El Cabo La Vela cliff outcrop near Arnao (Asturias, Northern Spain). This crinoid is the youngest representative of this genus.

Resumen: Se describe un nueva especie del género *Thylacocrinus* (*Thylacocrinus sitteri* n.sp.), procedente del techo de la formación La Ladrone (Emsiense inferior - superior), en el afloramiento del Cabo de La Vela, al oeste de Arnao (Asturias, España). Esta especie es la más joven conocida del género hasta ahora.

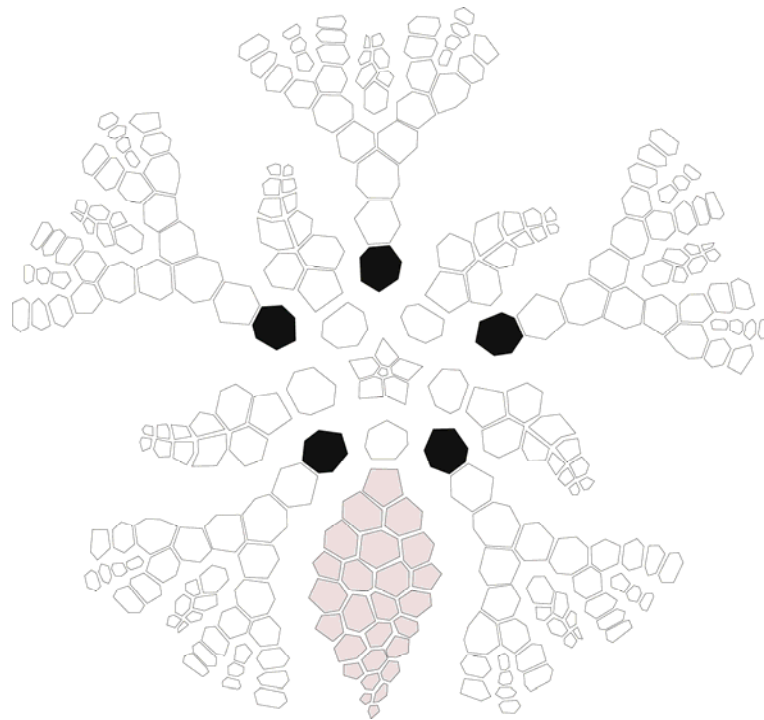
Schlüsselwörter: Crinoidea, Camerata, *Thylacocrinus*, Asturias, Nordspanien

Key-Words: Crinoidea, Camerata, *Thylacocrinus*, Asturias, northern Spain



Systematics (by Joachim HAUSER with contributions of Fernando Gómez LANDETA)

Classe Crinoidea J. S. MILLER, 1821
Subclasse Camerata WACHSMUTH & SPRINGER, 1885
Order Diplobathrida MOORE & LAUDON, 1943
Suborder Eudiplobathrina UBAGHS, 1953
Superfamily Rhodocrinitacea C.F. ROEMER, 1855
Family Archaeocrinidae MOORE & LAUDON, 1943



↑**Text-Figures 2:** Plate diagram of *Thylacocrinus* combining the diagram of LE MENN, 1974:99, Fig. 1 with the plate-structure of the crinoid in text-fig. 3.

Thylacocrinus sitteri n.sp.

Derivation nominis: The new *Thylacocrinus* is named after Lamoraal Ulbo DE SITTER (*March 6, 1902, †May 12, 1980) Dutch geologist at Leiden University, where he was the founder of the school of structural geology. DE SITTER was also known for his research on the geology of the Cantabrian Mountains, where he and his students did the basic geological work of its southern branch.

Locus typicus: Sea cliff in the coastal section between the bay of Arnao and La Ladróna cape.

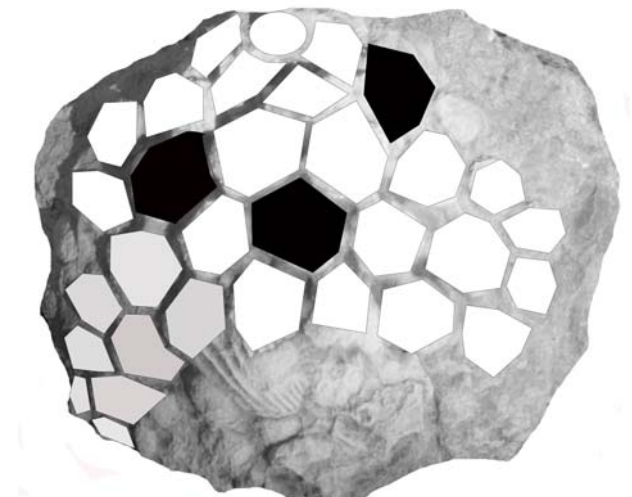
Stratum typicum: La Ladróna Formation, Lower Emsian, Lower Devonian

Diagnosis: A typical *Thylacocrinus* with tubercle-formed plates and deep plate-borders.

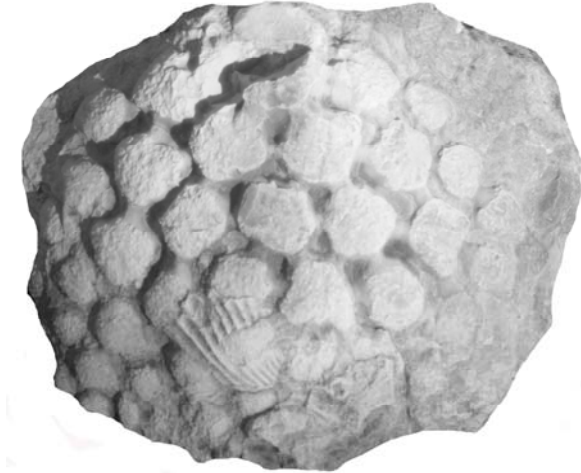
Holotyp: The calyx in Text-Figure 3. The crinoid is a depressed dorsal-cup embedded in soft grey calcareous marl.

→**Text-Figures 3:** Holotyp of *Thylacocrinus sitteri* n.sp. with the schematic plate-structure

Description: The type is a depressed not complete dorsal-cup embedded in more or less soft grey marl. Not all parts of the cup could be observed. Unfortunately only one IBr-sections and the anal-plate-section (CD) are descended. But both cup-sections show a typical *Thylacocrinus*.



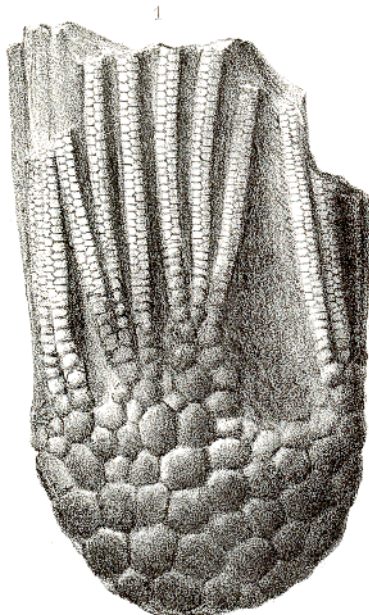
Four visible small IBB fringes the round stem-profil. This plates are in connection with three six-sided RR. The CD-section shows following structure: 1 – 2 – 2 – 2 – 2. This plate series is different to the plate diagram in text-fig. 2 and shows perhaps a specialization in the Lower Eifelian of the Cantabrian area. All plates are created as round tubercles and shown discreet granulations. The plate borders are deep; five small strips connected each plate.



↑Text-Figures 4: Holotyp of *Thylacocrinus sitteri* n.sp.

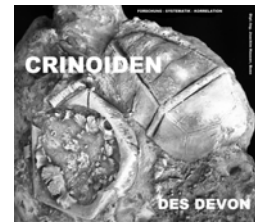
Dimensions: Hight (depressed calyce): 20 mm; diameter: 50 mm

Relations: *Thylacocrinus sitteri* is closely related to the specimen figured in LE MENN, 1985:pl. 3, fig. 2 as a juvenile calyce of *Thylacocrinus vannioti*. But the plates seem to be without a granulation and the strips between the plates are not as distinctive that of *T. sitteri*.



↑Text-Figures 5: *Thylacocrinus vannioti* OEHLERT, 1882 after a draw of OEHLERT, 1882: pl. 9, fig.1

Stratigraphy and Age (by Fernando Gómez LANDETA): The comprehensive biostratigraphical description of the La Ladrona Formation in its stratotype in the W face of Cabo La Vela (Castrillón, Asturias), was done by GARCÍA –ALCALDE (1992). In the coastal cliffs the formation reaches a thickness of 130 m. composed of alternating grey limestones and mudstones in metric to decametric packages with certain cyclicity. The sedimentary environment is interpreted by the above author as open self of a relatively low latitude. The fauna content and its conservation is outstanding. The interval where the specimen was founded, roughly at 5 meters from its top is characterized by the abundance of the brachiopods *Euryspirifer pellicoi*, *Uncinulus orbignyianus* and *Leptrostophia explanata*. Following the age assignations for the Cantabrian Devonian established by means of the brachiopod associations (GARCÍA-ALCALDE, 1996), the new species is cantoned in Intervals 10 – 11, with a age corresponding to the lower part of Upper Emsian.



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Description of plate 1

Figures 1 & 2: *Pleurodictyum* sp. aff. *Pleurodictyum problematicum* GOLDFUSS, 1829

Figures 3&4: *Phacops saberensis* sp.

Figure 5: Brachia of *Verneulicrinus* sp.

Figure 6: Incomplete calyce of *Verneulicrinus* n.sp.

Plate 1

