

Espanocrinus puertoi n.sp. from the lowest upper part of the
Santa Lucía Formation (Upper Emsian) of the La-Pola-de-Gordón-region of the
Cantabrian Mountains, Northern Spain

Dipl.-Ing. Joachim HAUSER, Von-Sandt-Street 95, Germany 53225 Bonn,

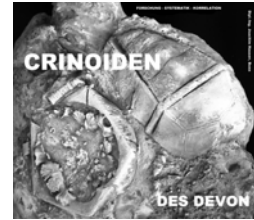
E-Mail: joachim.hauser@RAL.de; Internet: www.devon-crinoiden.de

& Fernando Gomez LANDETA, C/Monte Cerrau 11 2° K, 33006 Oviedo, España,

E-Mail: fglandeta@telecable.es

with 6 pages and 9 text-figures

(published via Internet 26.10.2016)



1 Introduction (by Joachim HAUSER)

During a field-trip to some interesting geological outcrops of the Cantabrian Mountains in September 2016 one of the authors found a small inadunate crinoid-calyce in one of the more marl layers at Puerto Creek. This finding will be described in this paper.



↑ Textfigure 1 Upper third part of Santa-Lucía-section of El Puerto Creek few from a mining path to Llompera, upstream El Puerto brook

← Textfigure 2: Few of a more marl layer of the exposed Lower Lower Devonian, Upper Emsian, Santa Lucía Formation, Lowest upper part (\approx Level 59)

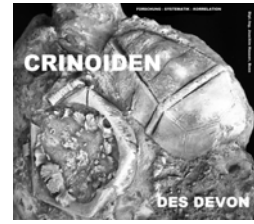
2 Geological situation and age (by Fernando Gomez LANDETA)

The holotype of the new species of *Espanocrinus*, was founded in the sector of Arroyo El Puerto, (El Puerto creek), one kilometer East of the town of Santa Lucía (Northern of Leon Province), in the road to the coal mines of Tabliza.

There, in a gorge along the track and next to the stream lies the stratotype of the formation Santa Lucía (Upper Emsian – Lower Eifelian). In the cliff of the right side and roughly 50 meter over the type section at its feet exists the cut of an old railroad who shows a section of the Upper Santa Lucía Formation comparable to that of the stratotype. This cut has a certain historical interest given that when it was excavated the French engineer WALISZEWSKI then director of the coal mines, collected one interesting Devonian fauna, given to D. & P. OEHLERT, 1897 who studied and published it.

In detail the specimen was founded in a marl bed two meters thick intercalated between the bedded limestones. Extrapolated to the numbered section of the stratotype it is at the eight of level 59, and this indicates that its age is just at the base of

Eifelian, (roughly 10 meters over it), following the results of the detailed magnetostratigraphic work by ELLWOOD, B. B., GARCIA-ALCALDE, J.L., EL HASSANI, A., HLADIL, J., SOTO, F.M., TRUYOLS-MASSONI, M., WEDDIGE, K. & KOPTIKOVA, L. (2006) in this section. The other crinoids founded in that bed (many years ago), are specimens of *Orthocrinus robustus*.



Kurzfassung: Erstmals wird aus der La-Pola-de-Gordon-Region des Kantabrischen Gebirges vom Locus-typicus der Santa Lucía Formation ein Vertreter von *Espanocrinus* (*Espanocrinus puertoi* n.sp.) beschrieben. Dieses Taxon war bisher nur aus der Aguion und Candás Formation der asturischen und der Santa Lucía Formation der Babia Region bekannt.

Abstract: At the first time a representative of *Espanocrinus* (*Espanocrinus puertoki* n.sp.) is described from the lowest upper part of the Santa Lucía Formation (Upper Emsian – Lower Eifelian) of the La-Pola-de-Gordón-region of the Cantabrian Mountains, northern Spain. This Taxon was only known from the Aguion and Candás Formation of Asturia and the Santa Lucía formation of the Babia region.

Resumen: Se describe una nueva especie del género *Espanocrinus* (*E. puertoi* n.sp.), procedente del tercio superior de la Formación Santa Lucía en la provincia de León, (Norte de España) y datado como de la base del piso Eifeliense.

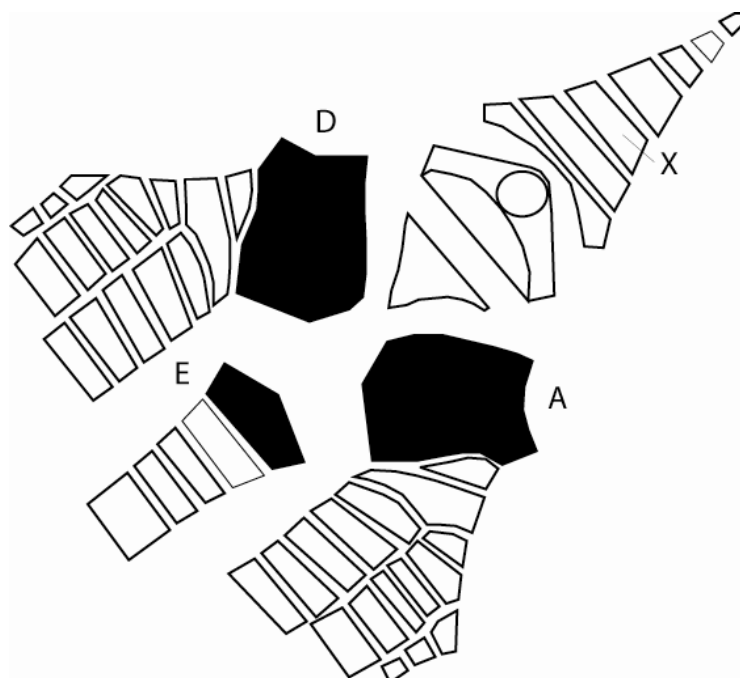
Schlüsselwörter: Echinodermen, Crinoiden, *Espanocrinus*, Systematik, Santa Lucía Formation, Unterdevon, Kantabrisches Gebirge, Nordspanien.

Key-Words: Echinoderms, crinoids, *Espanocrinus*, systematics, Santa Lucía Formation, Lower Devonian, Cantabrian Mountains, Northern Spain

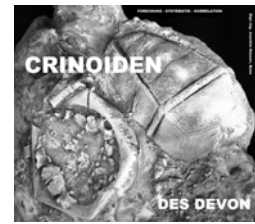
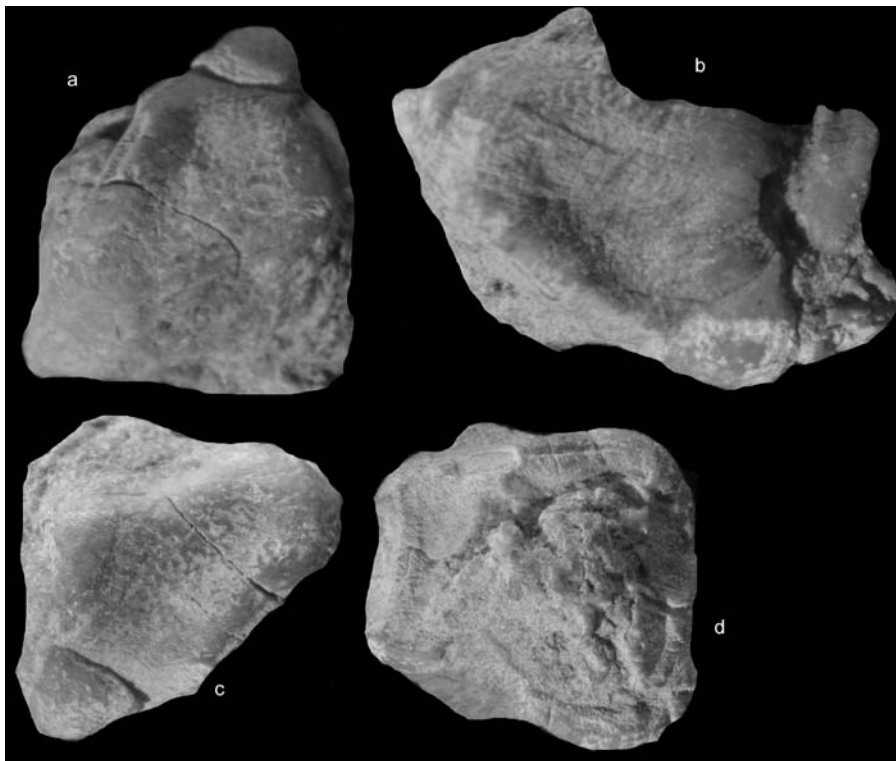
Systematics (by Joachim HAUSER)

Classe Crinoidea J. S. MILLER, 1821
Subclasse Inadunata WACHSMUTH & SPRINGER, 1885
Order Disparida MOORE & LAUDON, 1943
Superfamily Homocrinicea UBAGHS, 1953
Family Calceocrinidae MEEK & WORTHEN, 1869
Genus *Espanocrinus* WEBSTER, 1976

Exploration-diagram of *Espanocrinus*



↑ Textfigure 3: Exploration-diagram of *Espanocrinus* after a drawn of WEBSTER, 1976, textfigure 1 modified; black: D & A = radialia, E = Superradial, X = Analtubplates



Stratigraphical range
Middle Emsian – Upper Givetian

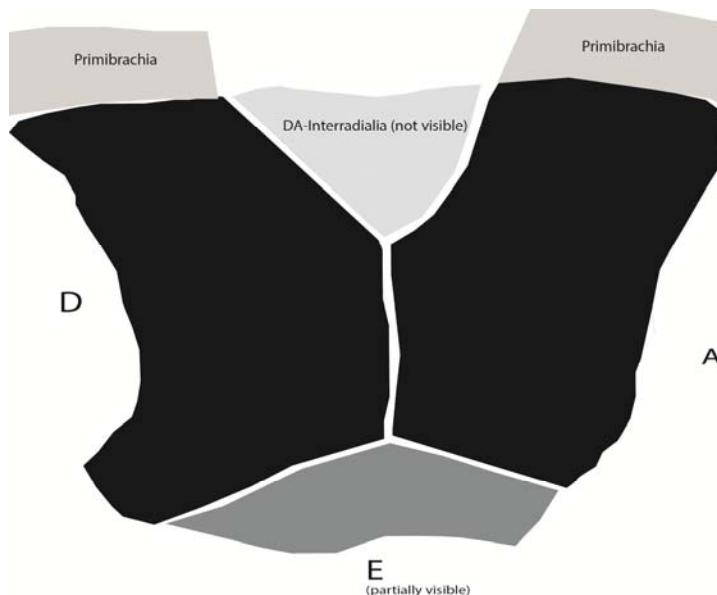
Type-species:
Espanocrinus lemonei WEBSTER, 1976

←Textfigures 4 a-d: Holotype of *Espanocrinus puertoi* n.sp.; a = side-view of the A-Radial, c = side-view of D-Radial, d = view of a part the internal plate structure E-A-D, b = calyce ≈ 20° rotated show (left) one of the preserved Br₁

Derivatio nominis: The new species is named after the famous El Puerto Creek (Arroyo El Puerto), Cantabrian Mountains, Northern Spain (since OEHLERT & OEHLERT, 1897).

Espanocrinus puertoi n.sp.
Figure 4a-d

Holotyp: The specimen in Textfig. 4a-d. The holotype will be donated the collection of the Departamento de Paleontología de la Universidad de Oviedo (Asturias, España).



←Textfigure 5: Plate-structure of *Espanocrinus puertoi* n.sp.; black = A & D = Radialia, E = Superradial

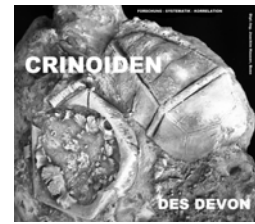
Locus typicus: El Puerto creek placed on the right margin of the national road 630 from León to Oviedo, in the road from Santa Lucía to mine Tabliza, Geological Map of Spain 1:50.000, sheet 103, La Pola de Gordón.

Stratum typicum: Lower Devonian, Upper Emsian, Santa Lucía Formation, Lowest upper part (≈Level 59).

Material: Only the holotype.

Diagnosis and Description: Ein mehr oder weniger in der Seitenansicht v-förmig zulaufender *Espanocrinus* mit (soweit erkennbar) zwei flächenmäßig gleich großen Radialia D und A. Im Ganzen betrachtet ist die Dorsalkapsel ungefähr so hoch wie breit. Soweit es die Beobachtungen zulassen scheint das Superradial E schmal aber flächenmäßig im Verhältnis zu den Radialia A und D groß zu sein. Ob ein Tangierungspunkt zur Interradius-Tafel AD besteht ist nicht erkennbar. Im Bereich des A und D Radials sind zwei höckerförmig anmutende Primibrachia Br₁ zu erkennen. Die gesamte sichtbare Kelchoberfläche scheint glatt zu sein.

A more or less v-shaped *Espanocrinus* with - as far as visible - two identical formed Radialia D and A. The high and wide of the dorsal-cup seems more or less equal. The superradial E seems to be small but in size as the Radialia D and A. A point of contact E superradial to the AD-Interradius-plate is not visible. Two hump-formed primi-



brachials Br_1 are preserved. The visible cup-surface is smooth.

Dimensions: High = 1,1 cm, wide_{max} 1,2 cm.

←Textfigure 6: Holotyp of *Espanocrinus elongatus* after HAUSER, 2014:3, text-fig. 4

Relations: Vom Kelchbau zeigt das neue Taxon Ähnlichkeiten zu *Espanocrinus lemonei* WEBSTER, 1976. Insbesondere die Ausbildung des Superradials E zeigt Parallelen in Form und Größe. Allerdings ist das neue Taxon gedrungener und vom Kelchbau flacher.

Auch scheint sich *Espanocrinus puertoi* im Gegensatz zu den übrigen aus dem nordspanischen Devon bekannten Arten im Bereich der DA-Radialia nicht so stark einzuschnüren.

The plate-structure of *Espanocrinus puertoi* is more or less (specially the E-interradius-plate) identical to *Espanocrinus lemonei* WEBSTER, 1976. But the new taxon has a more cute-through form, and the construction in the middle part of the D and A radial is not as distinctive as in the other taxa of *Espanocrinus*.

←Textfigur 7: Holotyp of *Espanocrinus arnaoiensis* after HAUSER, 2008:3, textfig. 3



→Textfigure 8a-e: Holotyp of *Espanocrinus barrandei* HAUSER, 2012 ≈ x 3 after HAUSER, 2012:2, textfig. 3a-e

Supplement-fauna (by Joachim HAUSER):

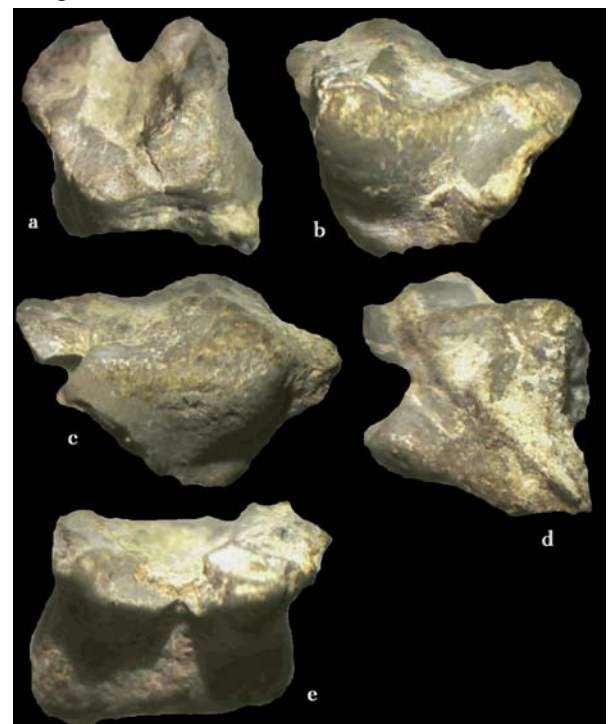
The Level 59 included in the lower part only fossils in very bad preservation; the upper part contain more or less broken corals and juvenile brachiopods; a more or less typical fauna of the Santa Lucía Formation.

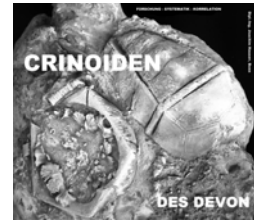
Acknowledgements: Our special thanks goes to Dr. Winfried KOENSLER, Bad Honnef, Germany. He had the kindness to read this paper correction.

References:

ELLWOOD, B. B., GARCIA-ALCALDE, J.L., EL HASSANI, A., HLADIL, J, SOTO, F.M., TRUYOLS-MASSONI, M., WEDDIGE, K. & KOPTIKOVA, L. (2006): Stratigraphy of the middle Devonian boundary: Formal definition of the susceptibility magnetostratotype in Germany with comparisons to sections in the Czech Republic, Morocco and Spain. - *Tectonophysics* **418**, p. 31-49; Elsevier B.V.

HAUSER, J. (2009): *Espanocrinus arnaoiensis* n.sp. (Crinoidea, Inadunata) aus der Aguión Formation (Mittleres Emsium) des asturischen Küstenprofils (Nordspanien). - 4 p., 6 textfig.; Bonn.





HAUSER, J. (2012): *Espanocrinus barrandei* n.sp. aus der Santa Lucía Formation des kantabrischen Gebirges (Nordspanien). - 4 p., 4 textfig.; Bonn.

MILLER, J.S. (1821): A natural history of the crinoidea or lily-shaped animals, with observation on the genera *Asteria*, *Euryale*, *Comatula*, and *Marsupites*. - 150 p., 50 pl., (Bryan & Co.); Bristol.

MEEK, F.B. & WORTHEN, A.H. (1869): Descriptions of new Crinoidea and Echinoidea from the Carboniferous rocks of the western states, with a note on the genus *Onychaster*. - Acad. Nat. Sci. Philadelphia, Proc., **21**: 67-83; Philadelphia.

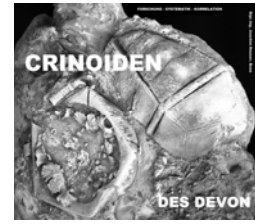
MOORE, R.C. & LAUDON, L.R. (1943): Evolution and classification of Paleozoic crinoids. - Geol. Soc. America, Spec. Pap., **46**: 1-153, fig. 1-18, pl. 1-14; Boulder, Colorado.

OEHLERT, D. & OEHLERT, P. (1897): Fossiles dévoniens de Santa Lucía (province de Léon, Espagne). (Ilème. Partie). - Bull. Soc. Géol. France, **4**(1): 233-250, 11 textfig., pl. 26; Lille.

UBAGHS, G. (1953): Classe des Crinoïdes. IN: **PIVETAU, J.** Direktor, Traite de Paleontologie. - **3**: 658-773, figs. 1-166; Paris (Masson & C^{ie}).

WACHSMUTH, C. & SPRINGER, F. (1885): Revision of the Palaeocrinoidea, Discussion of the classification and relation of the brachiata crinoids, and conclusion of the generic description. - Acad. Nat. Sci., Proc., **3**(1): 223-364 (1-162), pl. 4-9; Philadelphia.

WEBSTER, G.D. (1976): A new genus of calceocrinid from Spain with comments on mosaic evolution. - Palaeontology, **19**(4): 681-688, 2 textfig.; London.



Textfigure 9: Stratigraphical distribution of *Espanocrinus* in the Spanish Devonian (after HAUSER, 2012:3, Fig. 4) with the stratigraphical position of *Espanocrinus puertoi*

