

***Nummulus brattenburgensis* and *Crania craniolaris* (Brachiopoda, Craniidae)**

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Abstract: The Brattingsborg pennies are mentioned in medieval texts dating from the middle of the first millennium and many popular medieval legends refer to their occurrence on Ivö Island in the Scania region (Sweden) as *brattingsborgpenningar* or in Latin as *Nummulus brattenburgensis*. Actually they are valves of the fossil brachiopod *Crania craniolaris* originally described by LINNAEUS (1758) as *Anomia craniolaris* from the Upper Cretaceous. Later RETZIUS (1781) created the genus *Crania* based on these specimens from Ivö Island and on another species he described under *Crania* (now *Isocrania*) *egnabergensis* from Ignaberga in the Scania region. The scientific history of those two species is reviewed along with that of *Danocrania tuberculata* (NILSSON, 1826), formerly figured as *Craniolites brattenburgicus*, from the Danian of Scania. Two legends about these "pennies" are included.

Key Words: Brachiopod; *Crania*; *Isocrania*; *Danocrania*; history; Sweden.

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Résumé : *Nummulus brattenburgensis* et *Crania craniolaris* (*Brachiopoda*, *Craniidae*).- Les pences de Brattingsborg (ou Brattenburg) sont connus depuis le milieu du premier millénaire et beaucoup de légendes médiévales populaires attribuent leur origine sur l'île Ivö en Scanie (Suède) où ils sont appelés "brattingsborgpenningar" ou en latin comme *Nummulus brattenburgensis*. En réalité, ce sont des valves du brachiopode fossile *Crania craniolaris* décrit par LINNÉ (1758) sous *Anomia craniolaris* et en partie de valves d'*Isocrania egnabergensis* décrit par RETZIUS (1781) dans le Crétacé Supérieur de Scanie. Le genre *Crania* basé sur ces deux espèces récoltées à Ivö, Balsberg et Ignaberga a été créé par RETZIUS (1781). Deux des légendes, célèbres en Scandinavie, sont brièvement contées. L'histoire scientifique de ces deux espèces et d'une troisième *Danocrania tuberculata* (NILSSON, 1826), autrefois figurée sous *Craniolites brattenburgicus* du Danien de Scanie, est décrite et commentée.

Mots-Clefs : Brachiopode ; *Crania* ; *Isocrania* ; *Danocrania* ; histoire; Suède.

Introduction

The Brattingsborg (or Brattensburg) pennies (see Appendix 1) are known in the Scania region of Sweden (Fig. 1) as "Brattingsborgpenningarna". Actually they are valves of the fossil brachiopod *Crania craniolaris*. The inner face of the ventral valve has a skull or face-like pattern on it, and so resembles a coin. Starting in the middle of the first millennium it was mentioned in medieval texts as *brattingsborgpenningar* or in Latin as *Nummulus brattenburgensis* and many popular medieval legends refer to the occurrence of these "pennies" on Ivö (or Ovö) Island in lake Ivö (Fig. 1).

In 1729 these fossils were cited by BROMELL (Fig. 2), a Swedish physician and mineralogist, and they were described by STOBÆUS (1731) in his thesis (p. 23): "*Nummulus Brattensburgensis* is a nearly circular precious stone with the skull of a man figured on it, excavated from

the grounds of the Episcopal country-house on Ivö Lake." However it was his pupil, the well-known scientist LINNAEUS (from 1761 Carl von LINNÉ), who in 1758 gave a scientific name to these fossil specimens, *Anomia craniolaris*. The species name has been accepted by the scientific community but the generic designation is now *Crania* so the fossil is *Crania craniolaris*. Consequently, the name *Nummulus brattenburgensis* STOBÆUS, 1731 remains only in the legends!

The genus *Crania* created by RETZIUS (1781) was originally based on this Upper Cretaceous species from Ivö Island (type locality of this type species – see Appendix 2), and named *Crania brattensburgensis* RETZIUS, 1781 [= *Nummulus brattensburgensis* STOBÆUS, 1731; = *Anomia craniolaris* LINNAEUS, 1758], and still later *Crania nummulus* LAMARCK (1819, 1822) and NILSSON (1826, 1827)].

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Figure 1: Map of the main localities in Scania. Area of Interest outlined by rectangle. **A.** On Ivö island. (1) Ivö Klack, the type locality of *Crania craniolaris*. (2) the medieval church that was probably built by Archbishop SUNESEN. The church was dedicated originally to Saint Ursula during the Catholic period and a spring below the steep river bank is still called Ursula's Spring. In the same location are the ruins of the Ivöhus castle which was also built by SUNESEN. All that remains of the once magnificent castle are the ruins of the ground floor. (3) The Archbishop's cellar is located at Hovgården, 2 km southeast of the Ivö Church. **B.** Balsberg, the other type locality of *Crania craniolaris*. **C.** Ignaberga, the type locality of *Isocrania eignabergensis* (RETZIUS, 1781).

The history of the Brattingsborgspenningarna

There are many legends about the "Brattingsborgspenningarna" (see *Svenska Familj Journalen*, Bd 13, 1874:

<http://runeberg.org/famijour/1874/0357.html>; HEIJNE, 2005).

Two are proposed below. They are still told in Scania.

1. Once upon a time the island of Ivö belonged to Atte IFVARSSON who was a very rich man, domineering and proud, a kin of Ifvar VIDFAMNE (655-695). This native-born of Scania was regarded almost as a demigod, although actually a rather bloodthirsty man, king of Sweden, Norway, Denmark and of part of England.

Atte IFVARSSON lived in the fortified Brattingsborg castle in the northern part of the island (Fig. 1). Atte and his wife had a son and a daughter. One day they decided that their children must marry each other, because there were no good matches for either of them in the region. During the wedding-dinner, a landslide shoved the Brattingsborg castle and its nearby beach into lake Ivö. Only Atte, the father, escaped drowning. He ran to the stable, leapt on a horse and galloped away toward unknown lands until horse and man collapsed. In memory of this tragedy, one can find in the sand of the beaches in the northern part of Ivö island stone coins with death's-head markings in commemoration of the decease of the newly-weds. For

this reason the stone coins were called brattingsborgspenningar.

2. According to another legend, at the beginning of the 13th century the archbishop Anders SUNESEN¹ spent his last days on the island of Ivö, in his own castle of which the cellar was about 2 km southeast of the castle (Fig. 1). In 1221, subjected to the terminal stages of leprosy, he spent his last days on the island. One day he was informed that warriors had stolen a large sum of money from the Brattingsborg castle. They spent that night gambling and carousing in the cellar. The archbishop cursed this money and the following morning the warriors were stunned to find that the coins had turned into stones with a laughing death's-head on them.

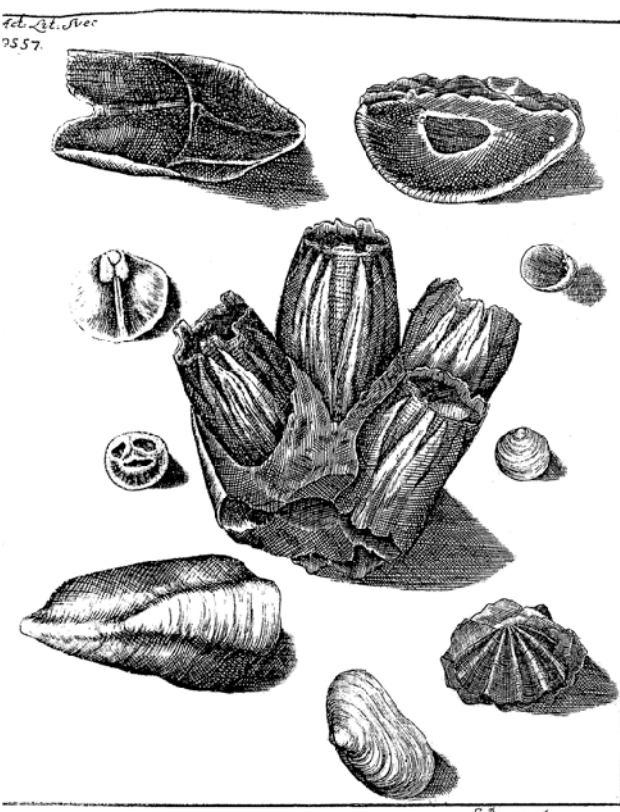
Scientific history of the genus *Crania* and the *Brattingsborgspenningarna*

Twenty-three years after LINNAEUS (1758) (Fig. 3), RETZIUS (1781) published his description of the new genus *Crania* (Fig. 4). He based the genus partly on the *brattingsborgspenningar* (in English "Brattenburg pennies") described by STOBÆUS (1731) under the name *Nummulus brattenburgensis* (Fig. 5) from the

¹ Anders SUNESEN (also Andreas SUNESON, SUNESØN, Latin: Andreas SUNONIS), ca 1167–1228, was a famous Danish archbishop of Lund. He lived his last years on Ivö Island. It has been speculated that his death in 1228 may have been attributed to leprosy. He is buried in a sarcophagus in Lund Cathedral (Fig. 1).

colligitur, & a nobiliss. D. Swedenborg in misc. observ. part. I. p. 15. accurate describitur. Ipsa spelunca, ubi hæc ochra conchifera effoditur, urbi Christianstad in Scania vicina est, & fossa Lardi (Fläske grävnen) nuncupatur, quoniam intra eandem incolæ in bello danico Lardum aliaque obsonia occultaverunt. Appellatur etiam specus montis Baldri, quoniam sub monte quodam Falsi seu Baldursberg vocato, penetrat spelunca hæc, de cujus structura interiori sequentem relationem transmisit D. D. Ferber loci ejus oculatus testis: haud procul, ait, ab urbe Christianstad in Scania, prope pradium Robelöf & pagum Röhyensem, specus visitur insignis subterranea, cujus antrum cum ante annos aliquot meo jussu servus quidam intraret, observavit ille profunditatem caverna ad 100 orgyias cunctiter accedere. Ad profunditatem duarum orgyiarum postquam servus pervenerat, novum iterum tabulatum sive stratum subterraneum deprehendit, unde aditus ad alias plus quam 30 speluncas fornicatas patebat, quæ omnes e simili materia calcaria conchifera alba vel sublucida constare videbantur. Totius specus hujus Calcaria facies interior sodinam antiquam cum cuniculis subteroperteolis referebat, ad quorum aditum tamen nemo nunc ob aquam subterraneam, omnia inundantem, penetrare potest. Intra speluncam hanc ejusque antra nullus vapor mineralis noxius, sed aer purus & respiratori amicus persentiebatur. Ulteriorem cryptæ hujus conchiferæ descriptionem promissa, Historiæ naturalis scrutator indefessus, celeberrimus Professor Lundensis D. Stobæus, cui præcipua superius memorata conchyliorum specimina debeo. In Fig. 2. Frustulum Ochre hujus patellis, conchis, aliisque marinis gravidum exhibetur.

5. Terra calcaria alba dura variis conchyliorum speciebus nigrissimis graviora, collecta intra Lapidinam calcariam Egnabergensem in Scania territorio Gånge-bäckad. Conchilia



chilia quæ intra Lapidinam hanc, non nisi quatuor milliariibus a proxime memorata specu montis Baldri distantem effodiuntur, quamvis cum Baldrianis recentis sitis magnam affinitatem habeant, differunt tamen ab iisdem sequentia:

1. Patella exigua spherica subtilissime striata.
2. Concha minores laevi & candida.
3. Concha tenuiores plane subtilissime striata.
4. Concha media magnitudinis a cardine ad oram magis elongata, laevi ventre crassiore & ad imam oram sensim attenuato.
5. Concha minores striata & imbricata elegantissima.
6. Pellines varia magnitudinis profunde sulcata.
7. Pellines strii varioribus & elatioribus eleganter notati. Horum specimen elegans matri adherens in fig. 3. silitur.

Quemadmodum proxime memorata conchilia specus montis Baldri cum conchis fossilibus Aquisgranensibus conveniebant, ita hæc Egnabergensia, ratione soliditatis, substantiæ coloris ac matri magnam similitudinem habent cum illis conchis subterraneis exoticis, quæ ante annos multos a me prope Rhemus in Campania inventæ sunt, & a sagacissimo D. Schynvoet Amstelodamiensis in notis pereruditis ad musæum Rumpii p. 317. descriptæ, quarum species inferius in calce speciminis hujus recensentur.

§. III.

6. Umbilici marini, an illius bysantina vel alius usque univale fossili nova & ignota species, reperta in hore lacu Iwö in Territorio Villandico, a milliar. ab urbe Christianstad in Scania. Quo titulo novum hocce & nondum descriptum testaceum salutare debeo, ignoro, dubius adhucdum utrum ad umbilici cujusdam marini, blattæ vel patellæ genus pertineat. Conchilia

& lapidi argillaceo adnatæ, effossæ ex tellure prope villam Smetofia in Westrogothia paracis Hærtæ dictæ. Rarissimi hujus concreti testacei anno 1727 bina duntaxat frustula, n modum umbilicus marinus terra est tenuis plana candida & spherica, magnitudine ac crassitie nummulum assem vix superans, in cujus parte anteriori, margine elatiore ac circulari dotata, facies Leonis vel alius animalis barbara cernitur. Bina scilicet in supremo foraminula, oculorum ad instar, testam perforantia, quibus hiatus seu rima transversalis, rictum animalis apprimè referens subternitur, undique striis capillaceis, tot veluti capillis, cincta. Pars ejusdem portica parum extuberans blattarum in morem variis circulis minoribus excentricis exornatur, tali plane modo, quo in fig. 4. & 5. depingitur, ubi ad lit. a pars operculi antica ad b. vero postica exprimitur. Colliguntur autem peregrini hujus testacei specimina in arena litorali lacus Iwö dicti, haud procul ab arce quadam antiqua Brattingsborg in Scania, ubi ob figuram numismalem ab incolis Brattingsborg-penningar audiunt, & ab ignavis pro nummis in lapides mutatis venduntur, quemadmodum mihi retulit Caroli Coronæ Medicus laudatissimus D. Roslinus, qui prolixiore eorundem historiam promisit.

7. Ejusdem generis ac indolis alia minora specimina, lapidi calcario candido, seu matri adnata, ex lapidina Egnabergensia in Scania. Hæc, magnitudinem si exceperis, cum Brattingsborgensibus conveniunt, cum antea memoratis conchiliis simul intra lapidina calcariam Egnabergensem inventa.

8. Balanorum Calices sive Testa majores, conjunctim concreta & lapidi argillaceo adnatæ, effossæ ex tellure prope villam Smetofia in Westrogothia paracis Hærtæ dictæ. Rarissimi hujus concreti testacei anno 1727 bina duntaxat frustula,

Figure 2: Facsimile of p. 559-561 and figure of BROMELL (1729).

Upper Cretaceous of Ivö island in Scania (Sweden) the type locality of *Anomia craniolaris* LINNAEUS, 1758 (see Appendix 2) with which RETZIUS was familiar, and partly on a modern species from Philippine waters considered to be similar. The descriptions of both include a reference to the skull or face-like appearance of the interior of the ventral valve.

RETZIUS (1781) described two species for the genus *Crania*:

- *Crania brattensburgensis*, within which he placed *Anomia craniolaris* LINNAEUS and *Nummulus brattensburgensis* STOBÆUS (1731), from Ivö, Balsberg, and Ignaberga (all in Scania, southern Sweden) (Figs. 1 & 6). The Recent specimens from the Philippines that RETZIUS thought might be the same as *Anomia craniolaris* are a form now named *Novocrania philippinensis* (DALL, 1921) – see below.

- *Crania egnabergensis*, in which he included the non-binomial *Nummulus* STOBÆUS. The chalk pit at Ignaberga (Scania, southern Sweden; Figs. 1 & 6) was also the type locality for *C. egnabergensis*. This species is now assigned to *Isocrania* (see Appendix 2).

- 700 VERMES. TESTACEA. Ostrea.
- List. angl.* 176. Ostrea vulgare maximum.
hist. 111. 20. Ostrea major sulcata, inæqualiter utrinque ad cardinem denticulata.
Klein. ostr. t. 8. f. 21.
Bonam. recr. 108. t. 70. Ostrea.
Habitat in Oceano Europæo.
Frequentes in canis Afosorum viva epula.
- femiau- 181. O. testa ovata femiaurita lævi, basi obliqua.
rita. *Gvalt. test.* t. 84. f. H.
Habitat in O. meridionali.
- Ephippiu. 182. O. testa orbiculata compresso-membranacea, cardine fulcis transversis pluribus.
Rumph. mus. 47. f. B.
Habitat in M. Asiatico.
Testa compressa ut vix cavitas appareat, extus rudis fusca, distinctissima ab Anomia Ephippio & Plucenta.
279. ANOMIA. Animal . . .
- Testa inæqualivalvis: valvula altera planiuscula, altera basi magis gibba; harum altera sæpe basi perforata.*
- Cardo edentulus cicatricula lineari prominente introrsum; valvulæ vero planioris in ipso margine.*
- Radii duo offci pro basi animalis.*
- craniola- 183. A. testa orbiculata: valvula gibbosiore conico-con-
ris. vexa, planiore basi foraminibus tribus.
Fn. suec. 1347. t. 2. f. 1347. Concha testa planiore orbiculata cranium humanum referente.
Stobæi Diff. epist. Lund. 1732. f. 1, 2. Nummulus brattensburgensis.
Ad. Upsal. 2. p. 560. t. 152. f. 4. idem.
Bruckm. cent. 2. epist. 38. p. 390. t. 17. f. 10. Manlekard.
Habitat in Scania ad Ivö & Balsbergam, non dum viva reperta.
184. A.

Figure 3: Facsimile of p. 700 of LINNAEUS (1758): original description of *Anomia craniolaris*.

Nach dem vorgeannten Exemplar aus dem Ziervogelschen Cabinet habe ich die erste beschreiben.

2. CRANIA *Brattensburgensis* parasitica, testa inæqualivalvi, inæqualiter, superiore rugosoinæquali, margine striato. Tab. I. f. 1. 2. 3.

♂ 5 Anomia

74 Crania,

Anomia Craniolaris, Linn. Syst. Nat. 12. T. I. P. II. p. 1150. *ejusd.* Faun. Suec. 2. n. 2150. tab. 2. f. a — e.

Ostracites minimus parasiticus calvariam hominis utcumque referens, Numulus Brattensburgensis dictus K. STOBÆUS Act. Litt. et Scient. Suec. 1731. p. 14. et 21

Numulus Brattensburgensis et *Ostracites Nummatus* etc. STOB. Diff. Epist. f. 1. 2. Opusc. p. 31. T. 1. f. 1. 2.

Habitat in Oceano circa Insulas Philippinas; *fossilis* vero ejicitur in Littus arenosum Insulæ Ivö Scaniæ, rarius in calcifodinis Balsberg et Egnaberga ejusdem Provincie invenitur. In arena volatili circa Hwitsköfle repertam quoque vidit STOBÆUS.

Testa inferior affixa, crassior, plana. *Calli* ut in descriptione Generis, nitidi, quem nitorem etiam in petrefactis servant. *Margo* inæqualiter præcipue superior, declivis, striatus. *Discus* etiam oblique et profunde versus medium callum sulcatus.

— — *superior* tenuis admodum, convexa, patenti-conica, inæqualiter rugosa, extus rudis, vertice sublaterali mucronato inflat *Pattellæ*, intus vero et prope cardinem *Calli* duo paralleli eminentiufculi, orbiculati, circumcriptionibus depressis notati, cum *puncto elevato* infra utrumque callum aderant. Infra callos et inter puncta nominata cavitas vertici respondens. *Margo* hujus testæ leviter striatus inferiorem recipit testam, unde inæqualitatem dixi.

Die oder Todtenkopfschnecke. 75

Die bey dem Ritter Linne angeführten foramina sind hier übergangen, und das aus gutem Grunde. Sie sind auch weiter nichts als tief und schief eindringende Vertiefungen. In dem Original sind sie mit den obgenannten Calli verstopft, in gezeichneten aber, oder vom Wasser ausgeworfenen Exemplaren sind diese Calli öfters ausgefallen, da denn die Löcher offen sind. Ich habe diese kleine Knopffähliche Theile Callos genannt, weil sie die Farbe, den Glanz und völlig das Ansehen des Knorpels haben, und weil sie aus einer andern Materie als die Schalen bestehen, und habe daraus geschlossen, daß sie auch bey den gezeichneten und den bey Ivö gefundenen Menschen ihren Glanz beubehalten, da doch die Muscheln selbst ganz verändert sind, und matt, rauh und halb calcinirt aussehen.

2. CRANIA *Egnabergensis* testa libera, lentiformi, æqualivalvi, radiato-sulcata, margine punctato. Tab. I. f. 4 — 7.

Numulus minor rarissimus oculis et naso prominentibus e Lapidina Egnabergensi in Gothungia. K. STOBÆI opusc. p. 31. T. 1. f. 3. 4. Diff. Epist. fig. 3. 4. pessima.

Habitat — — — *fossilis* in calcifodina Egnabergensi et quidem proprie Tykarpienti, nec, quantum scio, alibi reperta.

Stobæus hat also auch diese gehabt, aber sie nur als eine Art der vorigen angesehen. Dieses befreuet mich gar nicht, da die Kenntniß der Conchylien vor fünfzig Jahren sehr geringe war, und ich ohnedem gewiß bin, daß Stobæus bloß die untere Schale und noch ein einziges freyes Exemplar davon gesehen hat.

Fig. 4

Figure 4: Facsimile of p. 73 (part) - 75 of RETZIUS (1781).

Genus *Crania* RETZIUS (1781, p. 72)

- DIAGNOSIS of RETZIUS translated from the Latin (LEE & BRUNTON, 1986): *'Shell bivalved, subequilateral, subequivalved, orbicular. Hinge edentulous. Lower valve with three scars as pits intruding into the valve, two of which are hemispherical with their bases inserted within the hinge margin; the third situated in the centre is larger and subtriangular and surrounded by the elevated margin. Upper valve with two prominent scars placed within the hinge margin, corresponding with the scars of the lower valve. The third scar does not correspond and is deep within the internal convexity situated beneath a pair of small oblique ridges.'*
- **Latest** DIAGNOSIS (BASSETT, 2000): *Dorsal valve convex to conical; beak subcentral to posterocentral, smooth, finely pustulose or rarely finely costellate; posterior margin commonly straight; recent species with dendroid shell punctation; dorsal posterior adductor scars large, rounded, thickened, widely separated; anterior scars commonly crescentic, raised above valve floor; weak myophragm bisects muscle field; encrusting; ventral valve uncalcified in recent species, otherwise sometimes thin; ventral posterior adductor scars large, anterior scars united medially; marginal mantle setae observed in recent forms; valve margins variably thickened, with limbus or faint submarginal rim.*
- TYPE SPECIES: *Anomia craniolaris* LINNAEUS (1758, p. 700) (Fig. 6) was considered as the type species by subsequent designation (SCHMIDT, 1818, p. 71). The lectotype, a ventral valve selected by BRUNTON *et alii* (1967), a second ventral valve, and a dorsal valve, are numbered 191 in the collection of The Linnean Society of London (http://www.linnean.org/fileadmin/images/Collections/Shell_catalogue_by_genus.pdf). Specimens of the type species were first figured by CHEMNITZ (1786, Pl. 8, fig. 681a, b) (Figs. 3 & 6).
- TYPE LOCALITY: Ivö Island in Lake Ivö (Scania, Sweden). In both 1758 and 1767 LINNAEUS described the locality of *Anomia craniolaris* as "Ivö and Balsberg, Scania" (Figs. 1 & 3). As there is no indication which locality furnished the lectotypes in the Linnean Collection, the former has been designated the type locality known to LINNAEUS and RETZIUS as: Ivö, "a cliff section with natural caves". The Balsberg cave is located in a Cretaceous karstic system about 9 km north of

Kristianstad, on the western shore of Lake Ravalov (Råbelöv) and 11 km W of Ivö (Fig. 1). LINNAEUS visited this cave, well-known to speleologists, on the 23rd of May 1749, where he collected fossils, including *Anomia craniolaris*.

There is another historical reason: since medieval times, the famous *brattingsborg-penningar* are known to occur in the northern part of Ivö island, named Ivö Klack. In this part kaolin mines (also known as Ugnsmunnarna) were worked from the end of the 19th century until the 1950s. Many fossils have been collected from them, especially *Crania craniolaris* LINNAEUS, 1758, as well as another craniid *Isocrania egnabergensis* (RETZIUS, 1781), of latest Early Campanian age according to LUNDEGREN (1934).

<i>Crania</i>	RETZIUS	1781
<i>Pseudocrania</i>	M'COY	1851
<i>Craniscus</i>	DALL	1871
<i>Ancistrocrania</i>	DALL	1877
<i>Philhedracrania</i>	KOKEN	1889
<i>Isocrania</i>	JÄCKEL	1902
<i>Petrocrania</i>	RAYMOND	1911
<i>Valdiviathyris</i>	HELMCKE	1940
<i>Acanthocrania</i>	WILLIAMS	1943
<i>Orthisocrania</i>	ROWELL	1963
<i>Danocrania</i>	ROSENKRANTZ	1964
<i>Lepidocrania</i>	COOPER & GRANT	1974
<i>Nematocrania</i>	GRANT	1976
<i>Neoancistrocrania</i>	LAURIN	1992
<i>Conocrania</i>	SMIRNOVA	1996
<i>Novocrania</i>	LEE & BRUNTON	2001

Table 1: List of the 16 genera of the family Craniidae, as stated in BASSETT (2000) - see also Appendix 2.

SCHMIDT (1818) designated the type species of *Crania* as *Anomia craniolaris* as figured by CHEMNITZ (1786), who redescribed LINNAEUS' specimens. Nevertheless, it remains curious that no one checked the description and figures given by STOBÆUS (1731) who was the first to publish this species (Fig. 5) (see also DEFRANCE, 1818 – Fig. 7). Consequently, it seems probable that the ICZN Rules (1985: 133) have not been correctly applied, as suggested by LEE & BRUNTON (1986).

Explicatio Figurarum.

I. Fig.

- N**ummuli Brattensburgensis facies supina.
 2. Ejusdem facies prona.
 3. Nummulus minor rarissimus, oculis & naso prominentibus, è Lapidina Egnabergensi in Gothungia.
 4. Nummulus Conchitæ anomio seu Ostreacitæ striato & plicato insidens, ex eodem loco.
 5. & 6. Ostreum Parasiticum bivalve, quod Ostreo Norvagico vulgari innatum satis frequens reperitur.
 7. 8. & 9. Cornu Ammoniscujusdam majoris, futuris frondosa vel foliacea ornamenta repræsentantibus, fragmenta diversa.

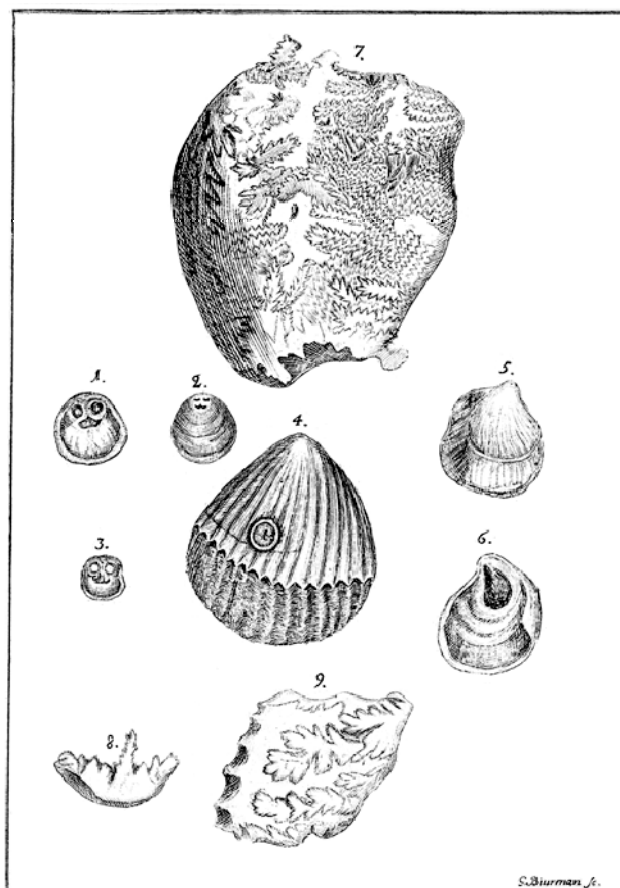


Figure 5: Facsimile of Figure 1 (p. 25-26) of STOBÆUS (1731). Explanation translated from Latin: **1.** Brattensburg coins face bended backwards (=supina, that is internal side of the valve). **2.** The same face turned forward (=prona, that is external side of the valve). **3.** Small money very rare, eyes and nose prominent, from the stone-quarry of Ignaberga in Gothland. [Reproduction by permission of Staats- und Universitätsbibliothek Göttingen – available at <http://www.animalbase.uni-goettingen.de/zooweb/servlet/AnimalBase/home/reference?id=1730>]

Nota: In English *Nummulus* [diminutive of *nummus*] means a small piece of money, a coin; and in French, "petit écu", un diminutif de *nummus* "pièce de monnaie".

LAMARCK (1819) introduced an alternative name, "Cranie monnaie. *Crania nummulus*" for *Anomia craniolaris* LINNÆUS, 1758 (Fig. 8). He was followed by a number of later workers, i.e., NILSSON (1826), HÖNINGHAUS (1828) who described thirteen living and fossil species and made the first review of *Crania*, and MÜNSTER (1840). This sidestep was the source of a great deal of confusion, which was compounded by the ignorance of MÜLLER'S (1776) name of *Patella anomala* for the common Recent North Atlantic species – now *Novocrania anomala* (MÜLLER, 1776), the type species of the genus *Novocrania* LEE & BRUNTON, 2001.

In 1871 DALL revised the genus *Crania*, providing extensive synonymies and demonstrating how authors of the late 18th and 19th centuries often confused Recent species with fossil species. However he was incorrect in writing (1871, p. 30) that the Recent specimens from the Philippines discussed by RETZIUS (1781) were probably the same species as that "previously described by MÜLLER (1776) under the name *Patella anomala*", from the Scandinavian coasts. *Novocrania anomala* (MÜLLER) is a common constituent of northeastern Atlantic

and Mediterranean benthic faunas. DALL (1921) described a new species from Philippines waters, now named *Novocrania philippinensis* (DALL, 1921).

The systematics of *Crania* has expanded to include dozens of species ranging in age from Ordovician to Recent. Like some other brachiopod genera, e.g., the well-known *Lingula* and *Obolus* (see EMIG, 2002, 2003, 2008), *Crania* too has been widely used in a general sense for many species. Perhaps this is because the taxonomic hierarchy is unique: Order Craniida > Superfamily Cranoidea [diagnosis "as for Order"] > Family Craniida [diagnosis "as for Order"] !

The number of genera in the family Craniidae increased considerably from 1851 to 2001 (Table 1). Several authors attempted to subdivide the genus *Crania*. JAEKEL (1902) designated *Crania egnaburgensis* Retzius 1871 as the type species of a new genus *Isocrania* and ROSENKRANTZ (1964) proposed *Crania tuberculata* NILSSON, 1826 as the type species of a new subgenus *Danocrania* (see Appendix 2).

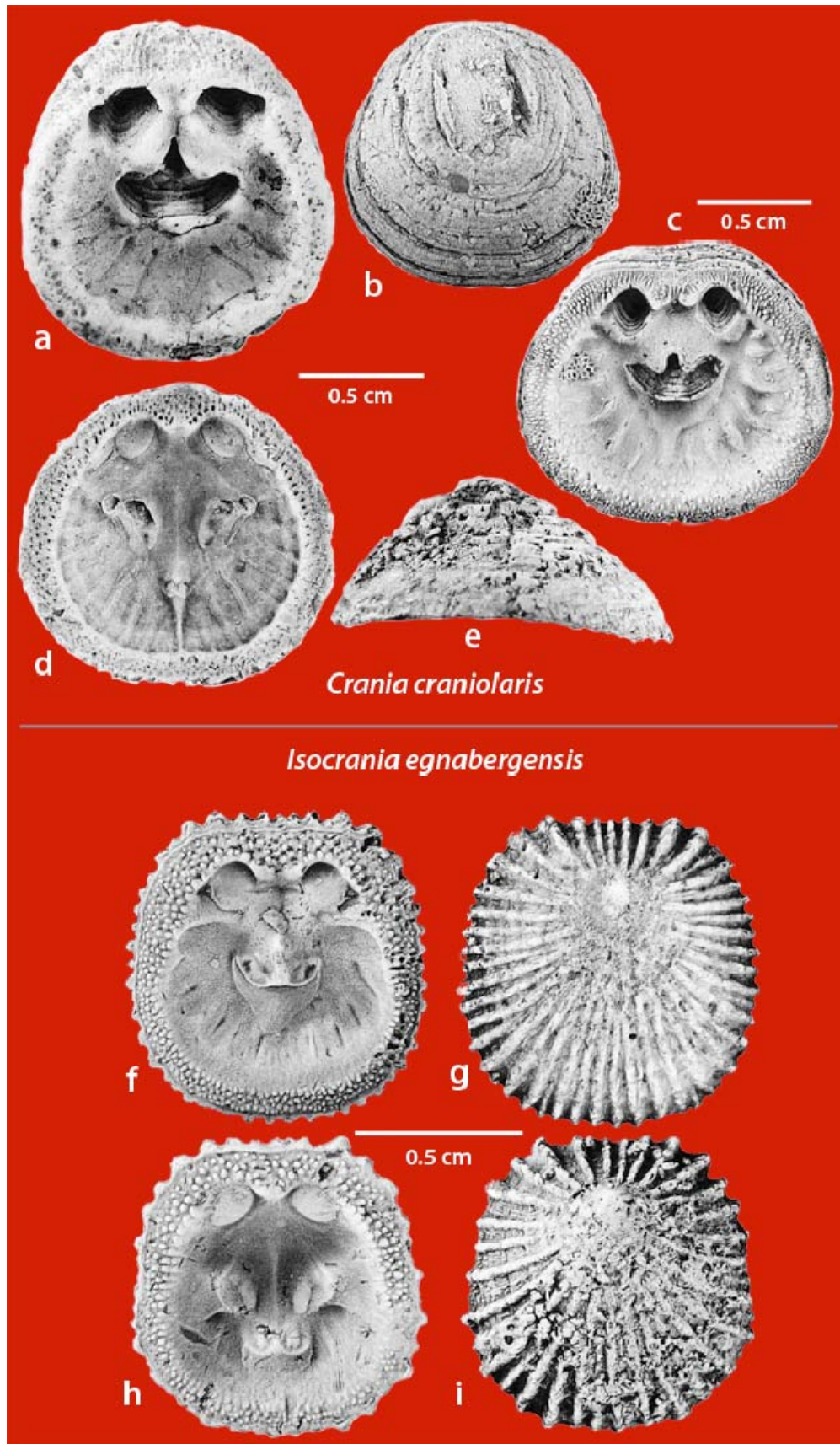


Figure 6: *Crania craniolaris* (LINNAEUS, 1758): **a**- ventral valve, interior; **b**- dorsal valve, exterior; **c**- ventral valve, interior; **d**- dorsal valve, interior; **e**- lateral. *Isocrania egnabergensis* (RETZIUS, 1781): **f**- ventral valve, interior; **g**- ventral valve, exterior; **h**- dorsal valve, interior; **i**- dorsal valve, exterior. From *Treatise on Invertebrate Paleontology* (Fig. 96,1d-k Fig. 99, 1a-i), courtesy of and © 2000, The Geological Society of America and The University of Kansas.

- *Isocrania egnabergensis* (Fig. 5) was described by RETZIUS (1781) from Lower Campanian chalk at Ignaberga (Scania: (Figs. 1) as *Crania egnabergensis*, but this form had been named previously *Numulus minor rarissimus* by STOBÆUS (1731).

- *Danocrania tuberculata* was figured, without a formal description, by SCHLOTHEIM (1820) as *Craniolites brattenburgicus* from the late Danian Saltholm limestone at South Harbour, Copenhagen, Denmark (Fig. 1). However, a more complete description of this form obtained from Danian limestones in Scania by NILSSON (1826, p. 326) under the designation *Crania tuberculata* has been accepted (BRUNTON and LEE, 1986). That change had been suggested earlier by ROSENKRANTZ (1964) with an additional aim: elimination of the confusion of species names caused by the similarity of *brattenburgicus* and *brattenburgensis*.

CRANIE, *Crania*. (Conchyl.) C'est un genre de coquilles bivalves, établi par Bruguières pour plusieurs espèces, la plupart fossiles, que Linnæus plaçoit dans le genre Anomie. Malheureusement on n'en connoît pas l'animal, en sorte qu'il n'est pas encore bien certain qu'il doive appartenir à la famille des ostracées, comme on l'admet cependant assez généralement. Ses caractères sont : Coquille inéquivalve, équilatérale; la valve inférieure ou droite, plane, adhérente, pourvue d'un talon au sommet, suborbiculaire, marquée de trois trous obliques et inégaux, qui ne sont que des impressions musculaires profondes; la supérieure ou gauche très-bombée et munie intérieurement de deux callosités saillantes.

La seule espèce vivante que l'on connoisse dans ce genre, la CRANIE A MASQUE (*C. personata*; *Anomia craniolaris*, Gmel., Chemnitz, Conchyl., 8, t. 76, fig. 687, a b), est une petite coquille d'à-peine un pouce de long, et de trois quarts de large, blanche, qui se trouve dans la mer de l'Inde aux Philippines, et, dit-on, quoique très-rarement, dans la mer Méditerranée, fixée par sa valve plane aux corps sous-marins. (D. B.)

Figure 7: Facsimile of the quotation of the section concerning *Cranie à masque* from DEFRANCE (1818). In the same publication, this author has described *Crania parisiensis*, now *Ancistocrania parisiensis* and *Crania antiqua*.

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orbiculaire, le plus souvent adhérente par sa valve inférieure. Les trois trous qui se remarquent sur la face interne de cette valve ne paraissent percer complètement son disque qu'accidentellement, et que lorsqu'on l'a détachée du corps solide sur lequel elle était fixée par sa face externe. Or, je ne crois pas que ces trous soient les issues par lesquelles des attaches musculaires vont se fixer à autant de pièces extérieures, comme Bruguière le suppose. Ces mêmes trous donnent à la valve dont il est question, l'aspect d'une tête de mort.

Quoi qu'il en soit, ce genre ne paraît pas être sans rapports avec les térébratules. La forme de la coquille et son adhérence par sa valve inférieure, semble même en indiquer avec l'orbiculaire. Mais l'animal étant inconnu, nous ne pouvons savoir si c'est un brachiopode. J'en citerai cinq espèces, dont une seule, dit-on, est connue vivante et se trouve dans la mer des Indes. Sauf les deux premières, je ferai l'exposition des autres d'après des notes qu'a bien voulu me communiquer M. de France, et l'article *cranie*, inséré par M. de Blainville dans le Dictionnaire des Sciences naturelles.

ESPÈCES.

1. Cranie en masque. *Crania personata*.

C. testâ orbiculatâ; valvâ gibbosiore conico convexâ; planiore basi foveolis tribus. Gmel.

Anomia craniolaris. Lin. Gmel. p. 336.

Chemn. Conch. 8. t. 76. f. 687.

Encyclop. pl. 171. f. 1, 2.

Crania personata. De Blainv. Dict. des Sc. nat.

Habite la mer des Indes. Cette coquille est jusqu'à présent, dit-on, la seule espèce vivante qui soit connue.

2. Cranie monnaie. *Crania nummulus*.

C. testâ suborbiculari, liberâ, planulatâ, intus radiatim striatâ; foveolis tribus; margine crassiusculo, non crenulato.

Habite..... Fossile de Suède. Mon cabinet. Coquille beaucoup plus petite que la précédente, que Chemnitz confond avec elle, et dont

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nous ne connaissons qu'une valve. Cette valve est probablement l'inférieure; et néanmoins sa face dorsale n'offre aucune trace d'adhérence aux corps sous-marins. L'intérieur présente vers sa base trois fossettes obliques, et non trois callosités. Nous n'apercevons ni dentelures ni crénelures en son bord; mais vers ce bord et en dessous on distingue quelques stries concentriques qui lui sont parallèles. On donne à cette coquille le nom de monnaie de Bratembourg.

3. Cranie épaisse. *Crania Parisiensis*.

C. testâ ovato-rotundatâ; valvâ inferiore facie externâ adhérente, intus radiatim striatâ foveolis tribus; margine superiore elevato, valvâ incrassato.

Crania Parisiensis. De France. De Blainv. Dict. des Sc. nat.

Habite..... Fossile de Meudon, aux environs de Paris. Cabinet de M. de France. On n'en connaît que la valve inférieure. Largeur, 8 à 9 lignes.

4. Cranie antique. *Crania antiqua*.

C. testâ orbiculato-trigondâ; valvâ inferiore basi cardinali sub-rostratâ adhérente, subtus concentricè striatâ, intus foveolis tribus; valvâ superiore valvâ convexâ.

Crania antiqua. De France. De Blainv. Dict. des Sc. nat.

Habite..... Fossile de Néhou, département de la Manche. Cabinet de M. de France. On en possède les deux valves: l'inférieure n'est adhérente que par le talon de son sommet; elle est presque plane, arrondie-trigone, marquée en dessous de stries concentriques d'accroissement, parallèles au bord, et offre à sa face interne trois fossettes obliques, disposées comme les yeux et la bouche d'un masque; la supérieure est très-convexe, et présente intérieurement trois impressions qui répondent aux enfoncements de l'autre valve. Le plus grand diamètre de cette espèce est de 7 lignes.

5. Cranie striée. *Crania striata*.

C. testâ parvulâ, rotundatâ; valvâ inferiore planulatâ, basi sub-truncatâ, externâ facie adhérente, intus callis prominulis instructâ; valvâ liberâ orbiculari, dorso elevato, radiatim striatâ.

Crania striata. De France. De Blainv. Dict. des Sc. nat.

Encyclop. pl. 171. f. 6, 7.

Habite..... Fossile des mêmes lieux que la précédente. Cabinet de M. de France. N'ayant trouvé que séparément les valves libres,

Figure 8: Facsimile of p. 238-239 of LAMARCK (1819): description of *Crania nummulus*.

The subdivision into more restricted genera has not been accepted by all authors. For example, although *Ancistrocrania* DALL, 1877 and *Isocrania* JÄCKEL, 1902 have been in the literature for well over 50 years, these genera were not accepted by CARLSSON (1958) in his revision of *Crania* from Sweden. Although listing *Isocrania* as a full genus, ROGER (1952) labelled his figure of this type species: "*I. egnaber-gensis*, as *Crania* s.s." More recently, COCKS (1985) figured the type of *Danocrania*, *D. tuberculata*, under the name *Ancistrocrania*.

The revision by LEE & BRUNTON (1986, 2001) of living species included in *Crania* emphasized several major points of difference between living forms and the Upper Cretaceous type species *C. craniolaris*: these authors established a new genus named first *Neocrania* LEE & BRUNTON (1986) and later *Novocrania* LEE & BRUNTON (2001), based on *Patella anomala* MÜLLER, for many Recent and some Tertiary species formerly placed in *Crania*.

Conclusion

This contribution on "brattingsborgpenningar" (or *Nummulus brattenburgensis*) is a nice example of the interpenetration of Scandinavian and Germanic popular medieval legends that date from the mid-first millennium with the scientific data on fossil and extant brachiopods developed over the last three centuries. It is noteworthy that a succession of important scientists, including LINNAEUS and LAMARCK, have contributed to that portion of the history of science dealing with craniate brachiopods.

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Appendix 1

About the name of Brattingsborg or Birtingsborg (in French Bratembourg; in German Brattenburg or Brattensborg)

The name Brattingsborg is given to the residence of the heroes of medieval epic poems and ballads; its meaning is "radiant castle". Thus there is a Brattingsborg located on the island of Ivö (or Ovö) in lake Ivö (Ivösjön), another is on the island of Samsø in Denmark (Fig. 1).

The name is associated with the legends about WUDGA and Holger DANSKE. It is also mentioned in Beowulf, a major epic poem of Anglo-Saxon literature probably composed between the first half of 7th century and the end of the millenium.

- WUDGA (Witege, Videke or Vidrik Villandsson/Vallandsson/Verlandsson) is one of the heroes of various Germanic legends, and later of Scandinavian ballads.
- The Danish hero, Holger DANSKE (in French *OGIER le Danois* or *OGIER de Danemarche*) is also part of the epic poetry that appears at the dawn of French literature. From the 9th Century Holger DANSKE occurs in the *chansons de geste* of the Cycle of CHARLEMAGNE or Cycle of the King (in particular in the Song of Roland). His French legend is based on a free interpretation of events and of authentic circumstances. He is represented in the French card deck by the jack of spades.

Appendix 2

Classification of the craniid species related to the history of Brattingsborg. See 1 for all the genera, as well as additional information in BRUNTON & LEE (1986), LEE & BRUNTON (1986) and BASSETT (2000, p. 171, 174, 176).

Subphylum Craniformea (?Lower Cambrian, Middle Cambrian-Present)

Class Craniata (?Lower Cambrian, Middle Cambrian-Present)

Order Craniida WAAGEN, 1885 (Lower Ordovician-Present)

Superfamily Cranioida MENKE, 1828 (Lower Ordovician-Present)

Family Craniidae MENKE, 1828 (Ordovician (upper Arenig-Present), with 16 genera (see Table 1)

- Genus *Crania* RETZIUS, 1781 (Upper Cretaceous) - Type species *Crania craniolaris* (LINNAEUS, 1758) - see text.
 - *Crania craniolaris* (LINNAEUS, 1758) (Upper Cretaceous) [= *Anomia craniolaris* LINNAEUS 1758, from Campanian chalk at Ivö Island, type locality, and Balsberg (Scania, Sweden; Figs. 1 & 6)].
Synonyms: *Nummulus brattensburgensis* STOBÆUS, 1731; *Crania brattensburgensis* RETZIUS, 1781; *Crania nummulus* LAMARCK, 1819; *Crania nummulus* NILSSON, 1826.
 - *Crania antiqua* DEFRANCE, 1818;
- Genus *Isocrania* JAEKEL, 1902 (Upper Cretaceous-lower Paleogene) - Type species *Isocrania egnabergensis* (RETZIUS, 1781)
 - *Isocrania egnabergensis* (RETZIUS, 1781) [= *Crania egnabergensis* RETZIUS, 1781, p. 75, from Lower Campanian chalk at Ignaberga (Scania, Sweden; Figs. 1 & 6), type locality].
Synonym: *Nummulus minor rarissimus* STOBÆUS, 1731.
 - and 5 other species
- Genus *Danocrania* ROSENKRANZ, 1964 (Upper Cretaceous-lower Paleogene) [= *Westralicrania* COCKBAIN, 1967] - Type species *Danocrania tuberculata* (NILSSON, 1826)
 - *Danocrania tuberculata* (NILSSON, 1826) - Type locality: Copenhagen [= *Crania tuberculata* NILSSON, 1826, p. 326, from Danian limestones in Scania (Sweden)].
Synonym: *Craniolites brattenburgicus* SCHLOTHEIM, 1820 from late Danian Saltholm limestone at South Harbor, Copenhagen Denmark]
 - and 7 other species