Of Mr J. E. Gray’s arrangement, published in 1825, we can only give a bare outline, remarking that it is the only attempt which has been made to classify the Echinides after the views of Macleay. We have then, first, the

Typical Group—*Body globular; mouth central, below; jaw; conical, projectile, with five acute teeth ; anus vertical, dorsal; ambula­cra complete, forming bands extending from the mouth to the anus.*

Family I. Cidaridæ ; of which the genera are, 1. Cidaris; 2. Diadema ; 3. Astropyga.

Family II. Echinidæ : the genera, 4. Echinus ; 5. Echino- metra.

Annectant Group.—*Body not globular, variously shaped ; jaws*

*not projecting ; anus lateral or below ; anus and mouth covered with imbricate irregular scales.*

Family III. Scutellidæ : the genera, 1. Echinanthus ; 2. La- gana ; 3. Echinarachnius ; 4. Eehinodiscus ; 5. Echinocyamus ; 6. Cassidulus.

Family IV. Galehitidæ; with the genera, 7. Galerites; 8. Discoidea; 9. Echinanaus; 10. Echinocorys; 11. Echinolampas; 12. Echinobrissus.

Family V. Sfatangidæ; embracing, 13. Spatangus ; 14. Echi noeardium; 15. Brissus; 16. Ova.@@,

Blainville’s views of this order are shewn in the following sy­nopsis of his method.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| \*\*\*\* | **Subterminal** | |  | | **Spatangus.**  **Anaiichites. Nucleolites.** |
|  |  |  |  |  | **Echinoclypeus.** |
|  |  |  | **' Toothless** |  | **Echinolampas.**  **Cassidula.** |
| ZJ |  |  |  |  | **Fibularia.** |
| s o | **Subcentral** | J |  |  | **Echinoneus.**  **Echinocyamus.** |
|  |  |  |  |  | **Laganus.** |
|  |  |  | **Armed with teeth...** |  | **Clypeaster. Echinodiscus.** |
|  |  |  |  |  | **Scutella.** |
|  | **Central ; anus...** |  | **í infra lateral...** |  | **.Galerites. Echinometra.** |
|  |  |  | **í central** | **.** | **Echinus.**  **Cidaris.**@@**s** |
|  |  |  |  | *I* |

From the researches of Μ. Desmoulins, it appears that Blain­ville would now unite Echinoclypeus with Nucleolites, Laganus with Clypeaster, Echinodiscus with Scutella ; and Echinocya- mus is probably not distinct from Fibularia, for although they stand in the table in different sections or families, Desmoulins finds that Fibularia ought to be transferred to that which is dis­tinguished by its possession of teeth ; and this also is the case with Cassidula.@@s

The arrangement of Agassiz may be thus epitomized.

ORDER ECHINIDES.

FAMILY I.—SPATANGIDÆ.

Body more or less elongated, gibbous ; mouth with jaws, sub- anterior; anus posterior, sometimes on the upper surface of the disc, sometimes on the lower ; shell thin, granulous, the spines setaceous, often compressed and unequal. The anterior ambula­crum is generally less developed than the rest. They form round the mouth grooves, where the holes are larger, and whence pro­ceed ramified tentacula, like those of the Holothuriæ. There are only four oviducal plates, which are very distinct.

1. Disaster, *Ag.=Spatangus*, Ananchytes, et Nucleolites, *Auct.*

2. Holaster, *Ag.* = Spatangus, *Auct.*

3. Ananchytes, *Lam.* = Echinocorys, *Breyn.* Galea et Galeo-

la, *Klein.*

4. Hemipneustes, *Ag* = Spatangus, *Auct.*

5. Micraster, *Ag. =* Spatangus, *Auct.* Brissoides, *Klein.*

Amygdala et Ovum, *V. Ph.*

*6.* Spatangus, *Klein. =* Echinospatangus, *Breyn.*

Amphidetus, *Ag*. = F.chinocardium, *V. Ph.* Spatangus, *a. Bl.*

8. Brissus, *Klein.* = Echinobrissus, *Breyn.* Nuces, F. *Ph.* Spa.

tangus, *d. Blainv.*

9. Scihzaster, *Ag.* = Echinocardium, *V.Ph.* Spatangus, *b. Bl.*

FAMILY II.—CLYPEASTRES.

Body generally circular; mouth central or sub-central; anus more or less approximated to the periphery, found sometimes at the upper, sometimes at the under surface of the disc.

1. Catopygus, *Ag. =* Nucleolites, *Auct.*

2. Pygaster, *Ag. =* Nucleolites et Clypeus, *Auct.*

3. Galerites, *Lam.* = Conulus, *Klein.* Echinochonus, *Blainu.*

4. Discoidea, *Klein. =* Conulus, *Leske.* Echinodiscites, *V. Ph.*

Galerites, *Lam.*

5*.* Clypeus, *Klein.* = Echinoclypeus, *Blainv.* Echinosimus, *V. Ph.* Galerites, *Lam.* Nucleolites, *de Fr.*

6. Nucleolites, *Lam.* = Echinobrissus, *Breyn.* Clypeus, *Phil.*

7. Cassidulus, *Lam.* = Nucleolites, *Auct.*

8. Fibularia, *Lam. =* Echinocyamus, *Leske.* Echinoneus, *Goldf.*

9. Echinoneus, F. *Phcls.* = Echinanaus, *Koen.* Echinoconus,

*Breyn.*

10. Echinolampas, *Gray. =* Echinanthus, *Lcske.* Clypeaster et

Galerites, *Lam*.

11. Clyγeaster, *Lam. =* Echinanthus, *Breyn.* Echinodorum

et Echinodiscus, F. *Ph.* Lagana, *Gray.*

12. Echinarachnius, *Leske.* = Arachnoides, *Kl.* Echinodiscus

et Lagana, *Bl.* Scutella, *Lam.*

12. Scutella, *Lam.* = Echinodiscus, *Lcske.* Mellita et Rotula, *Kl.* Lagana, *Bl.*

family iiI.—cidarites.

Shell spheroidal, with two kinds of spines, the first larger on large mammillae, the others smaller, surrounding the base of the first, or covering the ambulacra. Mouth central, inferior ; anus opposite, on the summit, opening between the small laminæ sur­rounding it, opposite and sometimes very near to the posterior ambulacral space.

1. Cidaris, *Lam.*

2. Diadema, *Gray,* part of Cidarites, *Lam.*

3. Astropyga, *Gray,—*Cidarites, *Lam.*

4. Salenta, *Gray,—*Cidarites, *Auct.*

5. Echinometra, *Breyn.*  Echinus, *Auct.*

6. Ariîacia, *Gray,—*Echinus, *duct.*

7. Echinus, *Linn.*@@*\**

ORDER III—STELLERIDES,@@5 Lamarck.

The “ seas have stars,” sings Du Bartas ; and if chal­lenged, he would probably have appealed to the members of this family in proof that his fancy was in this instance not more licentious than his verses.@@6 But it is only some species which have felt the skyey influence over their forms ; for even certain of the Asterias are merely penta­gonal, and some square, while the total forms of other ge­nera rather imitate a wheel in their facies, with spokes ra­diating from a central navel : and others again have sought no impress from any object in the heavens or in earth ; for though they have been called “ lily-shaped animals,” yet is the semblance but postulatory, and he must have a more

*@@@1 Annals of Philosophy,* x. p. 424-431.

*@@@2 Man. d' Actinoloyie,* p. 200.

*@@@a Ibid. sup.* p. 654.

*@@@i Ann. des Sc. Nat.* n. s. vii. p. 257, &c. ; and *Annals of Nat. Hist.* i. p. 300, &c.

@@@5 Synonymes: Asterina; Asteroida ; Stellerida ; Stellendes; Stelleridans ; Les Astéries ; Astéroïdes.

@@@6 Linckius begins his work "De Stellis Marinis” thus : "Non cœlo tantum, sed et mari suæ stellæ sunt, opera quidem unius Dei artifìcis, sed *dicversae prorsus fabricre et naturae*" In his “ Enquiries into Vulgar and Common Errors,” Sir Thomas Browne has a chapter en­titled “ That all animals of the Land are in their kind in the Sea ;” which, he rightly says, “ although received as a principle, is a tenet very questionable, and will admit of restraint" After some good remarks, the chapter concludes with the following passage, and such passages abounding in the works of this learned physician, render them delectable reading. ” Lastly, by this assertion we restrain the hand of God, and abridge the variety of the creation ; making the creatures of one element but an acting over those of another, and conjoyning, as it were, the species of things which stood at distance in the intellect of God ; and though united in the chaos, had several seeds of their creation. For although in that indistinguisht mass, all things seemed one ; yet separated by the voice of God, according to their species, they came out in in­communicated varieties, and irrelative seminalities, as well as divided places ; and so, although we say the world was made in six days, yet was there, as it were, a world in every one ; that is, a distinct creation of distinguisht creatures ; a distinction in time of creatures divided in na­ture, and a several approbation and survey in every one. ” Book iii. chap. 24