

well in the Didemnidæ as in the allied family Diplosomidæ, in which also pyloric gemmation is found in a very complete condition.

The family Didemnidæ contains only a small number of genera but has a considerable number of species, which are in some cases very difficult to distinguish from one another. Savigny founded the two original genera, *Didemnum* and *Eucælium*, in 1816.¹ In his second memoir he characterises *Didemnum* as having both apertures of the Ascidiozoid superior (or anterior), the one with six regular lobes and the other irregular or simple; while he places *Eucælium* in a distinct division, said to have both the apertures superior and simple. In his systematic arrangement, however (pp. 194, 195), he places the two genera close together, and defines them with more detail. The most important distinctions which he points out are that *Eucælium* forms a thinner and more delicate crust than that of *Didemnum*, and that the branchial aperture in *Eucælium* is circular and destitute of lobes, while that of *Didemnum* is surrounded by six equal lobes. He describes two species of *Didemnum*, viz., *Didemnum candidum*, and *Didemnum viscosum*, both from the Gulf of Suez; and one species of *Eucælium*, *Eucælium hospitolum*, from the same locality. *Didemnum candidum* and *Eucælium hospitolum* are figured (*loc. cit.*, pl. xx.), and from these figures some further distinctive features of Savigny's two genera can be made out. In the external appearance the only noticeable distinction appears to be that the cloacal apertures (which Savigny regarded as being absent, but which are distinctly visible in his figure²) are much more obvious in *Eucælium* than in *Didemnum*. In the minute structure there are several points of distinction. 1. The spicules in the test of *Didemnum* are almost spherical, having merely very slight projections, while those of *Eucælium* have much larger projections so as to present more of a stellate appearance. 2. The pedicle connecting the branchial and visceral regions of the body is longer in *Didemnum* than in *Eucælium*. 3. The stomach is on the dorsal side of the intestine in *Eucælium*, while it is on the ventral side in *Didemnum*. 4. The rectum reaches almost to the anterior end of the branchial sac in *Eucælium*, while in *Didemnum* it terminates about half-way forwards. 5. As Giard (see below) has pointed out, the mantle in *Eucælium* is thin and transparent, allowing the branchial sac to show through, while in *Didemnum* it is thick and opaque. 6. *Eucælium* has a peculiar little swelling upon the posterior part of the intestinal loop behind the stomach which is not found in *Didemnum*. These characters, however, do not apply to all the species of *Didemnum*.

Savigny's two genera, as represented by the type species which he figures, *Didemnum candidum* and *Eucælium hospitolum*, seem to be well characterised and sufficiently distinct from one another. Lamarck,³ however, writing immediately after Savigny, seems to have thought otherwise, as he united the two genera under the one term *Eucælium*.

¹ Mémoires, p. 64, and Système, pp. 194, 195.

² *Loc. cit.*, pl. iv. fig. 4.

³ *Hist. Nat.*, &c.