marked peduncle, upon which the remainder of the colony (the "head"), containing the Ascidiozooids, is borne. Gemmation is effected by means of the vascular prolongations from the Ascidiozooids which penetrate the peduncle, and the history of the colony in *Colella* appears to be as follows:—The first Ascidiozooid produced by the fixing of the tailed larva forms the young test which grows rapidly at the side next the point of attachment, thus raising the Ascidiozooid upwards on a short stalk. A vascular prolongation from the posterior end of the body of the Ascidiozooid now grows downwards into the gradually increasing peduncle, and after a time forms one or more young buds, which become cut off from the vascular prolongation and lie in the test of the peduncle. These buds are now carried upwards by the constant growth of the peduncle at its base, so that eventually, when they are fully developed, they have reached what is now the upper part of the peduncle, and take their places in the "head" next to the Ascidiozooid from which they were originally produced. Meanwhile the vascular prolongation from that Ascidiozooid has been growing downwards still further through the peduncle and producing new buds. The young Ascidiozooids formed from the first buds in their turn produce vascular prolongations, and then buds in the peduncle. As the Ascidiozooids in the upper part of the colony or "head" grow older they produce true reproductive organs, and embryos are formed. These undergo their development in the incubatory pouch, a large diverticulum from the dorsal edge of the peribranchial cavity. The oldest Ascidiozooids and embryos in the colony finally reach the upper end, die, and decay, the fully developed tailed larvæ in the incubatory pouches being set free to swim away and found new colonies. From this account it is obvious that the test grows at the lower end of the colony, and is constantly dying and wasting away at the upper end, while each Ascidiozooid in the course of its life traverses the whole length of the colony (see p. 93).

On account of the large size of the Ascidiozooids in two of the species of *Colella*, of which there were duplicates in the collection, these forms were chosen for a detailed examination of the anatomy and histology (see pp. 74 and 94).

The pigmentation of some of the species of *Colella* is very striking. In *Colella thomsoni* the body of the Ascidiozooid is coloured of a deep indigo-blue, while in *Colella murrayi* the test contains great masses of opaque white pigment cells. The allied genus *Distaplia* also shows vivid pigmentation. *Distaplia vallii* is coloured by red, opaque white, and dark violet pigment cells.

Two new species were found belonging to *Cystodytes*, a genus characterised by the possession of discoid calcareous spicules in the test around the bodies of the Ascidiozooids. These spicules seem to be enclosed in membranous capsules, containing nuclei, and this fact, taken along with some observations made upon the relations of the spicules to the test in *Leptoclinum tonga* (see p. 269), seems to point to the origin of these calcareous spicules from groups of modified test cells, the remains of which persist around the spicule in the form of a delicate membrane.