The ovum undergoes total cleavage, giving rise to a bastula which forms a gastrula (fig. 10, A) by invagination (see article Hydrozoa). This is a type of germ-layer formation never found in the Hydro­medusae, though of universal occurrence in all groups of animals above the Coelentera. We may regard it as a form of unipolar immigration in which the immigrating cells pass into the interior in a connected epithelial layer, instead of going in singly and independently. The embryo is set free as a planula larva (fig. 10, B) in the gastrula stage, and the orifice of invagination or blastopore, which persists, is situated at the hinder pole. After a time the planula fixes itself by the anterior pole, with the blastopore uppermost. The larva after fixation changes into a polyp-like organism termed a scyphistoma or scyphopolyp (fig. 10, C, D). The body becomes in shape like a vase or urn attached by a narrow stalk, round which a chitinous membrane is secreted. From the edges of the vase the four primary tentacles grow out, each a slender filament with a solid endodermal axis. The tentacles border a broad, flattened peristome, from the centre of which arises the hypostome with the mouth at its extremity; the hypostome is at first low, but soon becomes a projecting, chimney-like tube. It has been sought to prove that the interior of the hypostome is lined by ectoderm, so as to form a stomodaeum or ectodermal oesophagus similar to that of the Anthozoa, but this has been disproved by the most recent investigations of Hein (4) and Friedemann (3), who have shown that the mouth at the extremity of the hypo- stome represents the persistent blastopore of

the gastrula stage.

The internal gastric cavity of the scyphistoma is not a simple space as in the hydropolyp, but is subdivided by four ridges or taeniolae, arising one in each interradius (fig. 11, B). Each taeniola is similar in its ana- tomical relations to the similarly named structures in *Haliclystus* (fig. 1), and becomes perforated in the same way at its outer side by a “ septal ostium,” forming as it were the rudiment of a ring-canal. Each taeniola bears a strongly developed longitudinal muscle-band, stated by Claus and Chun to be developed from the endoderm, like the retractor muscles of the anthopolyp, but by other investigators it is affirmed that each retractor muscle of the scyphi­stoma arises from the lining of a funnel-shaped ectodermal ingrowth (“ Septaltrichter ”) growing down from the peristome inside each taeniola, in a manner similar to the infundibular cavities of *Lucernaria,* which in their turn are homologous with the subgenital cavities of other Scyphomedusae. It is asserted, however, by Friedemann (3), a recent investigator of the subject, that the infundibular cavities ap- pear late in the scyphistoma and have no relation either to the septal muscles or to the subgenital cavities of the adult. The muscle-bands are very contractile, rendering the scyphistoma one of the most difficult of all organisms to preserve in an expanded condition. By their contraction the muscles of the taeniolae drag the hypostome down and so produce the appearances which have been interpreted

as a stomodaeal invagination.

As the scyphistoma grows the tentacles increase in number, four interradial and eight adradial being formed in addition to the four primary perradial tentacles (fig. 11, A, B, C). The animal may produce its like by lateral budding, or by budding from a basal stolon. The scyphistoma of *Nausithoë* forms a branching network which grows in the sponge *Esperella* and forms the colonial polypoid organism named by Schulze *Spongicola fistulαris,* by Allman *Stephano- scyphus mirabilis,* Sooner or later, however, the scyphistoma produces free medusae by a process of transverse fission termed strobilization. In the simplest case one medusa, or at least one at a

time, is produced in this way (monodisk strobilization) ; a circular furrow cuts off the upper, tentacle-bearing portion from the lower half of the scyphistoma (fig. 11, D, and fig. 12), and the upper part becomes detached and swims away, while the base regenerates a new crown. In most cases, however, many such furrows are formed (polydisk strobilization), so that the animal comes to resemble a pile of saucers one above the other (fig. 12). The uppermost saucers of the pile become detached successively and swim off. In this state the scyphistoma is termed a *strobila.*

The medusae produced by strobilization of the scyphistoma are of a peculiar type termed Ephyrae (fig. 11, E, F). As preparations

for their formation the margin of the peristome of the scyphistoma grows out into eight lobes, four perradial, four interradial. The sixteen tentacles of the scyphistoma disappear, and in the place of the four perradial and four interradial tentacles, the eight tentaculocysts of the adult are formed as outgrowths of the subumbral margin, independently of the tentacles of the scyphistoma (Friedemann). The septal ostia become widened and the gastral cavity flattened, whereby the taeniolae become comparatively shallow columns, similar to the septal nodes or cathammata of other forms.@@1

The ephyra has a flat, disk-shaped body, with eight marginal lobes (four perradial, four interradial); a tentaculocyst is lodged in a deep notch at the apex of each lobe. Four groups of phacellae indicate the four interradii. The stomach has sixteen marginal pouches and the general anatomical structure recalls that of *Pelagia.* As the

@@@1 The four primitive interradial cathammata disappear in the fully formed ephyra and become replaced by sixteen subradial concrescence-areas without any ostia or ring-canal at the margin.