marginally. The posterior extremity is pointed. *Axine belones,* Abildg., resembles it, but is broad and obliquely truncated behind, this margin bearing a row of fifty to seventy peculiar attaching organs, which are of the form of a hand-satchel (fig. 3, D, E), the metal clasp being represented by a complicated chitinous framework. There are four groups of hooks and one ring of the same round the genital open­ing. The mouth has a sucker at either side, and above it an oval body which can be evaginated like the proboscis of a Dendrocele Planarian.

*Aspidogaster conchicola* (32) is found in the pericardial cavity of the freshwater mussel; it is conical anteriorly with a terminal oral sucker; the ventral sucker is very large and divided into rectangular areas ; the excretory pore is at the pos­terior extremity of the body, and the genital organs open on the left side of the fore-part of the animal (fig. 3, F).

*Gyrodactylus elegans* (33) is found on the fins and surface of the body of the pike, stickleback, and other freshwater fishes, and measures about 0∙5 mm. in length ; it is flattened in form and tapers towards either end (fig. 3, G). At the anterior extremity are two lappets, while the posterior is furnished with a sub- triangular plate, which bears the organs of attachment in the shape of two large curved hooks in its centre and sixteen smaller ones on its circumference. The most interesting peculiarity, however, of this form is to be found in the fact that each embryo before it is extruded (the animal is viviparous) contains another embryo, and this in its turn another, so that three embryonic generations are present simultaneously.

The genus *Distomum* is by far the most extensive in the group, containing at the present time over 300 species, which occur almost exclusively in Vertebrates ; the most important are perhaps *D. lanceolatum,* which inhabits the same situa­tions as *Fasciola hepatica, D. clavigerum,* from the frog, and *D. militare,* Van Beneden, from the intestine of the duck. The name *Fasciola* (Linn.) has the priority over *Distomum (Distoma)* of Retzius, which, however, has obtained ex­tensive currency. The name *Fasciola* may appropriately be used in a restricted sense for forms which have a branched digestive tract, *F. hepatica* above de­scribed being taken as the type. This separation has not met with general recog­nition, although supported by Blanchard and Cobbold (1). Weinland has proposed to substitute the term *Dicrocœlium,* used by Dujardin, for *Distomum,* retaining *Fasciola* for the type-species, but this proposal has not met with acceptance. The Distomes vary in size from forms almost microscopic to those which, like *D. ingens,* Moniez (35), measure 6 cm. long in alcohol, or even 12∙5 cm. in the fresh condition *(D. gigas,* Nardo). *Distomum halosauri,* Bell (36), is parasitic upon a deep-sea fish taken in 1090 fathoms. *Distomum macrostomum* (fig. 4, B) of the woodpecker *(Apternus tridactylus)* has a remarkable larval form known as *Leuco-chloridium paradoxum,* which is parasitic on *Succinea putris,* and consists of a number of branching threads, from which are developed one or two contractile sacs (fig. 4, C, D). Their growth distends the tentacle until it bursts and the sac hangs outwards. The threads within the *Succinea* contain only granular cells, whilst the contractile sac is occupied by an organism ovoid in form, with a thick clear border, the rudiments of two suckers, a digestive tract, and excretory system.

*Bilharzia hæmatobia,* Cobbold (1), is one of the most dangerous human parasites, and occurs in the blood of the portal vein and in the veins of the mesentery and bladder. The sexes are distinct, the female being from 16 to 20 mm. in length, and somewhat resembling a Nematode on superficial examination. The male is only from 10 to 14 mm. in length, but much thicker. The surface of the female is covered with fine spines most distinct towards the tail ; at the anterior pointed extremity is the oral sucker, from which a narrow opening leads into a wide pharynx, followed by the intestine, which at first forms two branches, these again uniting posteriorly to the generative organs. The ventral sucker is placed only 0,2 mm. behind the oral one, and it is immediately succeeded by a long narrow groove, which extends down the ventral surface and corresponds to the canalis gynæcophorus of the male (see fig. 4, A).

The stages in the life-history of *Gasterostomum* are so remarkable that a short account of them must be given. From the egg there escapes (1) a club-shaped embryo, which in a manner hitherto unobserved enters the freshwater mussel, *Anodonta* or *Unio*, where it forms (2) the sporocyst (fig. 4, F); this is several centi­metres long and provided with lateral branches ; it occurs chiefly in the liver and ovary, and it is best developed near the skin. The wall of the sporocyst consists of cells, muscles, and perhaps a cuticle; the extremities are pointed and filled with cells, and it is here that growth takes place. Within moniliform dilatations of these ramified tubes are formed balls of cells, each of which develops into (3) a “ bucephalus.’’ This organism (fig. 4, E) consists of a small oval body about 0∙25 mm. in length with a double tail. At one extremity is a mass of glands with an invagination of the integument, which has been mistaken by many observers for the alimentary canal. This, however, opens about the middle of the body, and consists of a muscular pharynx, a forwardly directed oesophagus, and a simple saccular intestine. The excretory system terminates in an S-shaped vesicle, which opens posteriorly in such a way that its contraction drives the fluid into the tail, whence it probably finds its exit by osmosis. Traces of genital organs are found in the form of an elongated plug of cells in the hinder fourth of the body, and two rounded masses of undifferentiated cells situated dorsally. The tail is double, and from about 0,5 to 2∙5 mm. long according to its state of contraction. Each half consists of a spheroidal basal portion, and an elongated tapering filament. These caudal appendages contain many nucleated connective­tissue cells with fine protoplasmic processes. The larvæ swim freely in the water, but sink and perish after about twelve hours, unless they enter the mouth of certain fishes *(e.g., Leuciscus erythrophthalmus),* when (4) they lose their tails and become encapsuled under the skin. The generative organs now become further developed; cuticular spines and the anterior sucker are formed. If the fish thus infected be swallowed by a pike or perch the cyst is dissolved, and the worms (5) become adult, continue to live in the intestine, and produce eggs. For further details, see Ziegler (12).

*Phylogenetic Relations.—*The detailed comparisons of Van Beneden (9) and the subsequent researches of others leave no doubt that the *Trematoda* are closely related to the *Cestoda.* A consideration of their peculiarities leads moreover to the opinion that the former are more primitive than the latter; that is to say, the common ancestors of the two groups resembled Trematodes rather than Cestodes. The ancestry of the *Trematoda* is probably to be sought in types such as the Planarians rather than the Leeches ; characters uniting them with the former are the possession of a commonly branched alimentary canal without an anus, but with a powerful pharynx ; the generative system is hermaphrodite, and similar arrangements obtain in the excretory vessels, nerves, and muscles, while histological agreements also are not wanting. Furthermore, certain forms are known which help to fill up the gap between the two groups : *Monocelis caudatus* has a discoid posterior organ of attachment, and *M*. *protractilis* a true sucker. Such forms as these could scarcely be distinguished from ectoparasitic Trematodes ex­cept for their ciliated epithelium (Leuckart, 1). In this connexion, however, it is worth while to call attention to the researches of Fewkes (40) on a marine cercaria, which had a tail distinctly annelid in character, with bundles of bristles disposed at intervals along it. Compare also Schauinsland (41).

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