

"Canal System in Porifera"

All the cavities of the sponges are traversed (to cross over) by the current of water which nourish the sponge, from the time they enter by the pores, until they pass out by the osculum, are termed collectively Canal System. There are mainly four types of Canal Systems.

- ① Aseon type
- ② Sycon type
- ③ Leucon type
- ④ Rhagon type

① "Aseon type"

It is the simplest type of canal system found in the sponges. It is represented in the development of simple calcareous sponge clathrina.

It is hollow vase shaped and is usually attached with the substratum through a narrow stalk like base. The body wall is thin and is composed of an outer ectoderm of a thin layer of flat cells - the pinacocytes, an inner endoderm of choanocytes and an intermediate mesogloea. It is perforated by many small apertures the ostia. It encloses a very large cavity the spongocoel which opens outside through a narrow circular aperture situated at the distal end. The body wall being very thin, the ostia directly open into the spongocoel. The water current enters the spongocoel through the ostia and leaves it through apopyles. osculum.

Cellar cells or

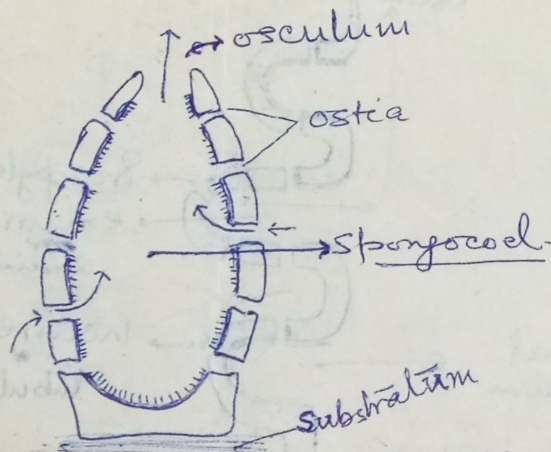


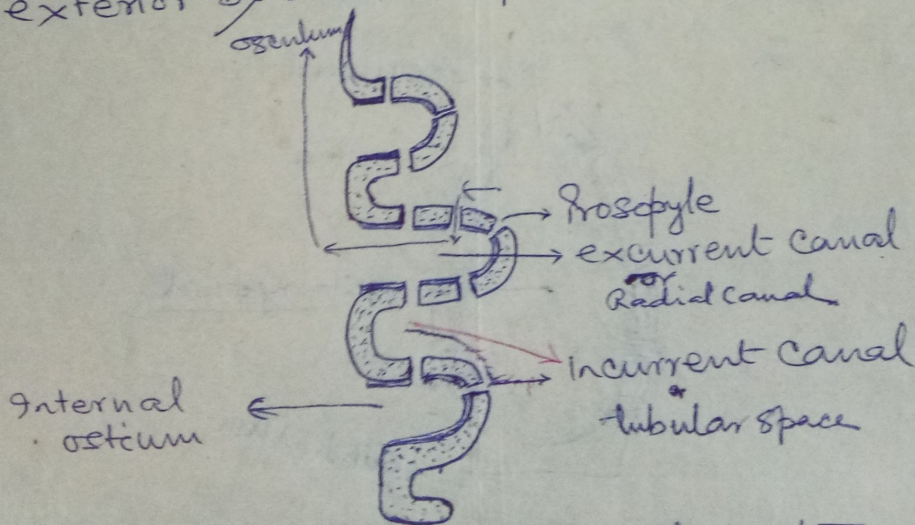
Fig. → Leucosolenia L.S. (diagrammatic) of a simple tube showing Aseon type of canal

The asconoid canal system is also found in Leucosolenia. A slightly more complicated structure is found in thick walled sponges. In this case the body wall becomes somewhat folded and radial canals which in its turn open into the spongocoel through apopyles. The spongocoel and radial canals are lined by choanocytes.

water currents take the following route
 water → pores → spongocoel → osculum → outside

② "Syconoid type"

A more complicated type of canal system is found in many sponges. Theoretically it is formed from ascon type by unequal growth and by the consequent folding of the body wall. Thus by the outpushing of the wall of the asconoid sponge, several blind diverticulae are formed of the spongocoel. These projections or diverticulae form radial canals or excurrent canals. In some forms of sponges, these radial canals are surrounded by water directly and there are no incurrent canals. But in some syconoid sponges, tubular spaces called incurrent canals are formed. Thus, these incurrent canals are the outer spaces enclosed between folds of the body-wall and lined by outer epidermis. These incurrent canals open to the exterior by dermal pores or ostia.



Syconoid type of Canal System