3. Sexual Reproduction → It is highly oogamous and takes place with the help of well develop male and female reproductive organs known as Anthridia and Oogonia. Respectively Vaucheria plants are mono-ceous (V. germinata) or dioecious (V. dichotoma).

Development of Oogonia → An Oogonium is form

at the terminal portion of a short lateral brand which swells up and gradualy becomes spherical in shape. In some cases it is allmost sessile. While in other cases it bears a short stalk. In due course a septa is form at the base of Oogonium. which separating the Oogonia from the coenocytic plant. According to Coach (1932) all the nuclei accept one migrate to the main filament. Then a septa is form. But according to Davis (1904) that one single large nucleus behave as an egg nucleus and all the rest digenerate. In any case a mature Oogonia a beak like structure is form, which is uninucleate. The tip of the beak faund a pore like structure. Where gelatinous sheath comes out and make the pasage for the entry of the Anthrozoids. After some time Chromato-phores and the oil drops now migrate to the center of the ovum and the Oogonia is ready for fertilization.

Fig →

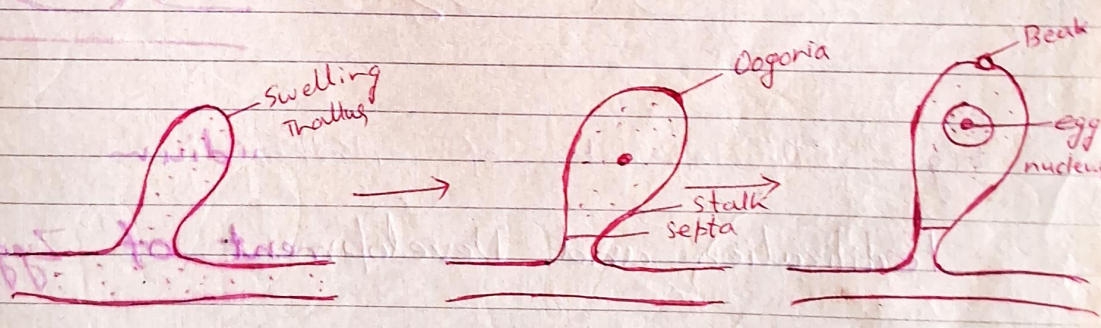

Fig - Development of Oogonia

Development of Antheridium → A young Anthri-dium arises as a curve sickle shaped, cylindrical, tube like structure near the Oogonia. Like Oogonia it also form a septa and it cut off from the parent plant. An Anthridium multy nucleate structure is form by repeated cell divition. And each nucleus of the Anthridium surround-ed by cytoplasm and lastly each nucleus forms spermatozoids or Anthrozoids. The spermatozoids are spindle shaped, colourless, by flagellate, pyriform. Flagella are lateral and un-equal in size. After maturity they came out from an Anthridial pore and they are ready for fertilization. In most species they are liberated in the early morning.

Fig →

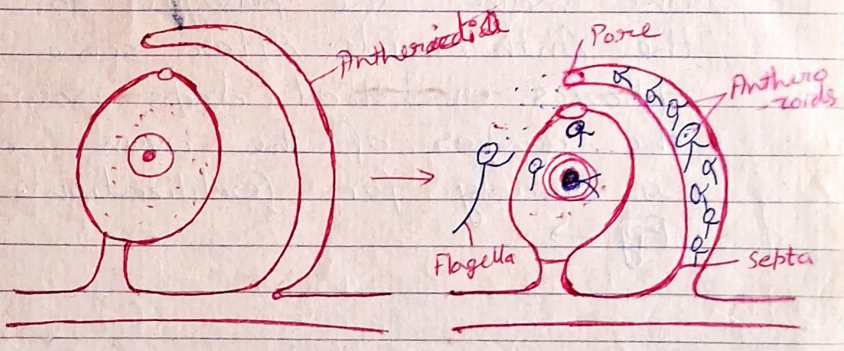

Fig - Development of Antheridium

Fertilization and Development of Zygote →

At the time of fertilization a small quantity of colourless cytoplasm comes out through the pore of Oogonia, which attract the Anthrozoids. A number of Anthrozoids may

inter through the Oogonial pore but only one of them fuses with the ovum or egg cell. The egg cell get surrounded by a wall and becomes diploid. Which tide over un-favourable condition. The zygote under goes a period of rest from a few months and the return of favourable condition it germinat directly into a new filament of Vaucheria. But before germination reduction cell divition takes place. At the time of germination the outer cell wall rupture and the inner cel wall produce a colourless tube like struct Which lastly forms a new thallus of Vauch -eria.

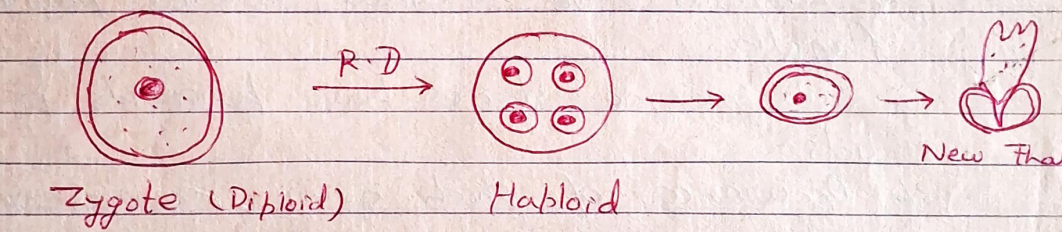

Fig - Development of Zygote

Position of Vaucheria → Vaucheria has been the most controve tial genus, because Blackmann included it in
Class - Xanthophyceae and
Order - Heterociphonales which is supported b Pandey and Bismith also. But Frisech (193 put it in the Class - Chlorophyceae and th Order - Cyphonales which is supported by Chedefaud also.

The inclusion of the vaucheria in the class Xanthophyceae is supported on the basis of following characters -

1. Absence of Pyrenoids and presence of oil drops as food material.
2. Presence of Xanthophycean pigment in the chromatophore.
3. Absence of cellulose from the cell wall.
4. Presence of more carotene pigments in the protoplasm.
5. Presence of Coenocytin filament in the thall

The inclusion of Vaucheria in Class - Chlorophyceae is supported on the basis of follo -ing characters -

1. Presence of prominent chloroplast for photosyn -thesis.
2. Zoospores have unequal, lateral paired of flagella.
3. Sub marine species have pyrenoids in the pla -tids.
4. Occurance of starch grain as reserve food material.
5. Sexual reproduction is oogamous type.