in biology. Reason for this is that the meiotic process allows you to weigh out where particular genetic events occur. These ascospores can actually be aligned. Recombination occurs in meiosis and usually seen on the lower spores. If there are no recombination or cross over occurring- after meiosis , in terms of the gene type they will be aligned in a linear fashion along the ascus. The 4 lower ones will be A and the upper ones will be a. If you have recombination occurring then you'll have A and a occurring in the same one. Will then have a shift of where these spores are in the ascus.

- The order of the ascospores suggests that sometimes things don't work how they expect it to and are sometimes intermixed and thats how crossing over and genetics was discovered. This increases the phylogeny of the organism.
- This work was also done on Neurospora. The molecular genetics associated with this organism is powerful. Has the molecular genetics needed and is therefore considered as a model organism.
- There are other genera associated with the Ascomycota known as Saccharomyces [yeast- beer, bread and wine]; Neurospora [not used economically but for research]; Penicillium [have antibiotics associated with them but some can be relatively dangerous- blue green seen on bread- usually found in soil- selective advantage in killing bacteria in the surrounding area- penicillin inhibits the formation of the wall synthesis of bacteria]; Aspergillus [Some of them are used as fermentative agents. But there are also some species that aren't good for you at all. Some members produce toxins. An Example of this would be aflatoxins. Aspergillus will grow on food stuffs where its humid- for example peanuts. The aflatoxin usually present in peanuts and other foods as well. Their major target is liver and therefore aflatoxin is routinely tested to make sure it doesn't get into the food chain.]
- Another aspect of ascomycota which is of interest and importance that play a key role in biological processes is to think about a particular organism - Cladonia portentosa (common name is reindeer moss- found in the northern environments in sandier soils. Don't have roots but get down into the soil a little bit- held to a certain extent but not held deeply. Have a stalk coming out with branching structures associated with it. The colour of it are usually bluish white with a green tinge to it. Growing in a shrubbier kind of way and is spread out on the ground). This is an example of a **Lichen**. They're very strange organisms which are usually algae and fungus. The fungus is typically an ascomycota. Start to see this symbiosis thing. Have 2 different components. have a fungal mycelial