Lichens Invade the Midlands (Mark Powell, 21 Nov 2013)

Abstract
Mark Powell introduced the study of these intriguing organisms and described the spectacular changes occurring across our region.

Summary of Talk
Mark explained how relatively recently he got interested in the study of lichens. It is an exciting time to study them due to the recent changes in atmospheric gases and reduction of pollution in the UK. From the Industrial Revolution until the 1980s, there was a high level of pollutants but in recent years the make up of the atmosphere has changed and so the lichen species and geographical range has changed. Since 1999, at least 34 new species have been added to the British list of species – six of these species were added by Mark. Some species of lichen common in the early 20th century are now rare. Other species are moving across from Europe - Holland seems to be a decade ahead of the UK in its lichen species and colonisation since the 1980s.

Mark explained what a lichen is: basically it is made up of a fungus and an algae. An analogy was used using bubble wrap and pipe cleaners: if you imagine bubble wrap as being the algae (the bubbles being algae cells), then this layer then has the hyphae of the fungus (pipe cleaners) in between the two layers of algae. They have a synergy – the algae cells photosynthesise and the fungus farms the algae for the chlorophyll. The fungus then produces spores that are released into the atmosphere to couple with another source of algae and the process starts again. The fungus cannot live on is own and the spore has to meet up with the appropriate algae within a short period of time in order to survive.

In terms of identification of lichens, this first requires removal of the lichen from the surface. A good way to keep the lichen intact during removal is to use a razor blade. Mark usually then glues the lichen onto a piece of cardboard. To make the structure more visible, the lichen is then treated with chemicals: Mark finds that Parker blue ink and caustic soda work well. Thin slices of the lichen are then examined under a microscope with particular importance being the structure of the spores. The whole process can take an hour before the lichen is identified.

Mark went through examples of lichens that he has identified: the location and the background to identification. For example, Mark was asked to survey a ballastrade in Clifton in Buckinghamshire and found a new British species. The stone was imported from the Mediterranean over a hundred years ago and it seems the new British species of calapacka had been brought over with the stone. Graveyards are an important refuge for lichens and they are a rich picking ground for lichen identification. However, due to the Industrial Revolution the species have changed, it is difficult to know what lichens species were around before the Industrial Revolution. Confronted with this problem, Mark has looked at wattle and daub panels from old houses and found that they are a useful window to the past. The panels made of hazel still have the bark intact as well as the lichens. From analysing the lichens on these panels, Mark has identified nine species new to Bedfordshire. Previously it was thought that these species were oceanic, but it appears they were pushed out by the pollution.

If you are looking to identify lichens yourself, then a good starting point would be ordering a chart for lichens on twigs. These charts can be purchased for £3 off the internet.