

# Insects

## Pests and Parasites

Insects have been annoying people since history began. They bite. They sting. They drown in your Coke. But they also produce maggots that dispose of dead creatures, they fertilize flowers, without which the environment couldn't function, and they look great on a slide. Robert Hooke had a fascination for lice, and we all know why. He used to empty them out of his underpants.



Here is one at 10x retrieved from the window-sill.

Everybody had body lice in those days. Even today, head lice are found in junior school. Hooke was also fascinated by flies, and the house fly *Musca* is a good subject for the digital microscope. The 200x lens will reveal its compound eye. You might also study *Drosophila* the fruit fly, because this is the organism used in genetic research. This is partly because it has giant chromosomes in the salivary glands, partly because it has a short generation time, but mainly because scientists can forget to feed and water them when going away on holiday, and still they survive. *Drosophila* is a resilient creature. The red-eyed fruit fly on these pages is one that flew into

my drink as I was compiling the pictures. Among the tiniest of insects are the corn thrips that leave cornfields in their billions at harvest-time and spread to nearby towns and cities. They are smaller than many single-celled organisms. You can find them as tiny dark specks smaller than a printed comma. Your digital microscope is fine for observing these microscopic insects. Lice may seem gross, but they are spectacular under the microscope. Use a fine comb to collect lice from the hair of a victim. Look for the immature lice and for the eggs or nits. Under the 200x lens you can study their amazing structure. They have a lid with a rim that looks like a space capsule. You could perhaps

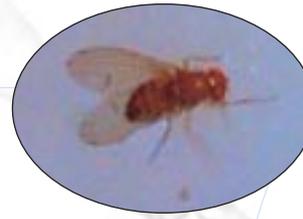
With top lighting the iridescence of the wing is disclosed.



Only at 200x can you resolve the lenses of a compound eye.



This house-fly was annoying Robert Hooke three centuries ago.



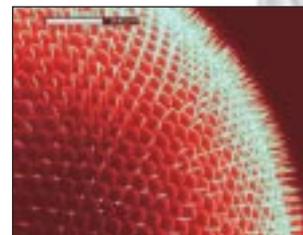
*Drosophila* is brown and half the size of *Musca* - 10x.



The head, feelers and limbs are clearly visible at 60x.



This compound eye seen at 200x is bright red in colour.



Now we're on a roll, here's the eye in the scanning microscope at 1000x and tinted red.



Under the ESEM at 5000x each lens now seems larger than the fly.

make a video at 1 frame per 10 seconds, and record the emergence of the young louse. A video of adult lice shows how they reach out

and grab hairs. Developing or hatching insects make excellent studies, and insect anatomy is a good research project for the



Here is a thrip's anterior end under the 200x lens of the QX3, compared with the view in the ESEM (p3).



The adult louse at 10x seems an endearing little thing.



Ugh. The claws show why we don't like lice after all - 200x.



Under the 200x lens the egg-case lid is highly sculptured.



Miriam Rothschild took this shot of an air-sac in a flea's leg - 1000x.

laboratory microscope. Dame Miriam Rothschild even sectioned a flea's leg to show the tiny air sacs inside. Honestly.