

**Durham Miners Heritage Group
Information and Activities Package**

Teaching Notes

Canaries and Mice in the Mines

It had long been recognised that vertebrates smaller than man were more sensitive to poisonous gasses than ourselves. Birds, as a result of their respiratory system (involving a two, rather than four chambered heart) are particularly sensitive to carbon monoxide, 'whitedamp'. In addition, male birds, which are the sex that habitually sing the most, find singing difficult when the density of the air becomes higher than normal. This, in a mine, typically happens when the carbon dioxide ('blackdamp') content of the air rises.

During the nineteenth century in various communities (not merely the mining areas) it was popular to keep songbirds as pets in cages. A canary, a race of serin (*Serinus canaria*) native to the Canary Islands, being attractively bright yellow, was particularly popular. Male canaries also sing habitually for long periods. The canary became the bird of choice for miners to take underground to warn them of the presence of dangerous concentrations of gasses

in the air. Often, the sign that a dangerous concentration of gas was accumulating was that the pet canary became unconscious. However, this would normally go unnoticed. The relaxed state of a bird's feet is to grip – unlike our own mammalian hands or feet in which the relaxed state is outstretched. The bird needs to grip when relaxed – otherwise it would not grip the branch on which it is perched when it falls asleep at night, and would fall out of its tree. Consequently, to ensure that their canary fell off its perch when it fell unconscious, and was quickly noticed, miners often clipped the claws off the feet of their canaries, so they could not unconsciously grip their perches.

Miners also became fond of the mice in the mines, which they fed and were fed on scraps of their food. The mice falling unconscious also served as a warning of dangerous concentrations of gasses in the air, and were sometimes kept in cages to warn of a build up of dangerous gasses, instead of birds.