COCKROACHES

Cockroaches are among the oldest creatures on earth. Fossils not so different from modern cockroaches have been found in 250 million year old rocks. They are also ubiquitous; though originating in hot climates they are now found everywhere. In cooler climates they live predominantly inside warm human habitations. A survey of local authorities in England and Wales in 1993 found that over 80 per cent of authorities had infested premises. More than 60 per cent of hospitals are infested. Cockroaches are large, robust insects with whip-like antennae and two pairs of wings. The most common species in Britain are German and Oriental cockroaches; Brown-banded and American varieties are also found (the names have little real bearing on the origin of the insects). Adult cockroaches live about 4-14 months, during which time females can produce up to 50 oothecae (egg sacs). Each ootheca contains 12-30 eggs. A female German cockroach would produce about 150 live offspring in an average 8 month lifetime.

Where cockroaches are found

Cockroaches like:
- concealment
- comfortable temperature
- food and moisture
- society

Cockroaches like to avoid daylight and hide in cracks and crevices, known as harbourages. They eat almost anything, including cardboard, and come out to forage at dusk and early night. They thrive at temperatures of 20-35°C, more towards the higher end of the range. They need access to water. They stay together in groups. They are mostly found in kitchens and toilets, e.g. behind cookers or in laundry baskets, at the backs of drawers, behind peeling wallpaper, etc. They move along water pipes and air ducts. Tower blocks are particularly vulnerable to infestation because of the ease with which cockroaches can move through the building. The design of buildings and the materials used in their construction can facilitate the spread of cockroaches.

Cockroaches can walk, run, jump and sometimes fly. But probably their main movement from building to building is in transported goods; this can even occur in ships and aircraft.

Cockroaches and disease

There is a possibly apocryphal story of the effects of cockroaches in a clean but overcrowded dwelling where a large number of children occupied a single bedroom. it was observed that none of the children had eyebrows and it was discovered that cockroaches were feeding on the eyebrows while the children slept, there being no other source of food available. Whether or not this story is true, cockroaches are implicated in the transfer of disease. They are bearers of pathogens such as salmonella and staphylococcus. They have been associated with outbreaks of gastroenteritis, typhus and skin diseases. They taint human food. They are a particular menace in hospitals.

Contact with cockroaches can lead to a number of allergic illnesses, including dermatitis, urticaria (another skin disease), rhinitis, bronchitis and asthma. Laboratory workers involved in the breeding of cockroaches for research are particularly prone to these conditions.

Some people have an aversion to cockroaches amounting to phobia and can suffer anxiety when in the presence of the insects.

Keeping cockroaches out

Cockroaches are vermin which should be denied access or which should be eradicated if they obtain access.

Good hygiene is essential in preventing or limiting infestation. It is vital to deny cockroaches food, water and shelter. Dishes should be washed promptly, food stored in tightly sealed containers, working surfaces kept clean, and all scraps and crumbs cleared up. Rubbish should be kept in containers with tight lids and the bags properly sealed when moved outside. Water spills should be mopped up and all water leaks, sweating pipes, etc. repaired. Remove any clutter where cockroaches might live and mend any holes and cracks in walls. Seal openings around pipes, remove paint and loose wallpaper and replace broken tiles.

Insecticides and other treatments

Eradication of an infestation is a professional job, if complete and permanent removal of cockroaches is to be achieved. Some of the older insecticides can be purchased by members of the public but more modern and effective chemicals are only available for professional use.
Insecticides are toxic and present a risk to the user unless properly employed.
Once cockroaches have appeared in a block of dwellings, treatment is needed throughout the block to bring about eradication. Both home owners and tenants should report the presence of cockroaches to local authority Environmental Health Departments and demand that eradication is carried out.

Eradication begins with trapping and monitoring. Traps are open cardboard boxes placed near harbourages, coated on the inside with adhesives, and containing bait which consists of food mixed with insecticide. For blocks of flats, a representative selection of flats (say 15-20 per cent of the total) needs to be chosen. The number of cockroaches trapped indicates the extent of infestation.

Once this is established, a treatment strategy has to be applied. Wandsworth Council employs five levels of treatment based on the extent of infestation:

1. four double treatments per year on a quarterly basis, including four trapping programmes associated with double treatment
2. four single treatments per year with trapping each time
3. one double treatment per year with trapping
4. a single annual monitoring visit
5. one-off treatment of individual dwellings

Many different insecticides in many different formulations have been tried to kill or repel cockroaches. One of the oldest, borax, is one of the most effective. Among the older types of insecticides used are organophosphates, carbamates, organochlorine compounds and pyrethroids. However, there are drawbacks to these chemicals:
- they are not particularly effective in killing cockroaches
- while they do kill cockroaches in the immediate area of application, they are not effective in reducing the overall population
- resistance to pesticides is growing among some strains of cockroach
- some have a limited effective lifetime, requiring repeated applications
- they are toxic to humans
- they have undesirable environmental effects

More recently, attention has focused on the insecticide hydramethylnon (main trade name Maxforce) and the juvenile hormone hydroprene (main trade name Protroil). They are often used in conjunction with the drying agent Drione: the cockroaches die from dehydration.

Hydramethylnon can be applied as a gel near harbourages and disrupts the cockroaches' metabolism. Cockroaches are cannibals and this assists the spread of the pesticide. Though slower acting than conventional pesticides, hydramethylnon has a very high kill rate.

Hydroprene acts by preventing cockroaches from reaching sexual maturity and therefore from reproducing. It does not affect adult cockroaches and is usually used with a conventional insecticide. It is reported to be 100 per cent effective. At the moment it is only permitted for use in spraying but research is taking place into other ways of applying it. Other juvenile hormones are also being developed.

Hydramethylnon and hydroprene are not regarded as significantly toxic for humans but caution is advisable. This may be due to their recent introduction and the lack of appropriate research. But they are a definite improvement on previous chemicals.

Taking action

Some councils now try to inform residents of the health effects of cockroaches and the importance of block treatments in eradication and to persuade residents to co-operate with treatment programmes. Residents' and tenants associations have a vital role to play in dealing with cockroach infestation by:

- educating their members about cockroaches by leaflets, posters, public meetings, etc.
- persuading their members to agree to access to dwellings for trapping, monitoring, and pesticide application
- bringing pressure to bear on councils to ensure eradication programmes are implemented
- ensuring that the pesticide and application method and frequency are not dangerous to people. Complete information about the chemicals, method and precautions should be provided and residents should be able to question council officials before treatment begins.

Councils are able to take action under the Public Health Act 1936 to obtain access to premises and carry out treatments. Council officials must obtain a warrant from a magistrate and can enter at 24 hours notice.

Conversely, residents have a right to require councils to carry out eradication and this has been sustained in a number of court cases. A tenant obtained over £10,000 compensation from Tower Hamlets Council in 1993 after her flat had been infested for over 10 years. The County Court ruled that the Council's negligence resulted in 'severe and persistent nuisance.'

The cockroach population increased rapidly in the 1980s but it is now possible that it is being held in check, though no-one really knows. However the combination of public demands for action and the advent of more effective eradication methods do provide an opportunity to bring this major public health hazard under control.