Insects and Spiders

Butterflies

Cambridgeshire is not noted for its butterflies, lacking many of the key habitats required by most of the rarer species. The present day butterfly species list for Dry Drayton parish totals 24 (out of 33 resident breeding species for the whole county and 59 for Britain). Mostly these are species that are found in gardens, hedgerows, rough grassland and road verges everywhere, as these habitats provide the commonest sources of nectar and foodplants for the insects. There is very little unimproved grassland in the parish, except possibly for the Park itself, the rough grassy areas between the church and the site of the old reservoir along Madingley Road and some small areas on private land. Much of the wider countryside of the parish, being cultivated farmland, harbours very few butterflies.

Walker listed 21 butterfly species, including the Large Tortoiseshell (e.g. *"first butterflies seen in 1877 were V. polychloros* (Large Tortoiseshell) *and urticae* (Small Tortoiseshell), *April 4th..."). The Large Tortoiseshell was once a common species in southern England up to the 1940s, but is now possibly extinct as a breeding butterfly in this country. He also listed **White-letter Hairstreak**, observed on July 10th 1874. This butterfly has suffered as a result of Dutch elm disease which has eliminated virtually all the mature elms in the UK since the 1960s. However, as we have several surviving elms at Duck End Farm and south of the church, plus a good amount of elm sucker growth nearby, it is possible that this attractive little brown buttefly may still survive here. It spends a lot of time sitting high up in the elm trees or on tall hedges, only occasionally venturing down to nectar on thistles or similar plants and so may be very difficult to detect in an area. I have spent some time searching for the White-letter Hairstreak during its flight period in July and early August, without success so far.

Sunny days in March can bring out the first **Brimstones**, unmistakeable as the bright yellow males or paler yellow females flitter through our gardens, a real sign that spring is arriving. Walker noted : *"G. rhamni* (Brimstone) *male very numerous. March 7th and 9th seen for the first time this year, also on March 19th".* The female Brimstone lays her eggs beneath the tenderest leafshoots on the tips of purging buckthorn or alder buckthorn branches, two shrubs which are not common in this area. At rest, this butterfly's wings look like large yellow veined leaves, dotted centrally with an orangey-red spot. The males roam far and wide in search of a mate and in spring only one or two Brimstones are seen together, but in late summer more numbers may sometimes be seen nectaring on teasels and thistles. In fact this butterfly is in the adult stage for over 11 months of the year. The second generation which emerges in August feeds up and hibernates deep in woodland cover, in evergreens such as ivy or holly.

The male of the **Orange-tip** butterfly can also easily be identified in flight during April and May due to its bright orange outer forewings, edged with black. Like the Brimstone, the Orange-tip is also one of the *Pieridae* or 'whites'. The female of this butterfly can most reliably be identified at rest, when her mottled green underwings can be seen. The Orange-tip's foodplants are those spring flowers Lady's Smock and Garlic Mustard. Our other three 'white' species are perhaps always lumped together by most people as 'cabbage whites' although only the **Small White** and **Large White** caterpillars can be accused of damaging our garden brassicas. The **Green-veined White**, often on the wing early in spring and sometimes confused with the female Orange-tip, is not a true migrant, unlike the Large and Small Whites. There are two main broods of Green-veined White and the butterfly is very common in our countryside and gardens from April to September. Its green larvae, which have tiny yellow rings round each spiracle (breathing tube on each body segment), feed on a range of Crucifers growing in damper spots, including Water Cress, Hedge and Garlic Mustard or Lady's Smock. An extra member of this family for which we have one village record is the migratory **Clouded Yellow**, seen every year in southern Britain in variable numbers, and occasionally having years of abundance when it is seen more widely throughout the country

Rough grassland is the best place to search for the Skippers - small, almost moth-like tawny-brown butterflies that sit with their upperwings at a 45º angle to their hindwings. Their larvae (caterpillars) depend on various species of wild grass as their foodplants. We have three Skipper species in Dry Drayton - the Large, Small and Essex Skippers. The **Large Skipper** is the first on the wing in June. Its wings are patterned with orange patches and black veins. The **Small Skipper** has unpatterned wings and can be told apart from the similar-looking and commoner Essex Skipper by the brown, as opposed to black, undersides to the antennae of the latter species. The Small Skipper first appears in late June - early July, ahead of the Essex Skipper, which puts in its appearance in late July and August. Walker's list did not include the Essex Skipper since it was first recognised as a separate species only in 1889, a full 13 years after his book was published. The Essex Skipper is still undergoing a range expansion northwestwards in Britain.

Our two 'blue' butterflies in the parish are the Holly Blue and Common Blue. The **Holly Blue** is usually seen in flight several feet above ground level, especially in spring in gardens. Its wings have a beautiful delicate powder blue appearance., with a silvery-blue underside dotted with small black spots when seen at rest. There are two generations of Holly Blue each year, the first generation larvae feeding on Holly, the second on Ivy, although Spindle and Dogwood may also be used. Holly Blue numbers fluctuate greatly from year to year, its numbers being linked to the prevalence of a tiny parasitic wasp which lays its eggs in the body of the Holly Blue larva.
The **Common Blue** is found in small compact colonies in grassland where its foodplant, Bird's-foot Trefoil, grows. It rarely visits gardens unless these are large and of the 'wild garden' variety. The males of this species have bright blue upperwings, the females being darker, with a row of black-edged orange lunules on the wing borders.

There are two other butterflies that should be mentioned in relation to the 'blue' family. These are Small Copper and Brown Argus. Both occur here but are not common. The **Small Copper** is a jewel of a butterfly, with coppery-orange and black wings that flies in rough open places and has three broods a year. Its eggs are laid on Sheep's Sorrel or Common Sorrel, occasionally on docks. It has declined greatly in recent years due to intensification of agriculture. The **Brown Argus** is a butterfly that has apparently undergone changes in numbers and distribution in southern Britain over the last 300 years. Although its name and coloration may belie the fact that it is also a member of the 'blue' family or *Lycaenidae*, the Brown Argus had shown a marked spread in distribution up until about 1997, even being seen in gardens in the village on species of cranesbill. Traditionally the Brown Argus has been regarded as a species of chalk or limestone grassland or coastal sand dunes, so its spread to a wide range of less specialised habitats due perhaps partly to adoption of a wider range of foodplants had been a welcome upturn. Unfortunately, this trend appears to have been abruptly halted in the last two years although it is to be hope that this is only temporary.

Everybody is familar with the Vanessid butterflies - those large colourful species such as **Red Admiral, Small Tortoiseshell** and **Peacock** which grace our garden buddleias in summer. The larvae of all these three species are nettle feeders, hence the value of this under-rated 'weed'. Walker records *"caterpillars of io* (Peacock) *and urticae* (Small Tortoiseshell) *on nettles, urticae in Drayton Park, io in the 8 acre field below Icehouse Spinney and Childerley fields".* The Small Tortoiseshell and Peacock spend the winter here as adults, seeking out our sheds, garages or lofts in which to hang upside down with folded wings. The Red Admiral has also been shown to overwinter but many here are migrants from the continent. Another migrant which is normally seen only in ones or twos, and not every summer, is the **Painted Lady**, a very fast flyer which may come all the way from Africa. However, in 1996, an invasion of unprecedented numbers of Painted Ladies arrived in Britain, spreading from south to north; many being seen in the village.

To this group can be added the **Comma**, with its bright orange-brown, ragged-edged wings covered with dark patches and paler areas. This butterfly gets its name from a tiny white comma mark on the black underwings. Like other butterflies in this group it may feed on the fermented juices of fallen apples in autumn. Its caterpillar, on hop, nettle or elm leaves, is cunningly disguised to look like a bird dropping ! Like several other butterfly species, Commas have fluctuated in range and abundance over the past two centuries. In the early 19th century it

was locally common and widespread in Wales and southern England, though scarce further north. It then declined to become one of the rarest butterflies over the last part of the 19th century and was not noted by Walker. A gradual recovery took place from about 1910, which has continued until the present day, so that it is a once again a common butterfly in England and Wales, although it is never present in large numbers together, occurring as ones or twos.

The 'brown' butterflies are represented by six species in the parish, although only **Gatekeeper** and **Meadow Brown** can be considered common. They are found in rough grassland and along roadside verges in high summer, but either may sometimes be seen in our gardens, especially the Gatekeeper. These butterflies are noted for the bright eyespots on their forewings. **Speckled Wood** butterflies are chocolate-brown with dappled cream patches and eyespots, mimicking the dappled sunlight that is typical of their woodland or tall hedgerow habitats. They are more or less always to be found throughout the summer along the lane from the end of the High Street towards The Plantation, the males battling for favoured basking sites in patches of sunlight on leaves. Only as recently as the mid-1980s has the Speckled Wood again spread through Cambridgeshire. **Ringlet** butterflies fly even on overcast days, fluttering rather slowly and jerkily low down along verges among rank grasses. Their name derives from the yellow-circled eyepots on the underside of the dusky brown wings. A wide range of nectar sources are used by the Ringlet, including bramble flowers. The female merely drops her eggs among tall wild grasses in damper locations. The larva undergoes three moults before partially hibernating in October, resuming feeding in mild conditions. Regular feeding starts again about March, the larva growing slowly, to pupate in June. The adult butterfly emerges in late-June or July.

The remaining two 'browns' to be seen occasionally in the parish are Small Heath and Wall Brown. Neither are common currently. The **Small Heath** is a small, low-flying fawn butterfly, with orange under the hindwings, found in small numbers in old grassland. The **Wall Brown** is fond of basking on bare stony paths or walls and is handsomely marked with wavy dark lines and eyepots on a bright orangey-brown ground colour. Its numbers in recent years in the Cambridgeshire countryside and elsewhere have become worryingly low.

Our local butterflies are much-admired by people, but their survival and future fortunes may be very tenuous in the case of several species. This has already been demonstrated historically in the case of Speckled Wood, Comma and probably Brown Argus, which have shown dramatic contractions and re-expansions of their ranges and numbers. The reasons for these changes are not understood. Looking further afield, we have already seen massive declines in certain other butterfly species, such as our woodland fritillaries, where these have gone from being common to the point of being endangered in the space of the last 50 years, largely due to the loss of woodland management in this period. We cannot take our butterflies for granted and maintenance of the few small remaining areas of wild habitat with sufficient foodplants is essential.

Moths

Compared to the 60-odd species of British butterfly, there are around 2500 species of moth in this country. The majority of these are nocturnal and so special means of study have to be used in order to determine their presence. I am unaware of any historical records of moths from Dry Drayton apart from those in Walker's book where he listed only 29 species. In the last few years Ruth Edwards and I have run Heath or Skinner moth traps at night in our gardens to try and establish a representative moth list for the parish. Both traps work on the principle of moths being attracted to a bright light source just above the trap. On arrival they fly down into the trap through a funnel or clear plastic vanes and shelter among cardboard egg boxes placed in the bottom. The moths can then be identified and released unharmed later. The Heath trap operates a cold actinic light source and can be run overnight, whereas the Skinner trap has a much brighter mercury vapour light bulb which is only run when attended.

Using these devices we have managed to identify 229 moth species up to the end of 1999. These are mainly macro (or larger) moths, as opposed to the micro moths which are very difficult to identify. A full list can be found in the appendix. Many of these moths have curious English names, which are better known than the Latin ones, and in some cases have been in use longer. In an account of this nature it is only possible to highlight a few species of interest, to give a hint at the rich moth fauna that flies after dark around our parish and whose larvae feed largely unseen on many common shrubs, trees and wild plants.

One of the most important families of trees for moth caterpillars, apart from oak, are the native sallows and willows. The caterpillars of at least 150 species of the larger British moths depend on sallows, including some of the most attractive species. The more conspicuous caterpillars of sallow include those with vivid yellow, red or white colours, and they are usually adorned with tufts of stiff bristles, which may be irritating to the skin if touched. Such caterpilars include those of the **Grey Dagger**, **Pale Tussock** and **Lackey** moths. The Pale Tussock larva, for example, has long, thick tufts of yellow hairs along its back, which splay open if the larva is alarmed by a predator. Lackey caterpillars are particularly conspicuous, since they weave white silken webs on hawthorns or sallows and have bright warning coloration, striped in red, blue, yellow and white, which may deter birds from feeding on them. These, and the larvae of the **Buff-tip** moth (so-called because of the adult's uncanny resemblance to a broken twig when at rest with wings folded) feed in colonies within their webs, stripping the foliage bare before moving on and spinning a web round another feeding site on the same or an adjacent tree or bush. The green humped caterpillars of the beautiful **Copper Underwing** are also sallow feeders. This moth has forewings of waved shades of brown and grey with cream lines and coppery-orange underwings, hence its name. It flies in August to mid-October and frequently comes indoors to light.

Several moths with 'looper' caterpillars are found on sallow, including **Red Underwing** and **Peppered Moth**. These caterpillars have groups of legs just fore and aft and not in the centre, thereby arching or looping-up the middle part of their body when on the move. They are very well disguised on the foodplant, resembling twigs, complete with imperfections and scars as on real twigs. The Peppered Moth gets its name from the black speckling on its white wings. In Walker's book is found an unusual record of this species : *"Peppered moth as ascertained by a wing only which fell out of a hedge as I was beating. The moth having probably fallen victim to a bat".*

Our most spectacular moths are the Hawk-moths, because of their large size and vivid colours. We have recorded seven species of Hawk-moth in Dry Drayton in recent years - the **Privet Hawk-moth** (by far the commonest), **Pine Hawk-moth**, **Lime Hawk-moth**, **Poplar Hawk-moth, Elephant** and **Small Elephant Hawk-moths** and the summer migrant **Humming-bird Hawk-moth.** Only two specimens of the Pine Hawk-moth have been recorded and this moth is unusual here since there are few Scots pines or Norway spruce trees in the village. The Privet Hawk-moth is our largest resident moth, with a wing span of 100-120 mm (4-5"). It flies in June and July and has brown, almost bark-coloured upper wings and pale rose and dark striped hindwings, with a chunky black and pink striped lower body. It was also well-known to Walker : *"Sphinx ligustri* (Privet Hawk-moth) *from chrysalis June 1st and 3rd. Perfect insect found June 24th in garden and on July 1st in the new road leading to New Farm. This insect appears fairly common this season (1879)".* Its fiercesome-looking larva is found on our garden privet and is unmistakeable on account of its large size, terminal 'horn' and lime-green body colour with diagonal lilac and white stripes on each body segment. Quite a startling sight, but entirely harmless !

Poplar Hawk-moths breed here in the village and I suspect also on the line of White Poplars across the footpath to Hardwick, about one kilometre south of the church. Their caterpillars, as with all Hawk-moth larvae, are equally impressive in appearance. When they hatch from the egg, the cells that will eventually become the future 300 or 400 eggs laid by the adult moth are already present in the female caterpillar's body.

The Elephant Hawk-moth dazzles by its pink and olive green wings and is reasonably frequently found in the moth trap here in early summer. However, for its cousin, the Small Elephant Hawk-moth, I have only one record, in 1999. It is more usual on the chalk grassland to the south of Cambridge, its larva feeding mainly on bedstraw. Most Hawk-moths are coloured for their daytime camouflage, since they spend most of their time during the day resting on the leaves or bark of trees. Their forewings are folded over the usually brighter coloured hindwings when at rest. Camouflage is important since they cannot escape easily if disturbed during the day, requiring a period of 'warming up' before they can take flight. Like all insects, they are cold-blooded, adopting the temperature of their surroundings when at rest. Their powerful flight muscles work best at a temperature of 38ºC (100.4ºF) and so Hawk-moths and other moths can sometimes be seen sitting in the early evening with their wings beating rapidly to generate heat, rather like a plane revving-up on a runway. The furry bodies of the Hawk-moths help to conserve the heat generated by the flight muscles too.

Some of our Hawk-moths are migratory and the **Humming-bird Hawk-moth** was recorded by Walker : *"... hovering about petunias as late as October 1876, seen July 13th, 16th, 1874".* A specimen was also seen in the village a few years ago. It is very like a small humming-bird, usually seen hovering at flowers such as petunias or fuchsias with its very long tongue probing for nectar, its hindwings a blur of orange. It comes to us from around the Mediterranean region.

The most primitive group of moths, in evolutionary terms, are the Swifts. These moths have small tongues and unusually short antennae and can be seen fluttering around our gardens on warm June or July evenings, just after sunset. The **Ghost moth** is well named since the male has silvery-white wings and a flight pattern reminiscent of a swinging pendulum, giving a ghost-like appearance in the gathering dusk. The majority of moths have a courtship ritual where the male is attracted by the female's scent (pheromones), which can be detected over very long distances. However, in the Ghost moth, the roles are reversed, with the female playing the role of the persistent chaser, attracted by the male's scent, supposed by some to resemble the smell of a billy-goat ! The female wing patterning is quite different from the male's too, having yellowish wings with orange markings. After mating the female scatters her eggs haphazardly over the vegetation. The caterpillars live entirely underground, feeding on the roots of herbaceous plants. Our other two Swift species are the **Common Swift** and **Orange Swift**. The drab-coloured Common Swift is certainly the most numerous Swift moth, with groups sometimes seen flying at great speed through the vegetation on warm summer evenings. Like the Ghost moth, its white larva lives underground, feeding on the roots of grasses and other plants throughout autumn and winter. We have seen far fewer Orange Swifts, but this moth is altogether more attractive, the male having bright orange forewings with white bars. The larger female is brown with deep chocolate brown and whitish markings on the forewings.

The Geometer moths comprise a vast family, with 270 species in this country, and over 50 species recorded here in Dry Drayton. They are divided into groups with charming names such as emeralds, thorns, carpets, waves and pugs. The name 'Geometer' refers to the caterpillars' method of movement, whereby they stretch forward, as if to measure the distance ahead and then secure a hold with their front legs, before looping the entire length of their bodies into an arch. The rear end is then brought forward to the point of attachment of the front legs. Virtually all Geometer caterpillars are superbly well camouflaged, resting motionless by day suspended by their rear claspers from a leaf or twig and resembling twigs themselves. Thus they may escape being eaten by birds. The emerald family of moths are beautiful shades of green, with fine white markings; the **Common Emerald**, **Small Emerald** and **Light Emerald** are regularly found here. Another species familiar to many is the **Swallow-tailed moth**, a large pale yellow insect with fine brown lines traced across its broad wings, which end in tiny points on the hindwings, hence its name. It is frequently attracted to lighted rooms.

Another distinctive group of Geometer moths are the thorns, with irregular wing borders and beautiful specific wing colorations and patternings, often reflecting autumn tints. The first thorn species on the wing in March and April is the **Early Thorn**, followed later by **Purple Thorn**. The **Large Thorn** is an early autumn species, first recorded in Britain in 1855 and the **Feathered Thorn** flies even later, in November, the males coming to lights in houses on mild foggy nights.

The waves consist of a large number of superficially similar-looking species that may be hard to identify. The are represented by several species in the parish, the commonest being the Riband Wave, which can be very abundant in some years. The **Vestal**, unlike the last species, is a migrant, since it cannot survive our winters at any stage of its life cycle. I was delighted to find a specimen near our porch light one evening in 1999. It is a small, silky-winged moth with a reddish-brown diagonal stripe across its forewings, resident in southern Europe and North Afrca. Small numbers turn up in this country each year, although in 1947 many were seen in stubble fields in southern England during an extermely fine summer and autumn. The **Blood-vein** is a pretty moth with a diffuse pink border to its wings and a deep pinkish stripe running diagonally across both pairs of wings, therefore being more conspicuous than others of this group when resting among leaves.

By far our largest group of moths are the Noctuids, with over 300 species breeding in this country. They are fast-flying, fat-bodied moths, which are active only at night. Some of the most numerous members of this group in late summer are the yellow underwing moths : **Large**, **Lesser**, **Broad-bordered**, **Lesser Broad-bordered** and **Least Yellow Underwing**, all with differences in size and/or wing patterns. All of their larvae overwinter as such and can exploit a wide range of food plants, which is probably one of the reasons for their success as a group. The **Red Underwing**, not closely related to the yellow underwings, is a large moth (8 cm / 3") occasionally seen basking during the day on walls, although its cryptic coloured upper wings with a brocaded design in greys and browns with paler areas causes the moth to blend in extremely well when at rest on bark. Its namesake hindwings are a striking red overlaid with black wavy bands. These may be revealed in a 'flash' to would-be predators as a distraction display. The adult hatches in August and lives well into the autumn, using its long tongue to feed on nectar from late flowers or sap running from tree trunks. The female Red Underwing lays her purple-brown eggs into bark crevices of willow or poplar trees, and they remain as eggs throughout the winter, the caterpillars hatching the following April.

The Herald Moth is one of the few noctuid moths that spend the winter as adults, feeding on ivy blossom in late autumn before seeking a sheltered spot to hibernate in a roof, shed, barn or cave. When it wakes the following spring, this moth searches for some of the earliest nectar sources : pussy willow catkins. The Herald's shape makes it resemble a dead leaf at rest, again a defence against bird predation. Other early moths in spring include **Early Grey**, **Hebrew Character** and the **Small, Common** and **Twin-spotted Quakers**, all of which rely also on sallow blossom as nectar source. Thus nature ensures that insect appearances are tied in with availability of appropriate food sources and the timings of emergence of many species are likewise linked to the greatest abundance of nectar and foodplant leaves for their larvae throughout the year.

Most of the moth species listed in Walker's book are still with us in Dry Drayton, although there have been some noticeable changes. For example, the Garden Tiger moth seems to have disappeared from its former garden strongholds everywhere, but would have been a familiar sight in Walker's day. Why this decline has occurred no one knows. Similarly the Goat Moth has become very scarce now. Its huge dark pink larvae, which smell like goats, feed internally on the solid wood of trees such as willow, birch, ash, elm and poplar, spending three or four years as larvae before their final winter as a pupa inside a cocoon in the ground. The presence of the Goat Moth may be detected by the large exit holes in tree trunks made by these larvae. Neither of these species now occurs here. The Oak Eggar was also listed by Walker but there are no recent records for this species.

There are few true day-flying moths, but three notable species here in the village are two burnet species : **Narrow-bordered Five-spot Burnet** and **Six-spot Burnet** and the spring species **Mother Shipton**. Burnet moths belong to a primitive family of day-flying moths - the Zygaenidae, notable for their colonial and sluggish habits. They are very easily recognised moths in grassy places in high summer, having narrow, iridescent black-green or blue-black forewings brightly spotted with crimson, and crimson hindwings. They swarm in hundreds over the purple flowers of knapweeds, scabious and thistles in Ruth and Bob Edwards' meadow.

Often four or five moths crowd one flowerhead, sharing them with the occasional butterfly or visiting bee. The black and red coloration of the burnet moths is a warning to birds, since all stages of the moth's life cycle are poisonous. If a bird attacks such a moth, the moth exudes a poisonous colourless fluid and a greenish-yellow one from its thoracic glands. The bird predator quickly rejects the moth and presumably remembers the distinctive coloration, in future avoiding all burnet moths and other similarly coloured insects too. The curiously named Mother Shipton moth flies in May in old grassland and derives its name from the pale patterning on the dark wings, said to resemble an old woman's head.

Hopefully this brief overview of just a few of our moth species resident in Dry Drayton has shown that these often neglected and misunderstood insects have fascinating and highly varied ecologies, and are worthy of further study. Only in the last few years have conservationists realised that many moths, like our better-known butterflies, are in serious decline, although the reasons for this are largely unknown. They possibly reflect the rapid changes in our environment and climate now taking place. The focussing of conservation action to protect some of our rarer moths may have come too late in some cases, so it is to be hoped that our small and continuing contribution to overall knowledge will go some way towards establishing a baseline of the moth fauna in a typical Cambridgeshire parish at the end of the 20th century.

Dragonflies

Despite the disappearance of so many of our parish ponds in the past century, we still have 17 species of dragonfly and damselfly in Dry Drayton, which is a sizeable proportion of the 39 species found in the British Isles today. Damselflies are small, delicate insects with wings which are folded back along the length of their body when at rest. True dragonflies are stouter-bodied, larger, faster-moving creatures with wings held at 90° to their bodies when settled. Both damselflies and dragonflies belong to the order Odonata, which means 'toothed jaw'. They have a long and noble history, dating back to the era of the dinosaurs, when species with wing spans up to a colossal 70 cm (28 in) flew through the primeval swamps of the time. Apart from a reduction in the size of dragonflies today, their basic body shape has remained unaltered since those prehistoric times, testament to a highly successful evolutionary design.

The loss of many ponds in the wider countryside has been partly compensated by the creation of garden ponds in recent years. All dragonflies need water to breed and even the smallest garden pond, if healthy, can usually support one or two species of damselfly. The delicate blue and black bodied damselflies in jerking flight, settling on water lily leaves or similar vegetation, are usually **Azure Damselflies**, one of our commonest species. But I have also discovered a specimen of the much rarer, though superficially similar-looking **Variable Damselfly** at the Bar Hill nature reserve pond at the bottom of the drift from the village. Walker's book also lists this species, though not the commoner one *'...Agrion pulchellum* (Variable Damselfly) *numerous by the ditch near "The View" on June 4th 1877 - a warm and still day'*. Could this have been a case of mistaken identity ?

Other small damselflies found on our ponds include the **Blue-tailed Damselfly**, with a black body highlighted by a penultimate powder blue body segment, and occasionally the red bodied **Large Red Damselfly**, never numerous, but the first species on the wing, usually around the beginning of May. On Ruth and Bob Edwards' large pond, **Common Blue** and **Emerald Damselflies** fly later in the summer, while the **Red-eyed Damselfly**, rather like a larger version of the Blue-tailed Damselfly in coloration, but with deep ruby red eyes when seen close-up, settles on floating water lily leaves, each male defending its tiny leaf 'territory' against other intruding males of its kind. The Emerald Damselfly is seen only in small numbers, flying weakly among the stems of fringing water plants round the pond and settling with its wings held at 45°, thus giving the lie to my earlier assertion about the resting posture of damselflies ! Its body is

predominantly an iridescent bottle green, which in sunlight picks up subtle hues of bronze, with a pale blue first and tenth body segment, and pale blue eyes, altogether a very beautiful insect.

Being wider ranging, true dragonflies venture much further from water bodies and are sometimes seen in quite dry habitats. The top lane which runs from the end of the High St towards The Plantation is a good spot for basking **Broad-bodied Chaser** dragonflies on the hedgerows in early summer, and later **Migrant** and **Southern Hawkers**, with their blue and dark brown and green or blue and black patterned bodies, hurtling like small biplanes along the track just above head height. The Broad-bodied Chaser males have a pale blue body, with dark ginger patches at the wing bases, while the females are a lovely honey colour, with yellow lunules along the body sides. Males of this species are fond of repeatedly returning to the same perch on a twig or long plant stem overhanging a pond. In the annotated copy of Walker's book there is a charming description of this dragonfly's behaviour which perfectly sums up the spirit of a hot summer's day by the pond : *'This insect has appeared in about equal numbers this season* (1877) *as far as the two sexes have been noticed in the hedgerows. Flying about the pond of the Three Corners Planting, the largest in the parish, I noticed several males however and only a solitary female in the proportion of 6 to 1. The habit of the males is to pursue one another in swift career along the whole length of the pond or soaring high up in the air and over the adjacent hedge, when their wings and lavender coloured bodies jostle and rustle one against the other in quick pursuit. When at rest they either suspend their bodies at an angle from the top of a flag or flat against the middle of the leaf. They do not allow one another to settle long together'.*

Male dragonflies are nearly always more numerous at a water body, fighting, holding territory and chasing the occasional females which normally come to water just for mating and egg-laying. From the eggs the larvae hatch and spend the greater part of their lives normally unseen beneath the water, shedding their outer skins periodically between growth spurts and pursuing a predatory existence on smaller creatures. The larvae of the larger dragonflies may spend up to five years growing in the pond before emerging to transform into the adult insect.

Our other resident Chaser dragonfly is the **Four-spotted Chaser**, which gets its name from the additional four dark spots half way along its wings. The old naturalists gave the names Chasers, Darters, Skimmers and Hawkers to the various groups of dragonflies on account of their flight behaviour. The **Black-tailed Skimmers** are fond of basking on bare mud or wood at the water's edge, taking brief speedy forays out over the water in pursuit of insect prey. We have two species of Darter dragonfly, the **Common Darter** and **Ruddy Darter**, distinguished most readily by the colour of the male abdomens and legs : dark red body and striped legs in the case of the Common Darter, and blood-red body and black legs in the case of the Ruddy Darter. The females of both species are coloured dark yellowy-brown, becoming darker with age. After first emergence the teneral Common Darter dragonflies rise in sizeable numbers when flushed by walking through pondside grasses. Their pale yellow bodies and silvery wings take several days to harden and acquire their full adult colour and during this time they are vulnerable to predation by birds.

Most impressive and largest of our dragonflies is the **Emperor**. This has a wing span of 106 mm (over 4 in) and the sky blue bodied males are unmistakeable in flight above the deeper central regions of larger ponds, flying powerfully and tirelessly and seeing off other large dragonflies. The whole impression is one of imperious superiority, which befits their name. The female is a darker green and usually deposits eggs alone, curving her abdomen to insert each egg into water plants near the surface.

Apart from the Migrant and Southern Hawker dragonflies, mentioned earlier, the **Brown Hawker** is the third large dragonfly of this group, easily distinguished by its gingery wings even in flight. Again it is not numerous, but one or two may visit ponds or to hawk insects in gardens in July and August.

In his natural history of the parish Walker also mentions two more dragonfly species which would be highly unusual for this part of the country : Beautiful Demoiselle and Common

Hawker. The former is found nowhere near here now, being a resident of fast flowing rivers and streams with clear chalky substrates. He mentions in a note of 1877 : *'The little agrions* (Demoiselle dragonflies) *flit about as usual when the sky is overcast by clouds...'* I wonder whether he saw the **Banded Demoiselle** in Dry Drayton, as this is fairly common on the Rivers Cam and Ouse and occasionally wanders and turns up on larger ponds. Indeed, an emergent male was seen at the pond in the grounds of The Coach House in 1996.

Dragonflies and damselflies are excellent living indicators of the health of our watery environment and providing we can maintain or even increase our numbers of ponds as sources of clean standing water, with good water plantings, we have a good chance of retaining our present dragonfly fauna. For, despite their seeming delicacy, they are survivors, if given a helping hand. After all, with a history stretching back 300 million years, they have survived very much longer than we have !

Other insect orders

Grasshoppers and Crickets

Part of the appeal of a hot summer's day in the countryside, especially in the long rough grass of our roadside verges or on The Park is the sound of grasshoppers and occasional crickets filling the air. Each species has its own characteristic 'song', produced by a process called 'striduation'. In effect this sound is the result of these insects rubbing the hindlegs against the forewings. The majority of our grasshoppers have a row of minute pegs on the inside of the hind leg femur, and it is these pegs that produce the sounds as they strike a prominent vein on the wing, rather in the manner of comb teeth being drawn against a hard surface.

Most numerous is the **Common Field Grasshopper**, which can number thousands in the grass in a good season. Walking through the Park in late July or August will cause a continual steady scattering of these grasshoppers a metre or two ahead of the walker as they are disturbed from their stridulating perches on grass stems or other plants. The Common Field Grasshopper has a variety of colour forms, mostly of a brownish mixture, but colours of parts of the body may vary from buff, through orange to purple. Mature males develop an orange-red colour to the end of the abdomen. An isolated male will produce a short, brisk chirp, repeated at short intervals, but two or more males together may chirp in response to each other, often alternating rapidly. Receptive females chirp only briefly. This grasshopper is found throughout Britain, althoug it is rather local inland in northen parts of the country.

We have at least three bush crickets in our parish. Bush crickets are often confused with grasshoppers, but their antennae are unusually long, often much longer than the body. The females are easily recognised by their broad, sabre-like ovipositor which gives them a fiercesome appearance, although they are perfectly harmless. Unlike the grass-eating grasshoppers, bush-crickets are partly or entirely carnivorous, eating a variety of other insects. The **Oak Bush-cricket**, a pale green insect, is a fully winged species which is commonly attracted to house and street lights in autumn and may be found in our gardens living on a variety of trees, especially hawthorn and apple trees. The **Speckled Bush-cricket** is fairly common in southern Britain, where it inhabits bramble and nettle beds. Close examination will show how the species acquired its name, for the dark green body is covered in fine black speckles. This insect can sometimes be found settled on white house walls inside or outdoors in late summer. The flat, brown ovoid eggs are inserted into plant stems and crevices with the use of the female's curved ovipositor. The speckled nymphs hatch during May and June and may be found sunning themselves on the foliage of various plants, where they may be mistaken for large aphids or capsid bugs.

Our most recent arrival in the parish has been **Roesel's Bush-cricket**, first heard on the roadside verge near the A14 in late summer 1999. The male song of this bush-cricket is an

intensely penetrating and continuous, high-pitched stridulation, which has been likened to the sound of a bicycle wheel sprocket when freewheeling, or an electrical discharge emitted by pylon cables in damp weather ! Medium-sized, of dark coloration, with a cream crescent round the sides of the pronotum (the shield-like plate behind the head in this group of insects), this charming bush-cricket has undergone a massive range expansion in recent summers, north and west from its previous strongholds along the Thames and parts of the coast towards the Humber. It has been turning up in many parts of Cambridgeshire in the last two or three years. This is because Roesel's Bush-cricket is a comparatively late post-glacial arrival in Britain from Dogger Land before its submergence.

Bees and Wasps

Bumblebees are likeable creatures, being large, furry, rotund and brightly striped, part of their general appeal being the beneficial work they perform in pollination. They are less likely to sting than honeybees unless severely molested. Conspicuous by their size and deep buzz as they work over the flower heads, most of these bumblebees will be foraging workers, whose only task is the collection of nectar and pollen to supply themselves and their colony. Early spring sees the first emerged overwintered queen bumblebees flying low over the ground on a bright day, seeking a suitable site to found a new colony. Because of changes in the countryside, the number of bumblebees is declining and some formerly fairly common species have now become very rare. Gardens are therefore becoming important refuges for their continued survival, particularly those rich in various nectar and pollen sources.

True bumblebees are all members of the genus *Bombus* (meaning 'booming') while members of the genus *Psithyrus* (meaning 'murmuring') are called Cuckoo bumblebees. The latter have softer 'buzzes', cannot secrete wax and have sparser coats of hair showing the shiny black cuticle beneath and no pollen-collecting apparatus on their legs. Cuckoo bumblebees (like the bird) therefore live parasitically in the homes of one or several species of *Bombus*.

Walker listed four species of *Bombus* in his book : *B. lapidarius* (Red-tailed bumblebee), *B. subterraneus*, *B. terrestris* (Buff-tailed bumblebee) and *B. lucorum* (Small earth bee), but no species of Cuckoo bumblebee. Today we have recent records of ***B. hortorum***, ***B. lapidarius, B. lucorum, B. pascuorum***, ***B. pratorum*** **(Early bumblebee),** ***B. terrestris*** and ***Psithyrus vestalis*** **(Vestal Cuckoobee)** records for Dry Drayton. There may be one or two other species also present although definite records are lacking.

The Honey Bee is well-known in Dry Drayton, since bee-keeping has long been a tradition in the parish, with many hives being put in the former Chivers orchard to assist the all-important process of pollination of the fruit trees, for example. Indeed, bee-keeping on a small scale is still practised in the village today. In the annotated copy of Walker's book is written : *"A large number of hives are kept in the parish, and indeed in the county generally. The extensive cultivation of the broad bean is especialy favourable to the production of honey, whence a quantity of mead is manufactured in the neighbourhood".* Other observations on honey bees include : *"First swarms of bees June 3rd 1877, second swarm June 9th".* Sometimes they were not so fortunate : *"A swarm of bees in the church June 7th that got in through the roof. Not being able to find their way out, probably also through loss of their queen, all persihed".*

Another characteristic bee is the **Tawny Mining Bee** ***(Andrena fulva)***, being unmistakeable with its red hairy thorax and abdomen, and black legs. This solitary bee is often common in spring, making its mines in lawns, with attendant small cones of fine ejected soil particles. Although these mines may be close to each other, each is quite separate, the shafts being 15-30 cm (6-12") deep, with the cells one above another or set at angles to the main shaft. Unlike bumblebees and honey bees, mining bees do not have a worker caste, being all either male or female. The Tawny Mining Bee has a fascinating ecology all of its own since it is parasitised by wandering or homeless bees as well as by a minute insect called *Stylops*. The adult male *Stylops* lives only 3-4 hours, just long enough to fertilise the female who lives in the female bee's body and disrupts her reproductive system so that she cannot lay eggs. The female

Stylops produces several thousand minute larvae, known as triungulins, within her own body. When the triungulins leave their mother's body, which protrudes through the body segments of the mining bee's abdomen, they swarm over flowers, to be picked up by other foraging female Tawny Mining Bees and taken back to their nests, where they enter the bodies of the bee larvae, not coming out until the adult bee itself emerges from the pupa. A strange and terrible world indeed within the life of just one bee species !

Of the social wasps (i.e. living in colonies, as opposed to solitary species), the **Common** and **German Wasps**, which sometimes plague our summer outdoor barbecues and picnics, are useful in as much as they prey on flies and other insect pests. Although essentially a woodland insect, **Hornets** have become more frequently recorded in recent years, as part of a general upsurge in their abundance in East Anglia. As with other social wasps, only the queens survive the winter, waking in April and seeking out new nesting sites. The paper nests are built by the queen Hornet alone, made by scraping wood from trees and other timber and pulped with saliva. The six-sided cells are built suspended from the roof of the nest cavity and the queen lays an egg in each cell. These hatch into larvae within a few days, which are then fed by the queen until they are ready to pupate. The resultant insects which then emerge from these cells are all workers, which set about enlarging the nest while the queen resumes egg laying.

Beetles

Beetles are the largest order of insects, with well over 300,000 known world species and about 4000 species living in Britain. Their study is a specialist field on its own and in a local account such as this I can do no more than mention a few of the more easily recognised species known in Dry Drayton. Perhaps our favourite beetles are the ladybirds, popular on account of their bright contrasting colours, their connections with good fortune in myth and legend and their usefulness as predators of aphids such as greenfly which they consume in large numbers ! The lady in 'ladybird' is of course Our Lady, the Virgin Mary. The red colour is said to represent her cloak and the seven black spots of our commonest species, the **7-spot ladybird**, as the seven joys and seven sorrows of Mary. This species and the **2-spot ladybird** are generalists, feeding on a wide variety of aphids. All ladybirds spend the winter as adults, selecting their winter quarters about September or October. We often find these overwintering ladybirds in some numbers, in curled up plant leaves, hollow plant stems or other cracks and crevices such as window frames or tree bark. Their full life cycle takes one year, with mating and egg-laying taking place in May. Larvae hatch and feed up over the next month or so and the new generation of adult ladybirds emerge from the pupal cases in mid to late summer. These then feed up before seeking shelter but do not breed until the following spring. The **Cream-spot ladybird** is a reddish-brown ladybird marked with creamy-white spots. It is sometimes found in gardens but prefers hedgerows and trees as habitat. There are almost certainly several other ladybird species present here in addition to those mentioned, and they are easily recognised.

The longhorn beetles derive their name from their very long antennae, usually longer in the male than the female. Their bodies are somewhat elongated and flattened and they may have bright colours such as the wasp mimic, the **Wasp Beetle**, with its black and yellow banded body. This is common in gardens scuttling over tree trunks or settled on plants in sunshine in summer months, its antennae waving. Its larvae, as with nearly all longhorn beetle larvae, are wood feeders, attacking both living and dead timber. Another elongated, bright orange-red, flat-bodied beetle seen on flowers and tree trunks is the **Cardinal Beetle**, actually one of several species of a different family of beetles whose larva lives under bark and feeds on other insects.

Ground beetles, many of which are flightless and some of which are nocturnal, eat a wide variety of invertebrates and carrion, and some species eat plant matter too. The large **Violet Ground Beetle** may be found around gardens and hedgerows and occasionally comes into garages, sheds and outhouses. Its black body is enlivened with a bright violet sheen around the edges of the wing cases. Hiding under stones or litter by day, it emerges at night to hunt slugs and other prey. **Dor Beetles** are another large species of the rove beetle group, easily distinguished because the jaws are clearly visible from above, and with seven ridges on each

hard shiny black wing case. Its under body may be metallic green or blue. It lives mainly on cow dung, digging shafts below for burying the dung which it uses for breeding. Flying in the evening, these insects are also called 'lousy watchmen' on account of being infested with a number of mites. Another large flying beetle on summer evenings that sometimes swarms around trees is the May-bug or **Cockchafer**, a beloved prey for bats. On occasion this large brown and black insect with fan-like antennae even crashes into lighted windows !

The water beetles are related to the ground beetles, although their bodies are much modified for living in water. Their heads are sunk partly back into the thorax and the whole body is smooth and rounded to offer little resistance for swimming. Their hind-legs are broad and flat with fringes of hairs to assist swimming too. These beetles renew their air supply by coming to the surface tail-first. Surprisingly, they nearly all fly well, which assists in dispersal between one pond and the next. The **Great Diving Beetle** and its larva are fierce predators of pond life, attacking both small frogs and newts, as well as fishes and tadpoles and other invertebrates. There are a whole host of water beetles in our ponds and other water bodies but identification to species is a job for the expert in most cases. From our largest water beetle to one of the tiniest, in the form of the **Whirligig Beetle**. This shiny jet black beetle is one of several similar species which can be seen in groups whirling round and round on the water surface of our ponds, but diving when alarmed. Its middle and hind-legs are like tiny oars, but more remarkably, each eye is in two parts, one looking down into the water, the other looking across the surface ! The adults and larvae both feed on mosquito larvae.

Among the dozen or so species of beetle listed by Walker, he mentioned the Cockchafer, Cardinal Beetle, 2-spot ladybird, Dung and Soldier Beetles, as well as the Glow-worm, actually the female of a beetle species which emits a pale greenish light from the under hind abdomen to attract a passing male. Unfortunately Glow-worms have long since disappeared from these parts and they are uncommon elsewhere.

Flies

True flies (Diptera = 'two-winged') are an immense order of insects which would repay proper specialist study at some stage. A survey over 15 years of an ordinary suburban garden in Leicester turned up 140 species of fly, as well as many hundreds of other insect species altogether, so the scope for identifying flies in a Cambridgeshire country parish might well turn up a similar-sized list. We clearly have a number of different species of **hoverfly**, for example, which are pollen feeders and can be seen hovering around flower heads and maintaining perfect mid-air position in sunbeams slanting through trees on warm summer days.

Crane-flies (or **Daddy-long-legs**) are noticeable in numbers in the autumn, particularly our largest and commonest species such as ***Tipula maxima*** and ***T. paludosa***, which unfortunately lack English names. Their legs easily break off if handled, which may be a means of escaping natural predators. They are attracted to light indoors although some of the females of crane-fly species are wingless. The larvae of crane-flies are known as 'leatherjackets' and these live in the soil where they can do a great deal of damage to lawns, thus feeding flocks of starlings probing for these larvae are welcome, as they aerate our lawns at the same time. Related to crane-flies, though of course much smaller, are the **winter gnats**, commonly seen dancing in swarms in the weak sunshine of mild winter days.

House-flies are also members of the Diptera, as are **midges** and the more attractive furry-bodied **Bee-fly**, which makes its appearance in early spring as soon as the bright yellow primroses begin to flower. The species usually seen here is ***Bombylius major***, seen hovering and flying low over flowers, occasionally making a light landing on one pair of legs, wings still rapidly vibrating, to poke its long straight tubular tongue into the flower to sip nectar. It is rather reminiscent of a tiny brown hummingbird, the name '*Bombylius'* meaning 'the buzzing one'.

Spiders

Although not everyone's favourite creatures, spiders are nevertheless part of the natural order and come in a wide range of colours, shapes and sizes. A total of approximately 630 species have been identified in this country, of which the Money spider family represent over one-third. They are separate from insects altogether in having four pairs of legs and a combined head and thorax, called a cephalothorax. The most familiar feature of spiders is their ability to spin beautiful and ornate webs, which when spangled with dew on autumn mornings bring an enchanting aspect to hedgerows and even fences. However, not all spiders spin webs, some being ground dwellers who hunt by stealth and speed, mostly at night. One of the commonest of these is the tiny sharp-eyed **Zebra spider**, a member of the jumping spiders or Salticidae family, with its black and white coloration, which may be found in broad daylight in early summer on walls and fences.

Of course, the frighteningly large **house spiders** are rather too familiar to need mention, especially when the males leave their webs in autumn in search of mates - many ending up being trapped in baths ! About six or seven spider species habitually live inside houses and house spiders of the genus *Tegenaria* spin sheet webs, unlike the orb webs of other spiders, but their purpose is the same - to entangle and capture flies. Spiders moult their skins a number of times before becoming adult a year or so after hatching. Long-lived spiders such as *Tegenaria* may also moult once a year thereafter.

More noticeable in gardens, on account of its large size and boldly patterned body with white crucifix on the abdomen, is the **Garden Cross spider**, one of the orb web spiders. Females are usually the web occupants; the males, recognisable by their smaller, more triangular abdomen and prominent palps or mouth 'fingers' being less often seen. Directly after maturing they abandon their webs and spend the rest of their short lives visiting those of the females, eating virtually nothing and conducting their dangerous courtship and mating routines with extreme caution : the short-sighted larger female is liable to attack all intruders even when they happen to be one of her own species !

Harvestmen are the 'daddy-long-legs' of spiders in outward form, although they are not very closely related to them, not having the 'waist' of spiders since the cephalothorax is fused to the abdomen, giving the appearance of a one segment body. Harvestmen lack sik glands and therefore cannot spin webs. They also have only two eyes, set on a little bump towards the front of the upper body. Most spiders have four, six or eight eyes. All harvestmen live among damp moss, low vegetation or shady places, becoming active at night, although we sometimes see them spreadeagled motionless on a plain wall during daytime.