

Glossary (by Robin Williams, drawings by Geoff Allen)

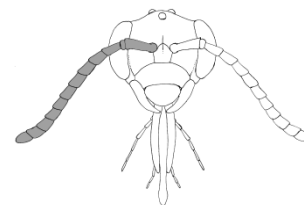
ACARINIUM – *Xylocopa* have this pouch in the first segment of the gaster, which may hold numbers of mites.

ACULEATA – a branch of the Hymenoptera; females with a sting in place of the ancestral form of ovipositor.

ADPRESSED hairs – pressed close-to, lying flat against a surface.

ANTENNAE (fig.1) – a pair of multi-segmented sense organs set in sockets at the front of the head (feelers).

1.



ANTERIOR – at the front of a structure.

APEX, APICAL – point furthest from the root or base of a structure.

APOCRITA – sub-order within Hymenoptera containing the Aculeata (aculeates) and Parasitica (parasitic wasps).

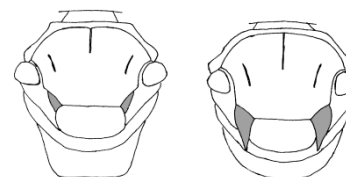
AROLIUM (fig.2) – a small pad which projects between the tarsal claws.

2.



AXILLAE (fig.3) – Small triangular plates on either side of the scutellum, usually inconspicuous but in some genera enlarged and projecting backwards as teeth; these are followed by the metathorax and then the propodeum, which forms the apparent rear of the thorax.

3.



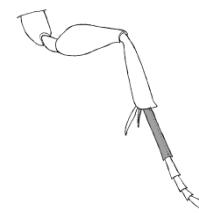
BASAL VEIN (fig 4.) – On forewing, often important in identification; technically, it is the transverse part of the median vein.

4.



BASITARSUS (fig.5) – Basal segment of the tarsus, next to the tibia.

5.



BEE – In Britain, an aculeate Hymenopteran with at least some plumose hairs, and which consumes pollen & nectar- a vegetarian.

EUSOCIAL SPECIES – The most advanced form of social insects, possessing a worker caste. These insects are defined by three criteria:

- members of a generation build and use a composite nest; individuals co-operate,
- there is a division of labour; sterile workers look after the fecund males, females and the young,
- the generations overlap; offspring remain in the nest to assist their parents during some period of their life.

Primitively eusocial bees, such as some halictines, often possess a worker caste only distinguished by their worker-like behaviour i.e. foraging, nest construction etc, while the queens, often identical externally, are the only bees with developed ovaries. Bumblebees are slightly more advanced on the eusocial scale, so to speak, with workers that are on average distinctly smaller than the queens and which never mate. The most advanced eusocial bees are honeybees.

CARINA – A ridge, or raised line on the cuticle.

CLAVAL LOBE (fig.6) – On hind wing of bees; see also JUGAL LOBE.

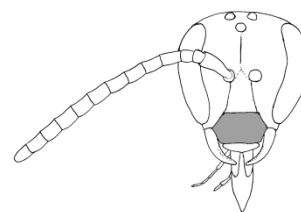
6.



CLEPTOPARASITE – A cuckoo, one that steals the nest from another species. The host species creates and stocks a nest and lays her egg in it. The parasite opens the nest and lays her own egg which hatches and eats the host's resources; the host egg is destroyed by the parasite female or her larva.

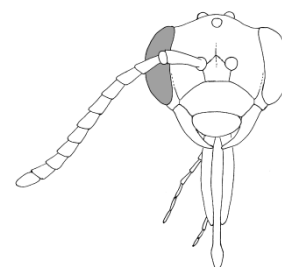
CLYPEUS (fig.7.) – Segment of the head, just above the mouth, usually defined above by a groove.

7.



COMPOUND EYE (fig.8) – Main eye of insects, composed of numbers of facets.

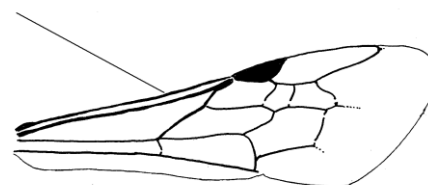
8.



CORBICULA – the concave, smooth region of the hind tibia, edged with long hairs, which forms a pollen basket on many bees. In some *Andrena*, there is a corbicula on each side of the propodeum, usually where the scopa on the hind leg is reduced in appearance and function.

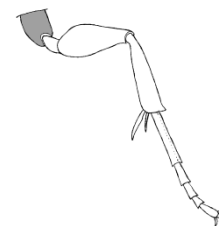
COSTAL VEIN (fig.9) – A vein running along the very front of the forewing, from the base to the stigma; a parallel vein very close to the front is the sub-costal; between these lies the long, narrow costal cell.

9.



COXA (fig.10) – first part of the leg, between body and trochanter.

10.



CUBITAL CELL – see Jugal lobe.

CUCKOO – at its simplest, this term refers to a situation where another species of insect larva eats the food provided for a host larva and prevents its development – also see “Cleptoparasite”.

CUTICLE (or Integument) – hard outer skeleton of insect.

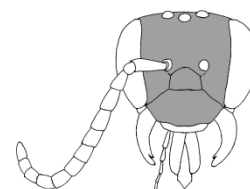
DORSAL – the top surface of a structure or body.

DRONE – a male Honeybee.

DUFOUR’S GLAND – a gland off the vagina, which produces a variety of chemicals used in a number of processes.

FACE (fig.11) – the front of the head, between the eyes and down to the mouth.

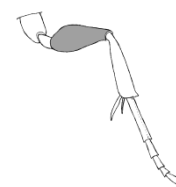
11.



‘FALSE’ VEIN – A vein-like structure on the wing but which is not connected to the true veins. It often appears as a novel structure in a group and might not be possessed by other closely related groups. An example is found on the bumblebee forewing.

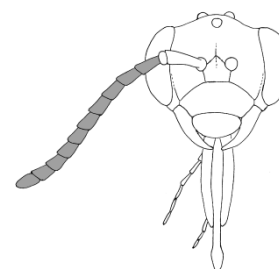
FEMUR (fig.12) – The third section of a leg, between coxa and tibia.

12.



FLAGELLUM (fig.13) – Last sub-division of the antenna, beyond the SCAPE and PEDICEL.

13.



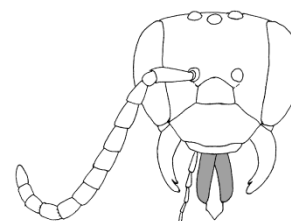
FLOCCUS – Tuft of curled hair on the hind trochanter of many *Andrena*.

FOVEA – a depressed area, sometimes found in bees along the inner edge of the compound eyes.

FULVOUS – tawny, reddish-yellow.

GALEA (fig.14) – a part of the mouthparts or tongue.

14.



GASTER – the name for the apparent abdomen, though in reality one segment has been lost to the thorax. In the apocritan Hymenoptera, the first segment of the abdomen is integral with the thorax and the ‘wasp waist’ actually occurs between the first and second segments (cf. propodeum), also known as the metasoma.

INFUSCATE – darkened.

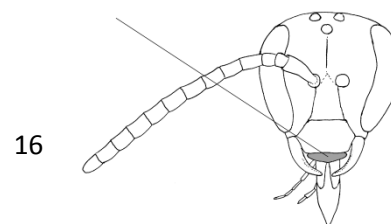
INSTAR – different stages of development of a larva, preceded by shedding of the skin to reveal the new stage.

INTEGUMENT – the hard external skeleton or covering of an insect, composed of the cuticle.

JUGAL LOBE (fig.15) – a lobe of the hind-wing, behind a fold. The lowermost longitudinal vein of the hind wing, if followed to the wing margin, reaches a point where the wing border is excised. The lobe thus formed behind the vein is the **CLAVAL LOBE**. If the margin is followed back to the wing base a second incision may be present marking off the **JUGAL LOBE**. The presence and length of the jugal lobe, relative to the claval lobe and the cubital cell, is an important character in the keys; in comparison, both are measured from the wing base.

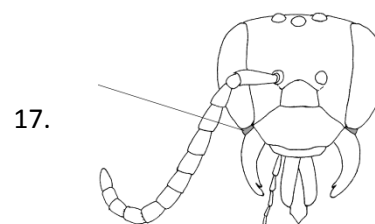


LABRUM (fig.16) – a flap-like sclerite hinged along the free edge of the clypeus which can fold back beneath, and partly out of sight, when the bee is not feeding.

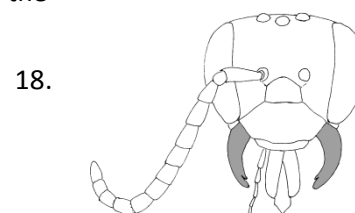


LARVA – the mobile second stage of life in bees; the only growing stage in the life of the bee. Equivalent to the caterpillar in butterflies, the bee larva is white and maggot-like, lacking legs, wings, eyes and antennae, which are adult structures. In almost all bees, each larva hatches, grows and pupates its own cell.

MALAR SPACE (or cheek) (fig.17) – between the bottom edge of a compound eye and the closest edge of the mandible.

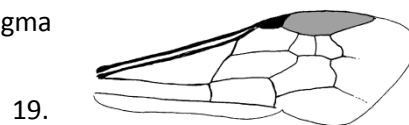


MANDIBLES (fig.18) – biting mouthparts hinged at the bottom corner of the clypeus.

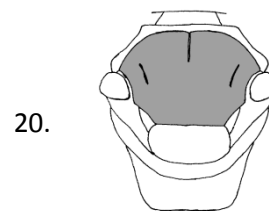


MARGINAL AREA – the end portion of each gastral tergite, usually one third to one half its total length; often with different sculpture or puncturation to the basal part and sometimes of a paler colour.

MARGINAL CELL (fig.19) – a cell in the forewing, on the outside of the stigma and between the front margin of the wing and the sub-marginal cells.

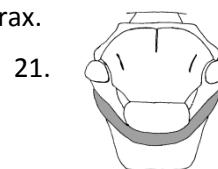


MESOSCUTUM or **MESONOTUM** (fig.20) – the top of the thorax, between pronotum & scutellum and between the wing bases.



METAMORPHOSIS – the four stages of a life-cycle; egg, larva, pupa & adult.

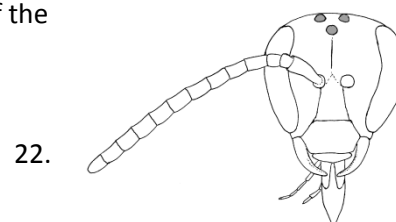
METATHORAX (fig.21) – the rather narrow third and last segment of the true thorax.



MICRORETICULATION – very fine netted sculpture, often between coarser sculpturing on the integument.

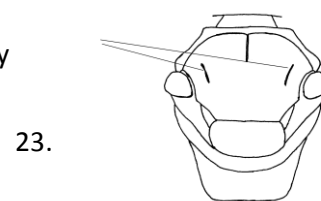
NECTAR – honey or sweet fluid exuded in flowers; the fuel that keeps bees going.

OCELLI (fig.22) – simple eyes, found in a group of three on top of the head.



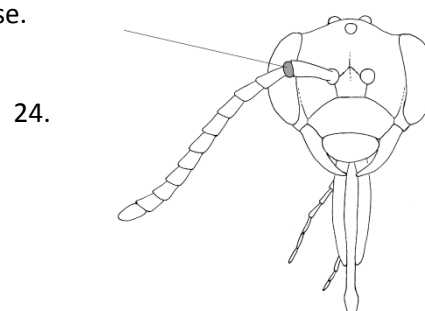
OLIGOLECTIC – use the pollen of only a few closely-related species for food.

PARAPSIDAL LINES (fig.23) – a pair of short or longer lines on the mesoscutum, in line with the base of the wings, usually linear, half way between base of wing and mid-line.



PARASITOID – any animal that lives on or in a host organism, obtaining its food from the tissues of the host and eventually killing it.

PEDICEL (fig.24) – second segment of the antenna, from the base.



PHYLOGENY – the structure of the tree leading to the species – family, genus, species etc.

PHYTOPHAGOUS – feeding only on plants, vegetarian.

PLUMOSE HAIRS – feather-like or branched .

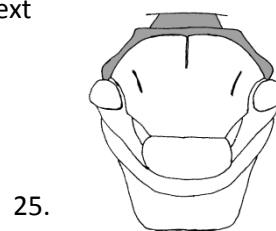
POLLEN-BRUSH – see SCOPA.

POLYLECTIC – eats pollen from a wide selection of plants, whatever may be flowering at the time.

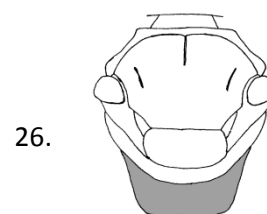
POSTERIOR – the end of a structure, as opposed to the front.

PRE-APICAL TUFT – a prominent tuft of hairs at the back of the female gaster (on T5).

PRONOTUM (fig 25) – a narrow plate forming the very front of the thorax, next to the head.



PROPODEUM (fig.26) – the first segment of the true abdomen but, in bees, fused to the thorax, forming the back of that structure.



PUBESCENT – fine short hairs giving the appearance of fur, often hiding the surface beneath.

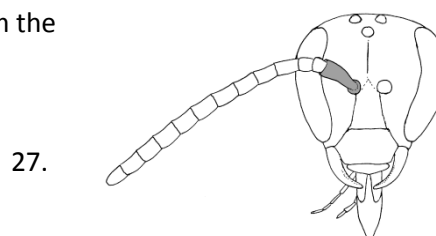
PUNCTURATION, PUNCTATE – punctures or fine depressions on the surface of the integument, often important in identification to species.

PUPA – the immobile third stage of bee life.

PYGIDIUM – a modified triangular area on the final visible segment on the gaster of female bees, used in nest-building to remove material

RIMA – the fifth gastral tergite of all female *Halictus* and *Lasioglossum* has a smooth, bare central line, edged with adpressed hair, a modification of the pre-apical tuft. The rima is found in no other British bees

SCAPE (fig.27) – first elongate segment of the antenna, from the base.



SCOPA or POLLEN-BRUSH (compare with CORBICULA) – the pollen carrying apparatus of the female, consisting of dense and long hairs. In some genera it is present below the gaster, in others on the hind leg, particularly the tibia and first tarsal segment. It is lacking in parasitic species.

SCUTELLUM (fig.28) – a rounded plate on the top of the thorax, behind the mesoscutum.

28.



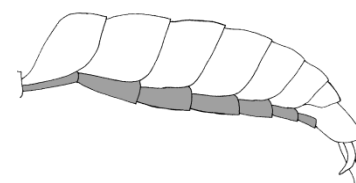
SCLERITE – a hard plate or structure forming part of the outer skeleton of an insect; for instance the mesoscutum, or scutellum.

SOLITARY BEES – insects that, although they may appear sometimes to share nest holes with others, in fact lead quite separate and solitary lives, preparing their nest, stocking it with food, then laying an egg or eggs, before leaving the site for ever. The female dies at the end of this and the process of emergence at the other end of the winter is automatic, without help from outside sources or parents.

SPINE – sturdy and stiff, hair-like; tapered and joined to the surface by a socket.

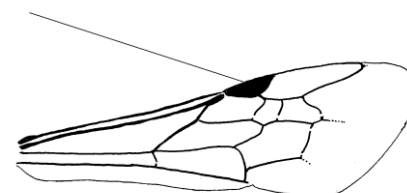
STERNITES (fig.29) – plates that make up the underside of the gaster, separated from the overlapping tergite above by a membrane, so the two structures can move in relation to each other, allowing expansion of the gaster to carry nectar in the crop.

29.



STIGMA (fig.30) – a small, pigmented, thickened area of the forewing, on the front margin, at the apex of the costal vein.

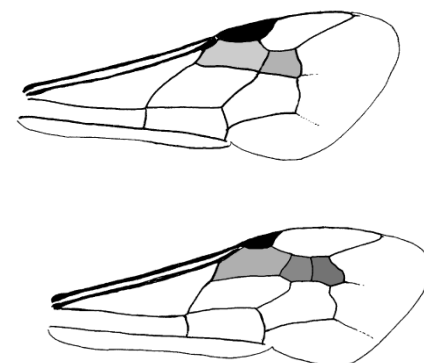
30.



STYLOPISED – parasitism of *Andrena* species by *Stylops*, the presence of which is often shown by the partial protrusion of the female between gastral segments; this may change some characteristics of the host bee.

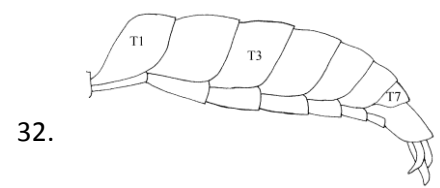
SUB-MARGINAL CELLS (fig.31) – important for identification of bee genera. Cells in the forewing, which run from below the stigma towards the apex of the wing, numbering three or sometimes two.

31.

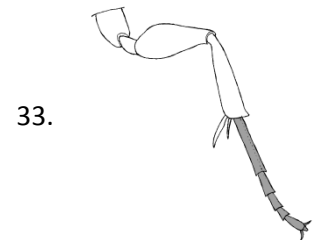


SUTURE – an often-shining groove on cuticle separating two structures.

T1, T2 etc (fig.32) – numbering of tergites from the front, usually taken to mean gastral tergites.

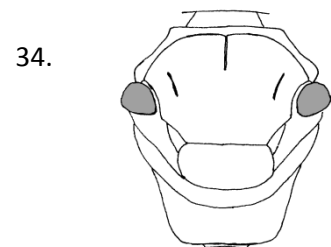


TARSUS, TARSAL (fig.33) – the final section of a leg (five-segmented in bees), furthest from the body, next to the tibia.

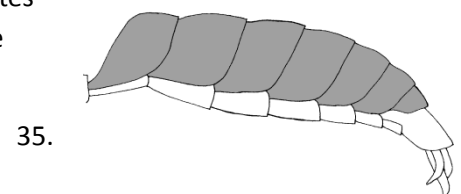


TAXON – members of particular (taxonomic) group – a family, genus etc.

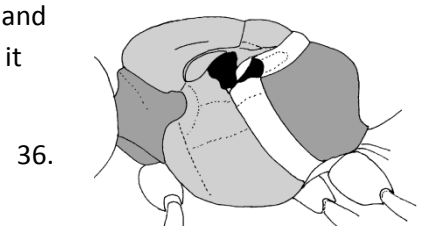
TEGULAE (fig.34) – tile-like structures covering the point where the forewing joins the thorax at the wing-base.



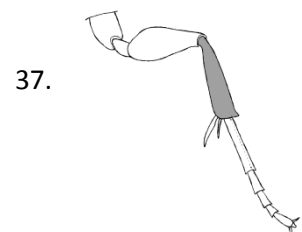
TERGITE (fig.35) – the upper sub-division of a segment; gastral tergites appear as divisions across the top of the gaster, numbered from the front.



THORAX (fig.36) – the second major part of the body, between head and gaster; in apocritans, sometimes called the alitrunk or mesosoma, as it includes the first abdominal segment, the propodeum.



TIBIA (fig.37) – fourth section of a leg, between femur and tarsus.

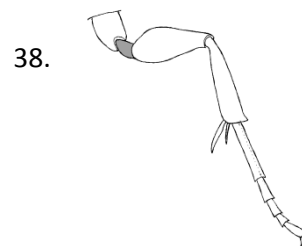


TOMENTOSE – of a woolly appearance, with dense flattened hairs.

TRAP-NEST – an artificial nest, provided for dead wood- or stem-nesting species, to encourage study and help maintain the species in the area.

TRANSVERSE – wider than long, as in antennal segments.

TROCHANTER (fig.38) – second section of the leg, between the coxa and the femur.



TRUNCATE – a structure which ends abruptly; appearing cut-off.

VENTRAL – underside.

WING VENATION – the wing venations of insects are nearly always identical between specimens of a species and very similar between related species in a genus, etc. This means they can be used quite extensively to help identify genera and sometimes species, bees included. Complex classifications of the veins and enclosed cells have been developed.

Useful book

Robin Williams, **British Hymenoptera – Glossary for use with Identification Keys**, Vanellus Publications; 2012