



The Ant:

A Morphological Tour of the Super Organism

1) Integument

Cuticle
Epidermis
Basement
membrane

2) Head

Eyes
Antennae
Mouth Parts

3) Thorax

Prothorax
Mesothorax
Metathorax
Limbs

This page is my final project for Bio 344, Biological Structures, class at Wesleyan University. During the course of the semester, I conducted a survey of the external anatomy of the ant *Solenopsis invicta*, the now common Fire Ant, using a scanning electron microscope. This web page attempts to serve as a basic introduction to ant morphology, using *Solenopsis invicta* as a model organism, as illustrated by the many pictures I have taken with the SEM. All specimens on this page are of the worker caste, as collection and identification are most often preformed on this caste due to its relative abundance.

The ant is a fascinating organism to study. Its

4) Abdomen

form is both intellectually and aesthetically appealing. The many parallels that exist between humans and ants have proven thought provoking for some of the greatest scientific minds. The estimated biomass of the ants has been approximated to be roughly equal to that of humans. Ants engage in war, sew silk, garden, enslave other ants, and are one of the few species other than humans truly capable of altering their surroundings. Yet while we hold so many characteristics in common with the ant, they can appear and act as delightfully foreign to us as any Hollywood created alien.

We begin our study of the ant with the integument, the highly specialized covering of the ant. The integument provides the ant with an exoskeleton that is strong for protection yet flexible for movement. The integument also contains both sensory apparatus and organs for excretion of wastes and signaling chemicals.

Next we will examine the head and its components. The head is the location of major sensory organs, as well as the mouth, the ant's primary means of altering its environment. Myrmecologist very often identify ants by the appearance of the head, as it is often highly specialized and accordingly varies greatly between species.

The remaining portions of the ant to be studied are the thorax and the abdomen. The thorax is the 'power house' of the ant, and, along with the ant's legs, provides the ant with mobility. The abdomen of a worker ant is externally a relatively bland structure, with exception of its sting, which can certainly spice things up!

