

the wasps' habit of fiercely defending their nest against all intruders.

Wasps and their nests do not attract much attention until fall. This is because only the queens survive the winter, and each builds a new nest from scratch every spring. These early nests, built and tended by a single queen, are small and inconspicuous throughout the summer months.

The first nest usually contains only a few dozen hexagonal cells, in which the queen deposits a small white egg. The eggs hatch into larvae, to be fed by the queen until large enough to seal off the top of their cell and enter a pupal stage. The pupa metamorphose into fully formed adult female workers.

This first generation of workers soon takes over the tasks of gathering food and enlarging the nest, while the queen devotes all her energy to laying eggs in the newly constructed cells. With the additional labor power, the nest grows rapidly, and by late summer new workers are emerging every day.

Eventually the new queens and males metamorphose, and by late autumn are ready to leave the nest. This signals the end of the colony. The old queen and all the workers die with the oncoming cold. The males also die after mating. Only the new queens, now carrying the males' sperm in special sacs, survive the winter under leaf litter or in rotted wood.

Wasp nests thus reach their peak in late autumn. A big nest may have thousands of workers and a steady stream of traffic leading to and from nearby food sources. With the

er size.

Particularly feared is the giant hornet, *osuzume-bachi* in Japanese, one of the largest and most aggressive wasps in the world. Their nests are built underground, usually around the base of a rotted tree. Experienced woodsmen go about their autumn business with a sharp eye for the piles of excavated dirt that mark the entrance to a giant hornet nest.

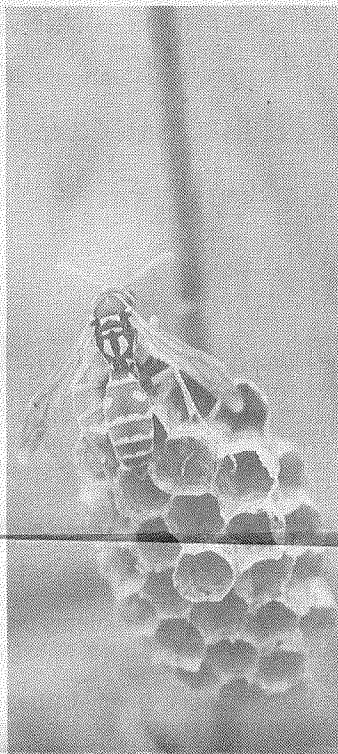
One grizzled veteran of numerous attacks described their temperament thus: "The giant hornets never attack unless disturbed. The problem is that anything passing within a dozen meters

of the nest is considered a hunting weapon, a long sharp stinger backed by a poison sac. A common fallacy is that the wasp can sting only once. Wasps can sting again and again, as of course they must in their daily hunting routines.

Paralyzed insect prey are pulled apart by the wasp's powerful scissorlike jaws, and carried back to the nest. Sometimes the meat is pre-chewed into little balls, called *niku-dango* in Japanese, before feeding to the larvae. Hunting wasps are extremely useful in controlling insect pests, and as predators near the top of the food chain, play a major role in preserving the

balance of nature. In Japan, hornets are attached to pieces of frog meat, which the hornets carry back to their nest. The white strips allow people to follow the hornet and locate the nest. Larvae are fried in butter or oil and served with rice.

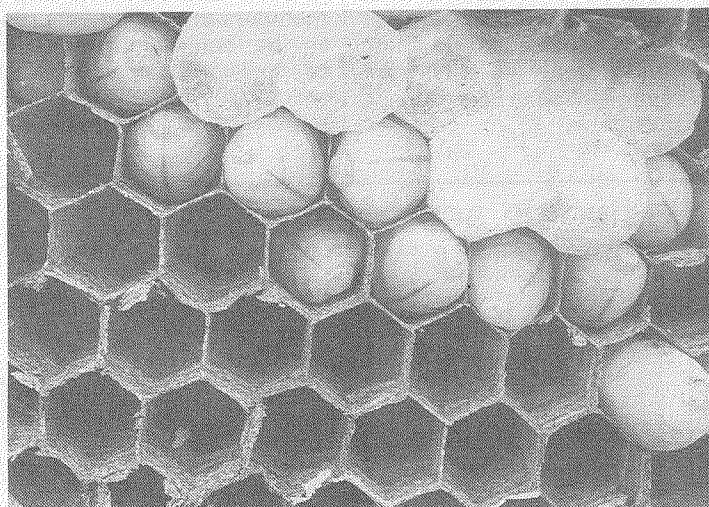
Wasps are a major presence in the Japanese autumn country landscape. If you carefully stake out grassfields and other areas where late crickets and grasshoppers abound, you will witness some dramatic hunting scenes. Nests, however, should be observed only at a distance with binoculars or spotting scope. If stung, seek immediate medical help.



Futamon-ashinaga-bachi (P. chinensis), a common paper wasp. A solitary queen working on an early nest.



GIANT HORNET (V. mandarinia) collecting sweet fermented sap from a chestnut oak. Hornets are not nearly as aggressive on their feeding grounds as they are around the nest.



A CLOSEUP of the hexagonal cells, larvae and cocoons.



YELLOW HORNETS (V. xanthoptera or kirosuzume-bachi) on a mid-autumn nest. PHOTOS BY KEVIN SHORT