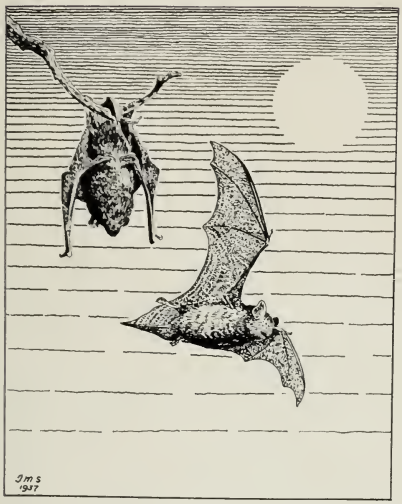
ROYAL ONTARIO MUSEUM OF ZOOLOGY
TORONTO

LEAFLET NO. 10

BATS*



The Silver-haired Bat

FROM early times bats have been regarded with fear and dislike. So many tales have been told of their evil character that even to-day people are horrified by these harmless creatures. When we study bats, we find that most of the stories told about them are untrue, and that in general they are interesting and useful animals, well equipped to fill their particular niche in the animal kingdom.

The bat is the only mammal which can really fly. There are a few others like the flying squirrel and the flying lemur which have the skin extended on either side of the body, enabling them to glide or plane for some distance, but this is not true flight. Man too can fly, but he needs the help of a machine. So the bat is the only mammal that has learned to use its body for flying up and down, or turning sharply in the air, just as birds do. But bats do not resemble birds at all, except in their ability to fly. Being mammals, they neither lay eggs nor build nests. Young bats are born alive, and are fed for a time on milk produced by the mother. Their warm-blooded bodies, like those of most other mammals, are covered with short, fine hair.

The bat's wing is quite different from that of a bird. The bird's wing is made up of many overlapping feathers, while the wing of a bat consists of a single piece of skin, stretched between the front and hind legs. The support for this airtight wing is provided by the long bones of the arm and hand. The bones of the front limb of a bat correspond to those of other mammals, but they are much longer in proportion to the rest of the body. The bones of the four fingers especially are enormously elongated, as will be seen from the accompanying illustration. The thumb

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is the only bone of the hand which is not enlarged. It has a claw on it and is not attached to the wing membrane.

The hind leg of a bat is not altered as the front leg is. It is quite small really, and is not of much use in walking. A bat can only shuffle along a flat surface, for both pairs of legs are attached to the big wing membrane. The toes of the hind foot have claws on them, by means of which the bat hangs upside down when roosting, as you will see in the illustration. In Ontario bats, the wing membrane is also continued across from the hind legs to the tail. When the tail and legs are drawn up under the body, a useful pouch is formed.

The flight of a bat is quick and jerky. This jerkiness is the result of a bat's way of hunting. Each insect is chased separately, and that is why a bat flies in such a zig-zag fashion, for it is pursuing first one insect, then another. Bats fly very silently, even through thick woods. For more than a century naturalists have known of their ability to avoid obstacles. Experiments with blinded bats prove that they can make their way through crossing lines of fine silk without becoming entangled. Bats have a more delicate sense of feeling than other animals, for they are aware of objects without either seeing or touching them. A captive bat will not try to fly out through a closed window as a bird will, for it is aware of the glass as a solid object without ever bumping up against it.

There are two great groups of bats, the Big Bats which feed mostly on fruit, and the Little Bats which live on insects. The large, fruit-eating bats are found in Australia and the tropical regions of Asia and Africa. Some of these, known as "flying foxes", have a wing spread of five feet. The little bats are all insect eaters, except the dreaded vampire bats of Central and South America and the West Indies. The vampire bats feed only on blood. They puncture the skin of a sleeping animal with their sharp front teeth so skilfully that the sleeper does not wake up, and then they lap up the blood, as it flows from the wound. All North American bats feed only on insects. For this reason they are beneficial, as they keep down the numbers of night-flying insects. Because bats have large stomachs and eat very rapidly, they consume enormous numbers of insects.

Many bats prefer to roost with large numbers of their own kind. Sometimes they choose roosting quarters in homes. The little brown bat is the only one in Ontario which has this habit. Typical roosting places are attics, walls, chimneys, the space behind shutters and similar situations which are undisturbed and to which access is afforded by small openings. The disagreeable odour quickly associated with a bat roost, the noise made by the bats, and the general aversion people have to them, make their presence in homes objectionable.

The best way to prevent bats from roosting in homes is to board over or plug up all the openings by which they enter. Where there are a num-

ber of openings, all but one or two can be closed in the daytime. After a day or two, when the bats have learned to use the remaining exits, these should be closed several hours after dusk, after all the bats have left. As they can squeeze through openings less than an inch in width, even small holes should be closed. The strong odour clinging to a bat roost is very attractive to their kind, and bats will try to return to a roost, if any openings to it can be found.

If it is impossible to seal the openings to the roost, but is possible to reach it, a repellent such as naphthalene flakes may be used. The gas given off by these flakes is very objectionable to bats, although harmless to humans. Two to five pounds are usually required to drive out a colony. The flakes should be liberally thrown around the roost. A second application is sometimes required, if the bats return after the naphthalene fumes have disappeared.

Fumigation may be necessary as a last resort if the colony cannot be dislodged in any other way. The hydrocyanic acid gas usually employed is extremely poisonous to humans, and the work should be carried out only by an experienced operator.

Much of the fear and dislike of bats is due to ignorance, some of it verging on superstition. One of the most widespread fallacies is that bats will become entangled in women's hair. A bat finding itself in a woman's hair would be as ill at ease as the owner of the hair. Their ability to avoid flying into objects injurious to them can be counted on to keep them out of a head of hair. The popular saying "as blind as a bat" is also false. Bats have small but well-developed eyes, and can distinguish light and darkness and moving objects at least. Even when blinded, their sense of direction is still good, and they can locate flying insects and avoid obstacles.

Bats are often accused of harbouring insect pests. Colony-dwelling bats are troubled by ticks and fleas, sometimes in great numbers, but none of these are the same as those affecting man. The bat is host to a "bat bug", which in appearance resembles the human bed bug of notorious reputation. These bugs are quite different, however, and bat bugs will not continue to infest human dwellings if the bats are eradicated.

There is still much to be learned about bats. One of the most interesting problems concerns their migration. That they do migrate is indicated by the following facts. In the north, bats disappear in the fall and appear again in the late spring. Bats have been killed at lighthouses in company with migrating birds. There are scattered records of numbers of bats seen in flight in late autumn, and of bats coming to rest on ships at sea. Red and hoary bats are known to occur in Bermuda during the winter months, and to disappear during the summer. Of Ontario bats the red, hoary, and silver-haired are known to migrate. Some of the large brown bats migrate, but others hibernate, and it is not unusual in southern

Ontario for big brown bats to be seen flying about in mid-winter, after a period of unusually mild weather. Very little is known definitely about bat migrations, and information about the winter occurrence of bats would be of much interest to the Museum.

Six species of bats are common in Ontario: the big brown bat, two species of little brown bats, the red bat, the silver-haired bat, and the hoary bat. Three rare species, the pipistrelle, the least brown bat, and the evening bat, have also been recorded in southern Ontario.

The common names of our native bats are all based on the coat colour. The big brown and the little brown bats are generally wood brown, sometimes with a bronzed cast to the coat. The fur of the red bat varies from yellow to red, and is often very beautiful. The silver-haired bat is dark brown or black, with silvery-white tips to the hairs, which give the coat the appearance of being frosted. The hoary bat is yellowish gray or brown with white tips to the hairs on the back.

The hoary bat is the largest of our Ontario species, with a wingspread of fifteen inches in the adult. The little brown bat is the smallest, with a wing spread of nine and a half inches. The wing spread of the silver-haired bat is eleven inches, that of the red bat and the big brown bat about twelve inches. The length of body and tail together varies from three and one-half inches in the little brown bats to five inches in the hoary bat.

The little brown bat is a typical colony dwelling bat. The big brown bat is also found roosting in homes, behind blinds or shutters, or in attics, but not in numbers. The red, hoary and silver-haired bats are more solitary, forest-dwelling types.

Bats appear at regular times in the evening, and it is possible to identify them on the wing from the time of their appearance and from their manner of flight. The little brown bats appear early in the evening, and their small size and quick dodging flight are characteristic. The silver-haired bat and the red bat also appear rather early. The big brown bat comes out later, and the hoary bat is the last one to be seen.

The distribution of bats over the whole of Ontario is not well known. Generally speaking, they are more common in the southern half of Ontario than in the northern part. The hoary bat is the rarest, the common little brown bat the most abundant. The red, hoary, and silver-haired bats are usually seen in forested sections, patrolling up and down streams and rivers, or circling around lakes. The little brown and big brown bats are more often seen around cities.

The Museum would appreciate any information on the distribution of bats in Ontario, records of their appearance in spring and disappearance in fall, dates when young bats are first seen, and evidence of migration or hibernation. Specimens are always welcome. Enquiries about bats are invited.

P. M. O.