

of the information accumulated annually on tree and shrub insects is sketchy and incomplete.

The Laboratory would very much like to see the present situation remedied, as the more complete the Survey, the more help can the Laboratory give to the public in coping with such problems as may arise. A direct appeal is made, therefore, to persons, regardless of their place of residence, or their vocation, interested in insects or in the well-being of trees and shrubs, to signify their willingness to assist with this work. Would such persons write to the Laboratory and full particulars on the Survey will be gladly forwarded.

Lloyd O. Peterson,  
Officer in Charge,

The following excerpts have been taken from an excellent article "Rats on the Warpath" by Charles Neville and appeared in the Jan. 15, 1948, issue of McLeans Magazine. The article is well prepared and should strike home the importance of determined action on our part to clear out the rats,

Any natural agency such as owls, weasels should be given every protection. Too much emphasis has been placed on the questionable harm caused by coyotes, wolves, skunks, weasels, badgers, crows, hawks, and owls. The damage here results in the individual, never the species. To repeat from Mr. Neville's article "The rat does more damage than all the world's other mammal pests combined"

Fred G. Bard.

#### RATS ON THE WARPATH

In a railway yard, the rat forces of the East met those of the West, bridging the world's last no rat's land in the man-versus-rat war which began many centuries ago.

Man can no longer boast that he alone, of all the earth's creatures, has spread out to occupy the entire world. With the fall of Alberta, the last rat frontier, the rat hordes, too, can now claim that every habitable corner of the globe is theirs.

A filthy, ravenous, flea-bitten glutton so completely domesticated that he will live only with man, the rat does more damage than all the world's other mammal pests combined. He will eat little else except the food that we ourselves eat, and damages far more food than he actually consumes. In Canada, for instance, it costs every man, woman and child two dollars a year to feed some rat - for there are just about as many rats as there are people in the Dominion.

Rats are destroying 200 million bushels of grain every year across the border, according to the U. S. Fish and Wildlife Service - more than one third of what the U. S. is planning to export for hunger relief in Western Europe and twice as much as President Truman has asked the country to save through his "halt-all-waste" campaign.

But the rat is an even greater danger as a destroyer of human life. Centuries before mankind even dreamed of bacterial warfare, the rat was waging his own germ war on a mammoth scale, spreading several of our deadliest diseases such as bubonic plague and typhus. Biologists say, and they can quote figures to prove it, that the rat has caused more human deaths than all the wars in history.

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To-day there are rats in Alaska, in Iceland and Greenland, on most of the islands of the Pacific and on a few islands of the Antarctic Sea almost to Antarctica - and, of course, on every one of the five world continents.

Rats belong to the rodent group of mammals, not-so-distant kin to the mouse, squirrel, rabbit, beaver, muskrat, porcupine, woodchuck, prairie dog and guinea pig. Mrs. Rat is a solicitous mother. In a burrow under your basement or barn, or less frequently in a partition above ground, she fashions a snug round nest where for two weeks she suckles and lovingly cares for her brood of around 10 youngsters.

The commonest house rat in Canada and in most parts of the world is the brown rat, alias Norway rat, wharf rat and sewer rat.

The brown rat weighs about a pound, is 16 to 18 inches long from snout to tip of tail, greyish-brown in color and his tail, when bent forward does not reach the end of his nose. The black rat is smaller - about two thirds the size of the brown - is dusky black instead of brownish, but he flouts a tail that can extend considerably beyond the tip of his nose. All house rats have naked scaly tails.

Both rat species originated in the Orient where man first became a civilized being. Since prehistoric times they have dogged man's footsteps, following him when he was a wandering tent-dwelling hunter and entering his home to live from the scraps of his table as soon as he learned to erect more permanent dwellings. The black rat got ambitions of world conquest first. He moved into Europe around 1000 A.D. By the early 1700's he had occupied every country of Europe - but then the brown rat got the bug for conquest. The brown rat is bigger and tougher and since he hates his black cousin he drove Blackie out and took all but complete possession for himself.

The black rat came to America first, but the bullying brown rat made his appearance around the 1770's and soon had the black on the run again.

Rats destroy and defile three times as much as they actually eat - by chewing up bushels of apples, for instance, just to get the seeds. They kill vast numbers of young poultry. They gnaw holes in bags, boxes, doors and foundations to reach the food they want. They cause fires by gnawing the insulation off electric wires. In Toronto a section of lead water pipe had been gnawed through, the rat had been attracted by the sound of water. Many sleeping children have been bitten by rats, occasionally the bites have introduced ratbite fever or other diseases which has caused death.

In 1934 biologists of the U.S. Public Health Service discovered that plague infection was present in thousands of burrowing rodents -- ground squirrels, prairie dogs and chipmunks--in western U.S. The original source was traced to San Francisco where, during the plague epidemic of 1900, many rats fled into the suburbs and transferred their contaminated fleas to wild squirrels.

In 1943 it was discovered that the disease had spread among prairie rodents almost as far eastward as the Mississippi and northward into Alberta. Departments of public health in Alberta have had field men out every summer since 1938 tracing the extent of the infection and Saskatchewan has been on guard since 1942. It is reported to be present in two areas of Alberta-around Stanmore and Hanna-but has not yet been discovered in Saskatchewan, although many wild rodents in North Dakota are infested. Should the rodents transmit the disease back to

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our town and city rats again, medical authorities would be up against one of the stiffest disease battles of American history. Despite some aid from new drugs, bubonic plague is still one of the worst potential killers among all diseases.

Other rat-borne diseases are a form of typhus fever known as Brill's disease (also spread by the rat flea), spirochetal jaundice (contracted from food, water or soil contaminated by the urine of the rat), trichinosis (a worm disease spread from rats to pigs and then to humans through insufficiently cooked pork), and ratbite fever and rabies from rat-bites).

Looking at the matter of multiplication, in the temperate climate Zone, rats average six litters of young a year and about 10 youngsters to a litter. Every one of those rats when it becomes three months old commences producing young of its own. At this rate in three years--the rat's average life span - one pair of rats could become 359,709,480 rats - a pile approximately the size of Toronto's 34 story Bank of Commerce building. Of course, natural factors like disease, food supply and enemies hold all animal populations at a down-to-earth level.

The rat has been dependent on man for so many centuries that he has developed characteristics that are amazingly human. Like man, his appetite is practically omnivorous, he breeds at all seasons, makes himself at home in almost any climate, has his racial prejudices (brown versus black) and.. ahem ... the males are more muscular, the females stoutish: Animal psychiatrists claim that laboratory rats, when thwarted in some desire or when faced with a difficult decision, chew fingernails like humans.

But their long association with humans has had the greatest effect on their intelligence. Dogs, cats and horses are potentially clever, but usually they have to be trained: the rat is naturally resourceful and he is capable of thinking things out for himself without human tutorship.

Traps and ordinary types of poisons, like redsquill and arsenic, can always be relied upon to knock off a few rats, but there are always a few more smart enough to recognize a trap or smell out a poison bait before they get within six feet of it. And any control measure that allows a few rats to escape is practically useless, for those few can become hundreds in a matter of weeks. Recently a new type of poison called ANTU, containing phenyl thiourea, has been developed which leaves no telltale taste or smell, and professional exterminators are now having better luck with this new brand.

But, in general, trapping and poisoning is not an efficient method of waging war on the rat. Experts say the best method of controlling them is to rat-proof all buildings where they are likely to find food and to dispose of all garbage before it can become a rat banquet table. This creates a food-and-housing shortage for the rats; they resort to cannibalism and when they can no longer eat each other they'll starve to death.

Whooping Cranes:

Fred G. Bard

From Texas comes the good news of the arrival of six baby Whooping Cranes. While Mr. R. P. (Bob) Allen is busy checking and photographing every bird, the total count will not be known until later.

We know roughly 27 birds came north in the spring of 1947. Six young returned south in the fall. One young bird had only one parent. Somewhere in their travels an adult died, we don't know where or how. This leaves our total at 32 birds, plus 2 captives in parks.

The first part of the report deals with the general situation of the country and the progress of the work done during the year.

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