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 red squill 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 east 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.

This is encouraging news, but the Whooping Cranes are still in jeopardy; we must give these birds every protection.

The survey will continue this spring, Mr. Allen again in charge of field activities, will arrive in company with Mr. R.H. (Bob) Smith, Flyway Biologist with the Fish and Wildlife Service. Mr. Smith pilots the Amphibian plane, the Grumman Widgeon. These men will be searching for the Whooping Crane's long sought nesting grounds, while also covering a waterfowl survey. They plan to arrive June 3rd enroute to Aklavik where they will establish their base for operations, since we are fairly certain the Cranes no longer nest in Saskatchewan, but much farther north.

We are anxious to obtain, as usual, migration dates, etc., old photographs of birds taken by hunters, as well as stories of their occurrence in the early days, are also needed.

The Provincial Museum will welcome these records and photographs, they are intended for Mr. Allen's use in compiling material for the Whooping Crane's life history.

SASKATCHEWAN VIOLETS

By Lloyd T. Carmichael

". . . . purple violets lurk ,
With all the lovely children of the shade."

Now that the feel of spring is in the air, we look forward with pleasure to early green meadows and the first arrival of flowers, among these no others are more universally recognized and admired than the modest violet. It is the oldest of all national flowers, having been adopted by the City of Athens in the days of its glory. Over forty species have been observed in America and of these about a dozen grow in Saskatchewan. The flower is interesting, not only because of the innocent face-like expression of the blossom, but by the fact that many of them have hidden flowers which never open, where self-fertilization takes place and the seeds are ripened in the dark hear or beneath the ground. Unfortunately our violets lack that fragrance which is such a pleasing characteristic of several species in Eastern Canada.

We can divide our species into two groups; those which are stemless with leaf and flower stocks coming from a short rootstock, and those which are leafy stemmed. I will describe briefly ten species, the first five of which are quite common, while the other five are fairly wide-spread but thinly scattered.

CANADA VIOLET
Viola rugulosa Greene

This is our most common violet, growing around the edges and in the shade of bluffs everywhere. Its lovely white petals are tinged and veined with purple, and sometimes they are nearly mauve pink. It continues to bloom from early summer until frost in the fall. Its leafy stems are from eight to fifteen inches long. The leaves are heart-shaped and most of them are wider than long. Some are 3 inches wide and 2½ inches long but the average are about 2 inches wide and 1½ inches long. As the plant grows from creeping underground stolons, it quickly spreads and is very hardy. It is one of the most fascinating of our wild flowers to transplant in the home garden and will brighten a shady nook for years without fail.