

cover America and by Vasco da Gama to round the Cape of Good Hope.

The original choice by Hipparchus was a very fortunate one as we shall see. When the English astronomer Pogson set about to find how much difference there was between magnitudes in 1850, he was able to report that each magnitude was about two and a half times the previous magnitude. In other words, a magnitude two star is two and a half times fainter than a magnitude one star. It is interesting to note that the ratio between magnitudes one and six is very nearly 100.

Modern star charts indicate magnitude by the size of the dots used to represent stars. A table of a few stars and their magnitudes follows this article. More precise maps may confuse you because of negative magnitudes. As soon as telescopes were used, it was found that some of the brightest stars were brighter than magnitude one and so a zero magnitude was created. Sirius, the brightest star in the sky, is still brighter so it has a magnitude of -1.6 (the use of a decimal point gives a very precise magnitude). By this scale the full moon has a mag-

nitude of -12.6 and the sun a magnitude of -26.8.

Amateurs observing meteors for the I. G. Y. programme are asked to judge magnitude to half a magnitude. This is not too difficult if you are familiar with the more conspicuous constellations and the stars they contain. Let us take the Little Dipper (Ursa Minor) as an example. Polaris, which forms the first star in the handle, is of 2.0 magnitude. The four stars of the bowl are of second, third, fourth and fifth magnitudes. Do not forget that the brightest of these will have the smallest number. You can tell with the naked eye which is which, and you now have a standard.

You may find a few more constellations easily by starting with the Big Dipper (Ursa Major) and using the following scheme. The pointer stars are five degrees apart, and six times this distance away or thirty degrees lies Polaris. The bottom of the bowl in a direction away from the handle points to Castor in the constellation Gemini. The two stars on the handle side of the bowl point to Regulus in Leo. Following the curve of the handle will guide you to Arcturus in Bootes.

TABLE OF MAGNITUDES

Star	Magnitude	Constellation	Month when overhead at 9:00 p.m.
Polaris	2.0	Little Dipper (Ursa Minor)	June, December
Mizar	1.9	Big Dipper (Ursa Major)	April
Castor	1.0	Twins (Gemini)	February
Regulus	1.0	Lion (Leo)	April
Arcturus	0	Shepherd (Bootes)	June

A Record of *Boloria toddi toddi* double brooded at the Pas, Manitoba

by WALTER KRIVDA, the Pas, Manitoba

I have collected butterflies in the area of the Pas, Manitoba for almost ten years now, but this is the first year that I have found *Boloria toddi toddi* double brooded.

The typical brood appears about the middle of June. The flight period begins with a preponderance of males, followed by the gradual appearance of the females. As the flight ends, fresh females can still be taken on the wing, but males are tattered and worn. The flight is usually over by the first week of July. The females are the last to die.

The best spot for this small Fritillary in the Pas area is Devon Park, which is almost native "lawn" with such plant species as *Anemone riparia*, *Sisyrinchium angustifolium*, *As-tragalus goniatus*, *Antemmaria* sp. (sterile rosettes), *Vicia cracca* and *Poa palustris*. This "lawn" is mowed infrequently, permitting the establishment and persistence of a fine colony of *Boloria toddi*. They probably feed on *Viola rugulosa* growing among the rocks along the Saskatchewan River.

On August 2, 1957, near the east gate of the golf course, in a low,

damp, sedgy area I netted a fresh *Boloria* which proved to be a *Boloria toddi toddi*. In the next 15 days a series of some 40 specimens was taken in this same spot by Carl Berger. The second brood flew close to the ground and was difficult to see. It was on the average darker and perhaps a shade smaller. The flight period lasted about two weeks.

On August 15, I took 10 specimens at "Big Eddy," five miles north. We drove into the area on a gravel road running through sphagnum

bogs, and the butterflies were seen flying low along the roadside puddles. This flight, too, was weak. It was terminated a few days later by several days of cold, rainy weather.

It seems that at the Pas we have possibly a partial second brood in favourable years. This year, when June was dry and cool, conditions were apparently suitable for the appearance of the second brood some two months later.

You Were Asking?

Question: While travelling along the Qu'Appelle Lakes a short distance off No. 9 Highway, we found a dead racoon on the road. It appeared to have been killed by a car a short time before. We would just like to know if these animals live wild in the province or if this one had been carried there by some other means. If they do live here, just how do they live through our severe winters?—George G. Taite, Melville, Sask.

Answer: Racoons are seen or shot occasionally in Saskatchewan, particularly in the southern part of the province. The Museum has received specimens from the following places—Carlyle, Disley, Kelstern, Meadow Lake, Moose Mountain, North Portal, Vantage, Wauchope. Reports of racoons taken at Bear Creek in the Cypress Hills area in the early winter of 1955-56, and of one at Good Spirit Lake that same winter were published in the *Blue Jay* (Vol. 14: 27). Following the publication of these two records, Charles F. Southey of Young wrote to the *Blue Jay* giving two reports of racoons seen in that district. The first was seen in September 1955 by Phil Teneycke close to a small creek about 12 miles southwest of Young. The second was reported in February 1956 four miles northwest of Young by H. Harpold who found the racoon in an old house used as a granary. When startled, the racoon made a leap for an old chimney where he got lodged so tightly that he could not be removed alive. The coon had apparently entered by the chimney

and had been thriving well, judging by the fact that he was very fat. **Any further reports of racoons in the province would be welcomed by the Blue Jay.** As B. A. Nelson, ecologist with the Wildlife Research Division of the Department of Natural Resources points out, the distribution of the racoon in Saskatchewan has not been studied, and it would be interesting to map its present range.

Mr. Nelson also gives this information about the racoon. Like bears and skunks in cold climates, the racoon hibernates and is thus able to survive our severe winters. In the southern part of the region it is active throughout the winter. The racoon prefers aquatic habitats, and hunts chiefly at night along marshes, lakes and streams. Its food includes frogs, fish, fowl, eggs, reptiles, insects, shell-fish, fruit, nuts, grain and vegetables. Its home is a den in a hollow tree or a hole in the ground. The young are born in May and average about four to a litter.

Question: In *Museum Notes* note that five shrews are found in Saskatchewan including one called "Common Shrew" but no "Cinereus" shrew is listed. In A. L. Rand's *Mammals of the Eastern Rockies and Western Plains* five shrews are listed but not a "Common" shrew. In 194 I sent A. L. Rand a shrew which he said was a cinereus shrew, *Sorex cinereus haydeni*. Is this the "common" shrew, or is the "common" shrew something not found in Alberta?—Mrs. J. Hubbard, Grenfell, Sask.