VIEWING

The stars are so distant that, even using the largest telescope available, we would still see them as points of light.

When the urge is for leisurely viewing, whether random or planned, no telescope can compare with a pair of 7 x 50 binoculars.

Binoculars gather twenty to thirty times as much light as the human eye. They can bring you a taste of the drama of the sky — the mountains and craters of the moon, four of Jupiter's twelve moons, double stars without number, star clusters, and nebulas. You can use them to observe the long arch of the Milky Way, high above the horizon.

The full beauty of the night sky as revealed by binoculars is entrancing.

THE NIGHT SKY

On a very clear night we can see about 2500 stars and a telescope would reveal many thousands more. Of course, at any one time, we can see only half of the sky, since the earth hides the other half from our view.

Because of the turning of the earth on its axis, the night sky is never the same. The turning makes the stars appear to move in the sky. Stars overhead at midnight are low in the west five hours later, and new stars have come into view in the east.

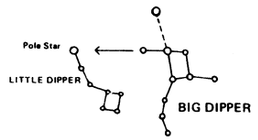
Since the stars we can see vary throughout an evening, we really need maps of the sky to help locate stars and constellations. We can see the few circumpolar stars (those stars near the Pole Star) throughout the year, but most of the stars rise in the east and move across the sky to set in the west, always rising four minutes earlier each evening.

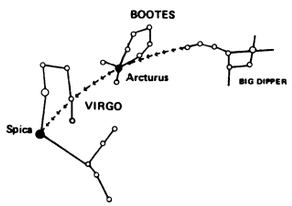
LOCATING THE CONSTELLATIONS

One of the more familiar constellations is the Big Dipper, which is part of Ursa Major, the Great Bear. This shines high in the northwest, its handle uppermost. The two outer stars of the Dipper act as pointers to the Pole Star, which is the end star of the Little Dipper, or Little Bear.

An old Indian legend accounts for the two bears thus; long ago, the bears suffered from winter's cold. The Great Spirit pitied them and taught them to go into dens when winter came, and sleep until spring. So they might know when it was time to bed down for the winter, he placed two bears in the sky. When these were over the North Star, the bears on earth should be up and around the forests. When these were under the North Star, all good bears should be underground in their dens.

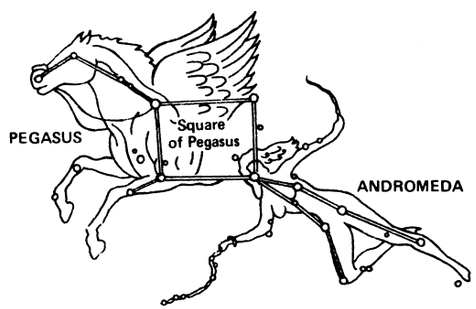
Find the handle of the Big Dipper. Follow the curve of the handle and you come to Arcturus, an orange-red star in the constellation of Bootes. Continue along this curve and you come to the white star, Spica, in the constellation Virgo.





On the other side of the Polar Star from Ursa Major are the five stars of Cassiopeia, looking like a giant W. In this area are also Perseus, Pegasus, and Andromeda.

The Greeks said that Cassiopeia was a queen who was banished to the sky as a punishment for her vanity. As a further punishment, Andromeda, her daughter, was chained to a rock as a sacrifice to the sea monster, Cetus, but she was rescued by Perseus, riding on the winged horse, Pegasus.



The constellations most characteristic of summer appear in the southern sky. The Scorpion crawls across the sky, looking as much like a fishhook as it does a scorpion. Its bright red star is Antares.

Trailing Scorpius across the sky is the constellation of the Archer, Sagittarius, with its pretty milk dipper.

If you look up you will see almost directly over your head the blue star, Vega, in the constellation of Lyra, the Lyre. Vega is the brightest of the summer stars. Looking a little lower you will find the stately Northern Cross (also known as Cygnus, or the Swan).

To the right of Cygnus is Aquila, the Eagle, with its bright star, Altair. Sagitta, the arrow from the Archer's bow, seems to be aimed at the three animal constellations — Aquila, Lyra, and Cygnus — the Eagle, the Lyre and the Swan.

There are many constellations which we have not covered here, each with its own story. We would recommend Donald H. Menzel's **Field Guide to the Stars and Planets** to those people who desire a more detailed guide.

THE MILKY WAY

Now look again at the Northern Cross. Observe this area more closely. "Behind" the Northern Cross you will see a hazy belt of stars which stretches across the sky.

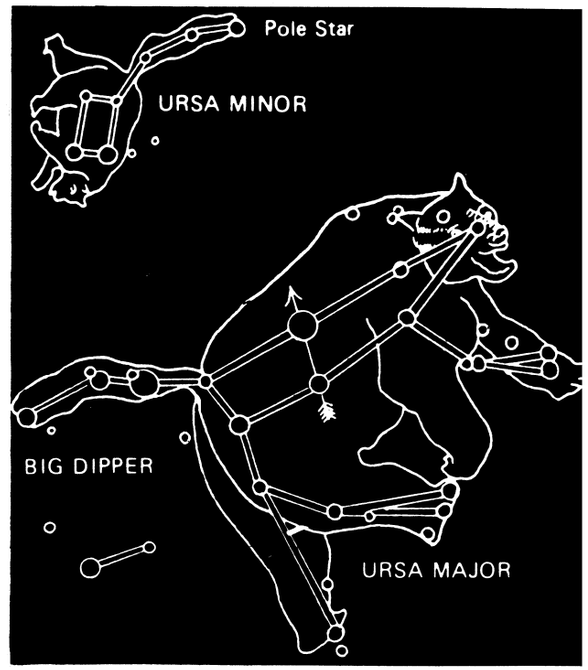
This is the Milky Way — the 200 billion stars which form the galaxy, or system of stars, to which our Sun belongs. There are many billions of galaxies in outer space, far beyond our own Milky Way galaxy, each containing billions of stars.

Our galaxy is spiral shaped, with the most stars in the centre of the spiral. It is so large that it takes a beam of light 100,000 years to travel from one end to the other.

We are near the edge of the galaxy, on one of the spiral arms, and are looking at the rest of the galaxy from the inside. The galaxy appears to us as the continuous band of stars which we located earlier.

Compiled: Marion G. Parsons
Graphics: Janis M. Marshall

THE NEWFOUNDLAND SKY IN SUMMER



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Nature's Creation!
PROVINCIAL PARKS

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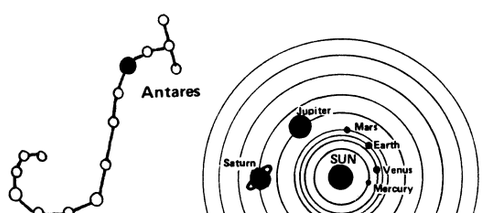
WHAT ARE STARS?

Stars appear to us as points of light in the night sky. They are really great balls of glowing gases far out in space. If we are viewing the stars on a moonlit night we may get the impression that the moon is much larger than any of the stars. However, this is not so. The moon **seems** larger because it is much closer to us than even the nearest of the stars.

We see the stars only in the night-time, but they are always in the sky. During the day the brighter light of the sun hides the lesser light of the stars, just as a candle would be less noticeable in a brightly lit room than in a dark one. The sun itself is a star. Other stars are bigger and brighter than the sun but are much fainter because they are so far away. Some stars **look** brighter than others, but these are not necessarily the biggest, and many of the largest stars cannot be seen at all.

One of the larger stars is Antares, in the constellation of Scorpius. This is a supergiant star; if we could put it where our own sun is, it would swallow up our solar system as far as Mars.

Stars other than our Sun may have planets, like Earth or Mars, circling them; and these planets may have satellites like our own moon. There may even be worlds very like our own, with "intelligent" beings on them, in some remote corner of the universe.



OUR SOLAR SYSTEM

OUR SOLAR SYSTEM

(The orbits are not really circles, but ellipses and are slightly eccentric – that is, not exactly centred on the Sun).

COLOUR OF THE STARS

Imagine if you lived on a planet lit by a lilac star, or green, or blue or red! The colour of a star depends on its temperature. The hottest stars are blue, while the coolest are red. The Sun, which is white-yellow in colour, is in between these two extremes.

In general, stars are pale, which is why so few people realize they have colour. Some of the stars we see in the summer are the rainbow-coloured suns of other planets – orange Arcturus, red Antares, the blue sun, Vega, white Spica and yellow Capella in late summer.

The colour of a star is a clue to its character. It tells us something of its age, history, and physical condition, as well as its temperature.

Observing the varied and delicate tints of stars is a pleasant and relaxing occupation on a warm summer night.

DISTANCE TO THE STARS

We are not able to travel outside our own solar system – to the stars – yet. Even if we could travel as fast as a beam of light it would take us 4½ years to reach even the nearest star.

The stars are so far away that it would be inconvenient to use the system of measurement we use for distancy on earth. If you wanted to tell someone how far it is from St. John's to Port-aux-Basques, you would not tell them the distance in inches, since miles make more sense.

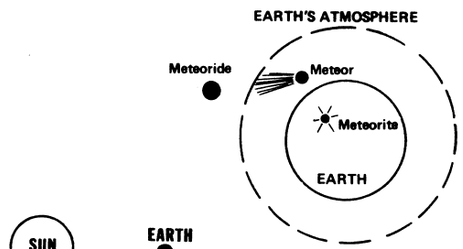
Similarily, in handling star distances, astronomers scorn the mile and instead, use a measurement called a light year, which as the term implies, is the distance light travels in a year, at the rate of 186,000 miles per second.

Distances on earth are so very short compared with the speed of light, that we see things happen at the very moment they occur. Light from the sun, however, takes eight minutes to reach us, so that we see it as it was eight minutes ago.

The light of the nearest star (execpt for the Sun), Alpha Centauri, takes 4½ years to reach us. Some of the starlight we see in the evening sky may be as much as 500 years old, or older. In fact, we may be looking at light sent by a star that doesn't exist anymore. So, when you look at a star, you have the heat and light of remote ages before your eyes, for you are actually looking back in time.

SHOOTING STARS

Most people have at some time seen what we call "shooting stars", flashes of light that shoot across the sky and then disappear. These are not really stars at all, but meteors – chunks of stone and/or metal which are going so fast that they burst into flame once they enter the earth's atmosphere. Most of them are so small that they burn up before hitting the ground, but some are large enough to survive. The remains of a meteor which has reached the earth is called a "meteorite". The meteor, before it has entered the earth's atmosphere is known as a "meteoride".



PLANETS

Mercury, Venus, Mars, Jupiter, Saturn – five of the planets of our solar system – can be seen in the sky at night. The planets shine by reflecting the light of the Sun, like a mirror. We see them as points of light, much like the stars, but we can tell them from the stars because they do not "twinkle" as you watch them.

NORTHERN LIGHTS

One of the most impressive features of the night sky is the Aurora Borealis, or Northern Lights. These may appear as a faint glow, or one may see them as a rippling curtain of light or rapidly moving beams passing like searchlights across the sky.

The lights are electrical in origin, being caused by charged particles from the Sun hitting the upper layers of the Earth's atomosphere. This causes the air particles to act like neon lights.

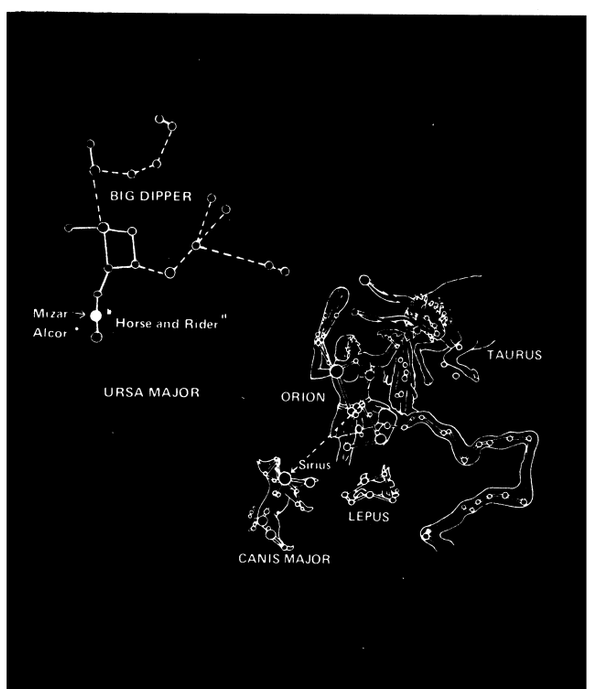
DOUBLE STARS

Some stars come in pairs. These are called double stars. There is one in the handle of the Big Dipper which is visible with the naked eye. Look for the middle star in the handle, Mizar, and above it you will see a tiny companion star, Alcor, (see below). These form the "Horse and Rider", which revolve around one another. Use your binoculars on it.

CONSTELLATIONS

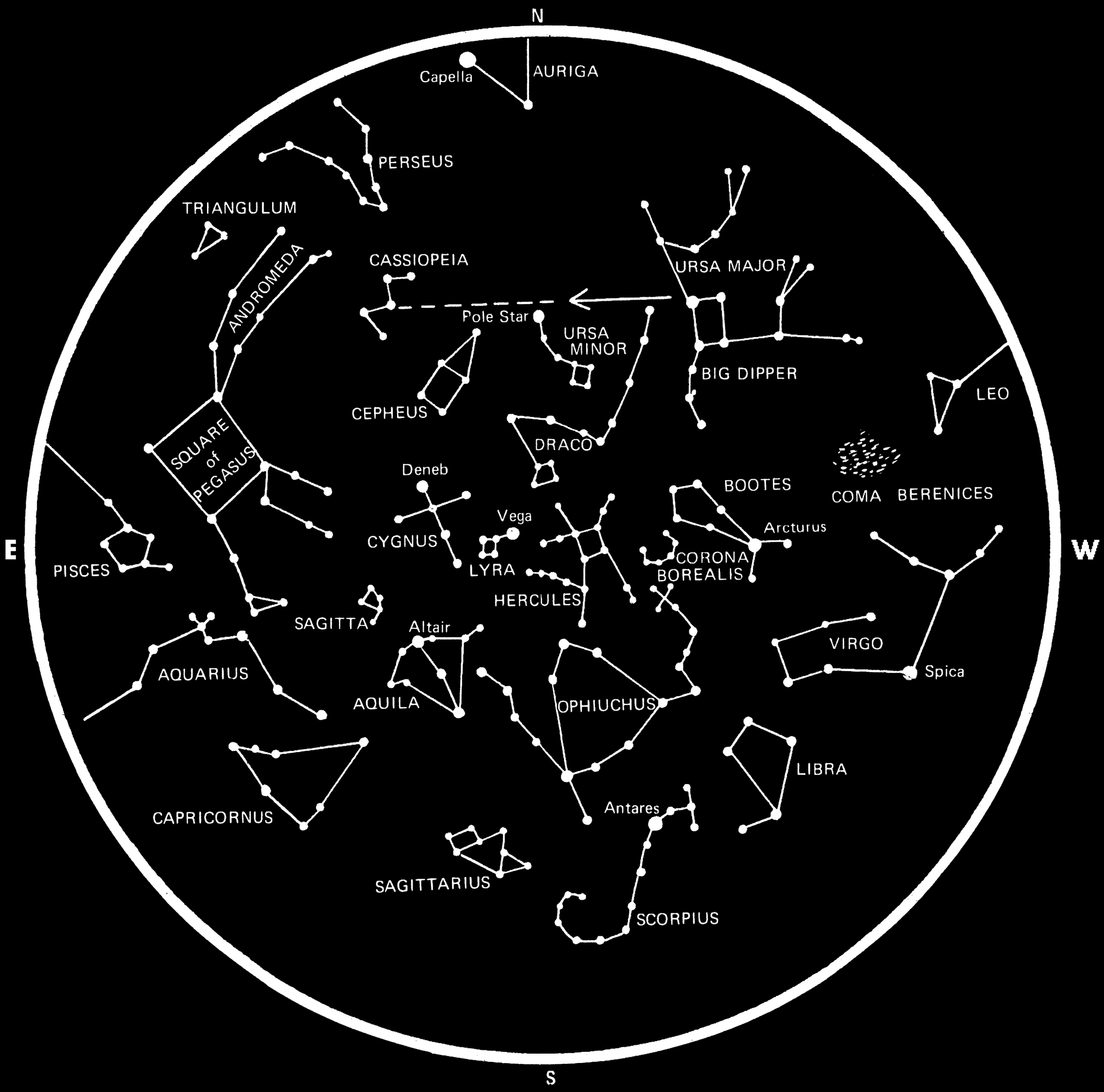
A constellation is a grouping of stars that suggest a picture to the imagination. Corona Borealis, for example, looks like a crown, but it is difficult to imagine a king seated on his throne in the few stars that make up Cepheus. It looks more like a crooked house with a crooked roof.

One of the striking picture areas of the sky is that of the Orion family of stars. The giant, Orion, is battling the bull, Taurus, and is followed by his two dogs - Canis Major and Canis Minor. The hare, Lepus, runs underneath his feet. From Orion's belt hangs a dagger. The stars of the belt point toward Sirius, the brightest star in the sky. Unfortunately, this is not a summer constellation; but winter star gazers can observe it from November to March.



THE NEWFOUNDLAND SKY IN SUMMER

THE SKY AS IT MAY BE SEEN
JULY 1 - 11 p.m. - 1 a.m.
JULY 15 - 10 p.m. - 12 midnight
AUGUST 1 - 9 p.m. - 11 p.m.
AUGUST 30 - 8 p.m. - 10 p.m.



The Provincial Park System of Newfoundland and Labrador provides both high quality outdoor recreation opportunities for visitors and residents and at the same time, protects and preserves the lands spendor and value.

Six park classifications reflect this goal. Natural Environment Parks combine special natural features with outstanding recreational resources. Outdoor Recreation Parks consist of areas that easily accommodate intense activity. Natural and Scenic Attraction parks protect and provide access to natural or highly scenic areas. The protection and preservation of significant land formations, animals and their habitats, plant communities and geological wonders is the goal of Wilderness and Ecological Reserves. Waterway Parks preserve major waters and land for protection and recreation and Park Reserves protect areas for future designations as Provincial Parks. All Provincial Parks encompass lands for scientific and educational value for the present, and for future generations.

Visit a Provincial Park: Enjoy yourself in the uniqueness and majesty of Newfoundland's heritage.