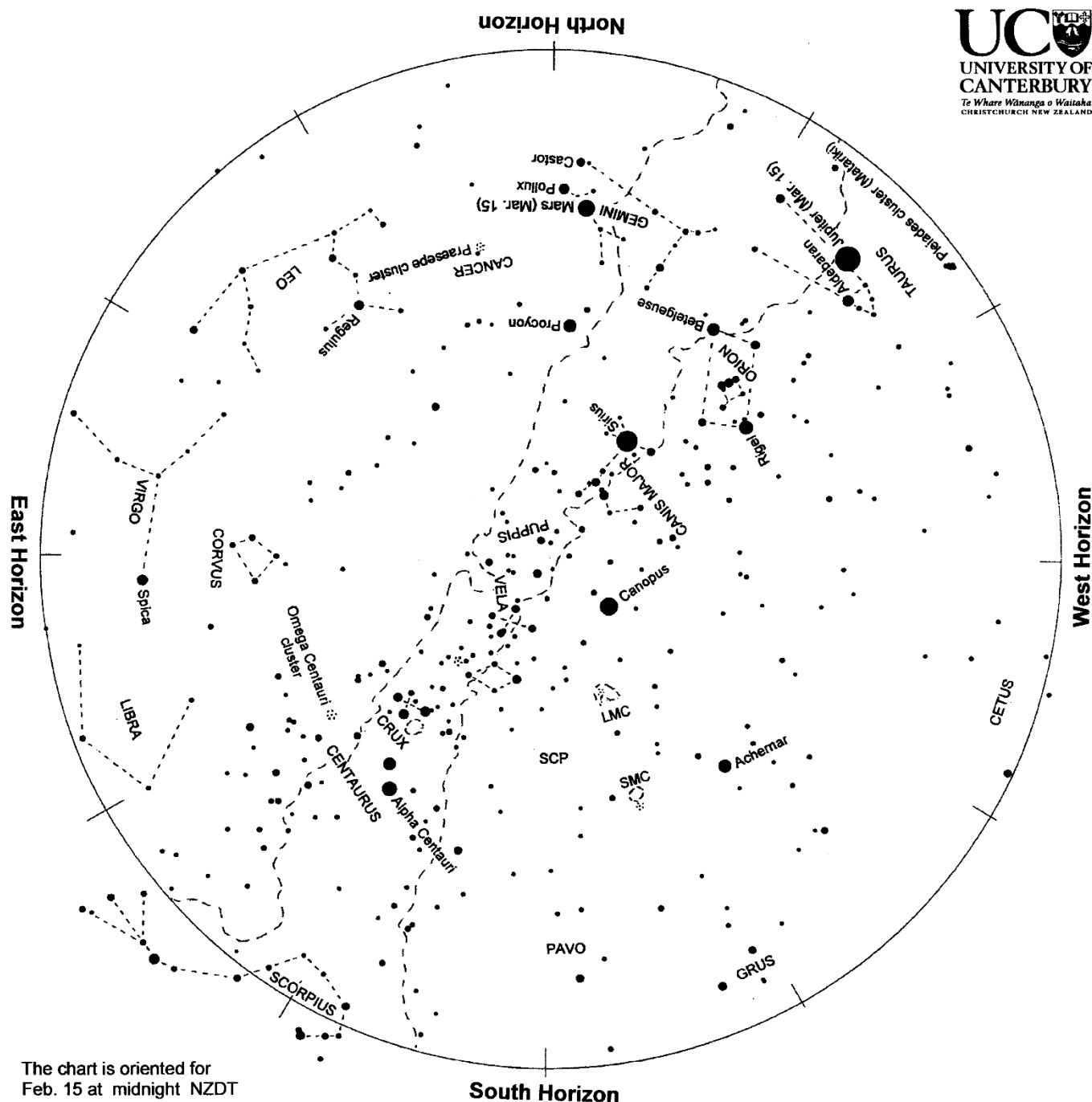




The chart is oriented for
Feb. 15 at midnight NZDT
Mar. 1 at 11 p.m. "
Mar. 15 at 10 p.m. "
April 1 at 9 p.m. "

Evening sky in March 2025

To use the chart, hold it up to the sky. Turn the chart so the direction you are looking is at the bottom of the chart. If you are looking to the south then have 'South horizon' at the lower edge. As the earth turns the sky appears to rotate clockwise around the south celestial pole (SCP on the chart). Stars rise in the east and set in the west, just like the sun. The sky makes a small extra westward shift each night as we orbit the sun.

Jupiter is the 'evening star', appearing in northwest soon after sunset. Sirius, the brightest true star, appears northwest of the zenith in early twilight. Orion, containing 'The Pot', is below Sirius in the northwest sky. Canopus, the second brightest star, is southwest of overhead. The Southern Cross, Crux, and the Pointers are midway up the southeast sky. Nearby galaxies the Clouds of Magellan, LMC and SMC, are high in the south looking like misty patches in a dark sky. The full Moon rises totally eclipsed on the 14th.

The Evening Sky in March 2025

Jupiter is the 'evening star', appearing in the northwest at early twilight. It sets after midnight at the beginning of the month and before 11 pm at the end. The Moon will be near Jupiter on the 6th. Orange **Mars** is due north at dusk, low in the sky. It is fading as we leave it behind. The Moon will be near Mars on the 8th and 9th. At the beginning of the month brilliant **Venus** (not on the chart) sets due west half an hour after the Sun. The very thin crescent Moon will be above Venus on the 2nd. Venus sinks into the twilight before passing between us and the Sun on the 23rd.

Northwest of overhead is **Sirius**. It is the brightest true star in the sky. Southwest of the zenith is **Canopus**, the second brightest star. Below and left of Sirius are bluish **Rigel** and orange **Betelgeuse**, the brightest stars in **Orion**. Between them is a line of three stars: Orion's belt. To southern hemisphere star watchers, the line of stars makes the bottom of 'The Pot'. Above and left of Jupiter is orange **Aldebaran**. It is at one tip of an upside-down V. The V is the face of Taurus the bull with Aldebaran being one of his eyes. Well left of Jupiter, and lower, is the **Pleiades** or **Matariki** star cluster. It sets after 10 pm, mid-month. The cluster is about 440 light-years* away.

Sirius is the brightest star both because it is relatively close, nine light-years away, and 23 times brighter than the sun. **Rigel** is a bluish supergiant star, 40 000 times brighter than the sun and much hotter. It is 800 light-years away. Orange **Betelgeuse** is a red-giant star, cooler than the sun but much bigger and 9000 times brighter. Betelgeuse is 400 light-years from us.

The handle of "The Pot", or Orion's sword, has the Orion Nebula at its centre; a glowing gas cloud many light-years across and 1300 light years away. It is a place where dust and gas in space are gathering together to make new stars. Some of the stars are much bigger and hotter than the Sun. Ultra-violet light from them causes the left-over gas to glow, lighting up the nebula. It is easily seen in binoculars.

Below and right of Mars are **Pollux** and **Castor** marking the heads of **Gemini** the twins. Though paired in mythology, the two stars are not related at all. Castor is a hot white star like Sirius but 52 light years away. Golden Pollux is bigger and brighter but cooler than Sirius and 34 light-years away. Above and right of them is the **Praesepe** star cluster, marking the shell of **Cancer** the crab. Praesepe is also called the Beehive cluster, the reason obvious when it is viewed in binoculars. It is some 500 light-years from us.

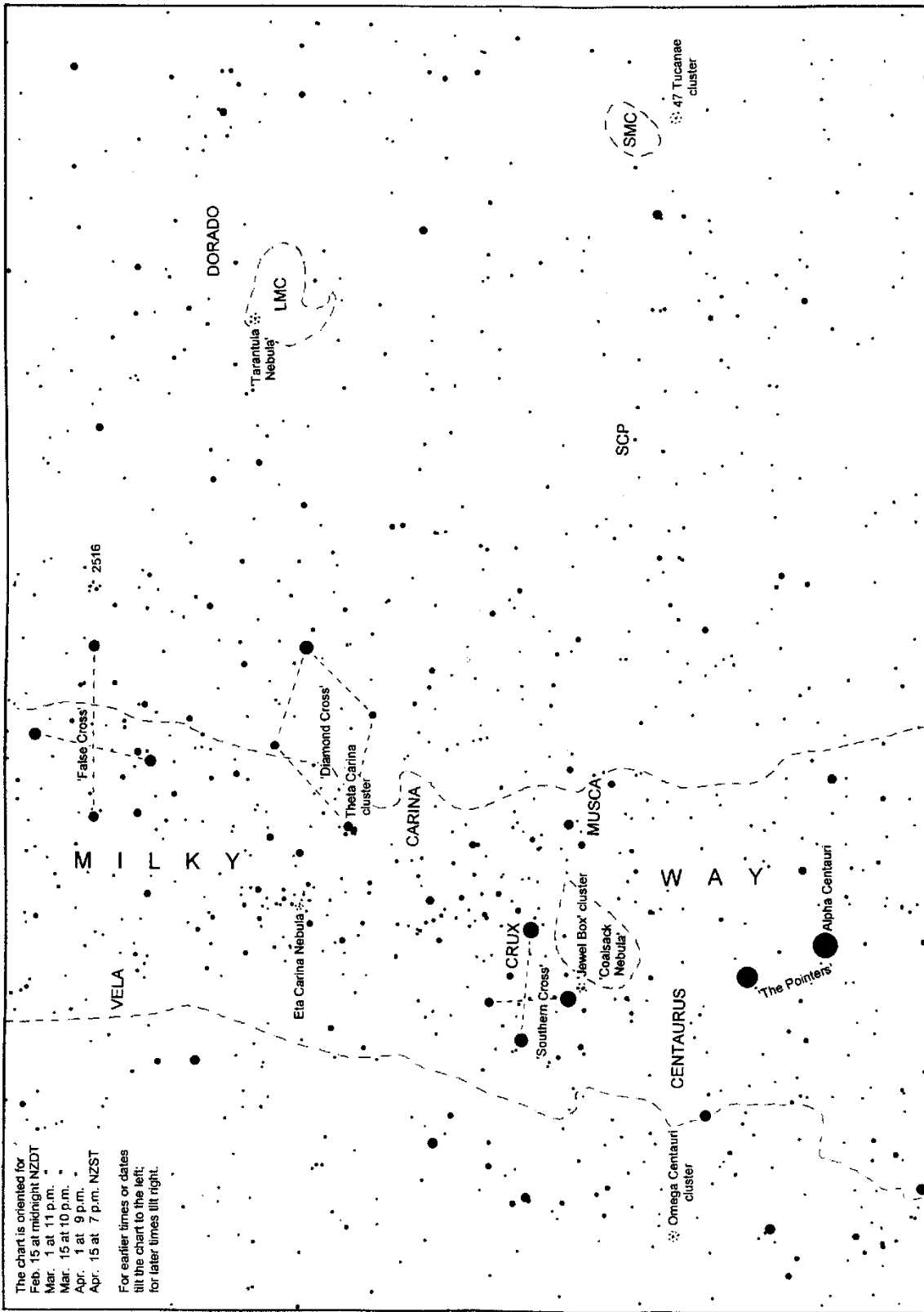
Crux, the Southern Cross, is in the southeast. Below it are Beta and **Alpha Centauri**, often called 'The Pointers'. Alpha Centauri is the closest naked-eye star, 4.3 light years away. Beta Centauri, like most of the stars in Crux, is a blue-giant star hundreds of light-years away. **Canopus** is also a very luminous distant star; 13 000 times brighter than the sun and 300 light-years away.

The **Milky Way** is brightest in the southeast toward Crux. It becomes broader lower in the southeast toward **Scorpius**. Above Crux the Milky Way can be traced to nearly overhead where it fades. It becomes very faint in the north, right of Orion where we are looking toward the Galaxy's nearby edge. The centre of the Galaxy is in the broad part of the Milky Way below Scorpius in the southeast.

The Clouds of Magellan, **LMC** and **SMC** are high in the south sky. They are easily seen by eye on a dark moonless night, looking like misty patches. They are two small galaxies about 160 000 and 200 000 light years away. The Large Cloud is around a quarter the mass of the Milky Way.

The full Moon will rise totally eclipsed on the 14th. Being exactly opposite the Sun, the Moon rises at sunset. It starts to exit the dark inner part of Earth's shadow, the umbra, at 8:31 and is fully out by 9:48. It will still look a little odd till it leaves the fuzzy edge of the shadow, the penumbra, at 11:00. It has become fashionable to call the totally eclipsed Moon a 'blood Moon', but its colour can be anything from orange brown like a dried apricot to deep bronze. It all depends on how much cloud there is around the rim of the Earth as seen from the Moon.

A **light-year (l.y.)** is the distance that light travels in one year: nearly 10 million million km or 10^{13} km. Sunlight takes eight minutes to get here; moonlight about one second. Sunlight reaches Neptune, the outermost major planet, in four hours. It takes sunlight four years to reach the nearest star, Alpha Centauri.



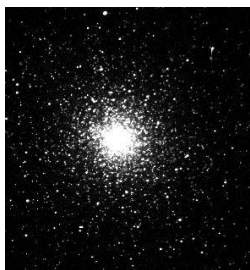
Southern Evening Sky in March-April

The chart shows the southeast sky. Interesting star clusters and nebulae are indicated with asterisks. They are described on the other side of this page.

Chart produced by Guide 8 software: www.projectpluto.com. Labels added by Alan Gilmore, Mt John Observatory of the University of Canterbury, P.O. Box 56, Lake Tekapo 7945, New Zealand. www.canterbury.ac.nz

Interesting Objects in the Autumn Southern Sky

Large & Small Clouds of Magellan (LMC & SMC) appear as two luminous patches below Canopus on autumn evenings, easily seen by eye in a dark sky. They are two galaxies like the Milky Way but much smaller. Each is made of billions of stars. The Large Cloud contains many clusters of young luminous stars seen as patches of light in binoculars and telescopes. The LMC is about 160 000 light years away and the SMC 200 000 l.y away, both very close by for galaxies. (1 light year is about 10 000 billion km, 10^{13} km.)



47 Tucanae, looks like a faint fuzzy star just below the SMC. It is a globular cluster, a ball of millions of stars. A telescope is needed to see a peppering of stars around the edge of the cluster. Though it appears near the SMC it is much closer, 15 000 light years away, and has no connection to the Small Cloud. Globular clusters are mostly very old, 10 billion years or more; at least twice the age of the sun. **Omega Centauri**, left of the Pointers, is similar but larger than 47 Tucanae, around 17 000 light years away.



Tarantula nebula is a glowing gas cloud in the LMC. The gas glows in the ultra-violet light from a cluster of very hot stars at centre of the nebula. The cloud is about 800 light years across. It is easily seen in binoculars and can be seen by eye on moonless nights. This nebula is one of the brightest known. If it was as close as the Orion nebula (in The Pot's handle or Orion's sword) then it would be as bright as the full moon. The nebula is glowing in ultra-violet light from very hot, massive newly-formed stars in the region.

Canopus is the second brightest star after Sirius. It is 14 000 times brighter than the sun and 313 light years away. The planets Venus and Jupiter, and sometimes Mars, are brighter.

Alpha Centauri, the brighter and lower Pointer, is the closest naked-eye star: 4.3 light-years away. Alpha Cen is a binary star: two stars about the same size as the sun orbiting around each other in 80 years. A telescope magnifying 50x will split the pair. (A very faint and slightly closer star, Proxima Centauri, orbits a quarter of a light-year, or 15 000 sun-earth distances, from Alpha.)

Coalsack nebula is a cloud of dust and gas about 600 light years away, dimming the more distant stars in the Milky Way. Many similar 'dark nebulae' can be seen, appearing as slots and holes in the Milky Way. These clouds of dust and gas eventually coalesce into clusters of stars.

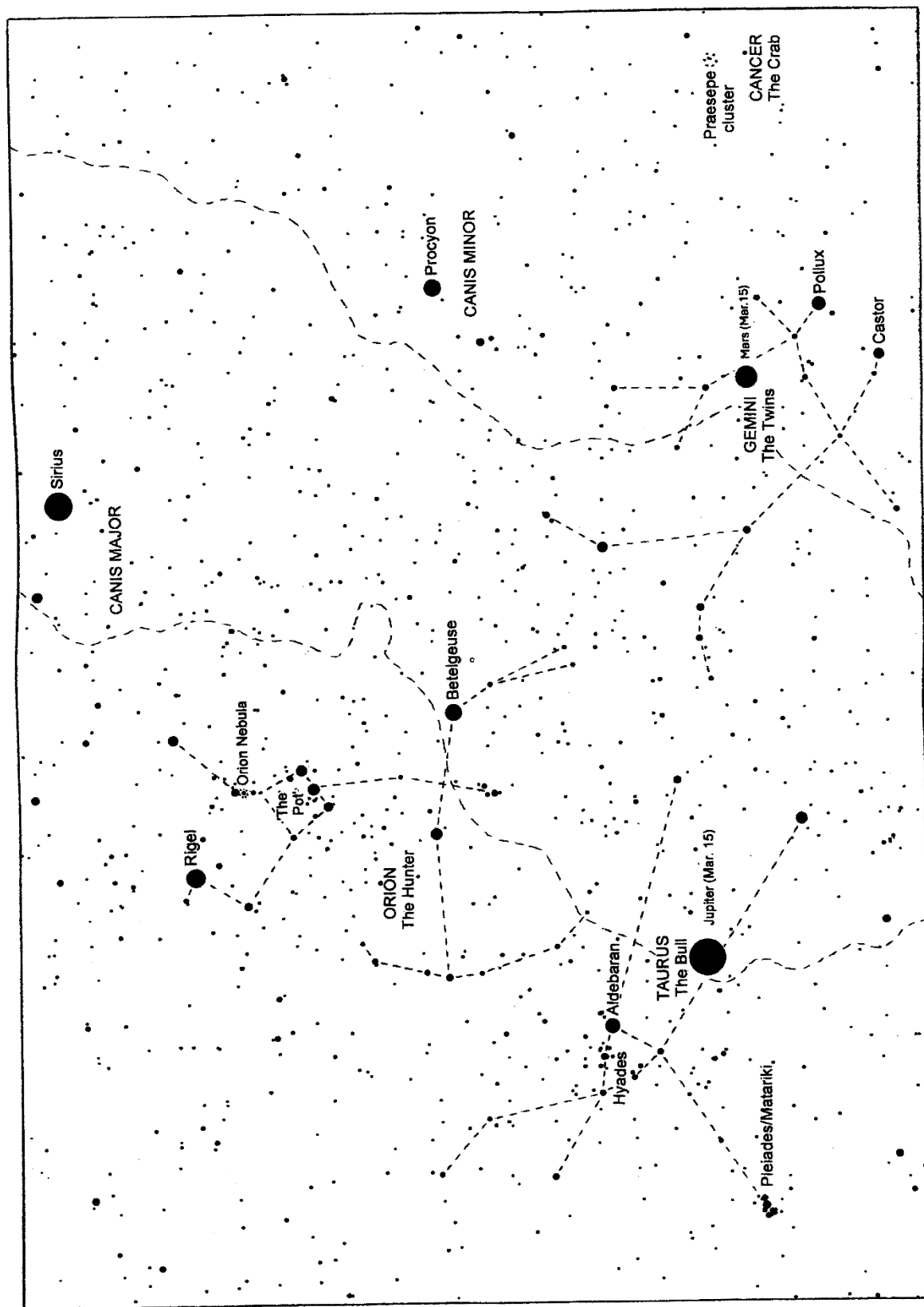
The Jewel Box is a compact cluster of young luminous stars 6400 light years away. The cluster formed less than 14 million years ago. To the eye it looks like a faint star.



Eta Carinae nebula is a glowing gas cloud about 8000 light years away. The golden star in the cloud, visible in binoculars, is Eta Carinae. (Eta is the Greek 'e'.) It is estimated to be to be 60 times heavier than the sun and more than a million times brighter but is dimmed by dust clouds around it. It is expected to explode as a supernova any time in the next few thousand years. Many star clusters are found in this part of the sky.

The **Theta Carinae cluster** of stars is at one point of the 'Diamond Cross'. It is also called the 'Five of Diamonds' cluster, the reason obvious when viewed in a telescope. The cluster is 550 light years away and is around 14 million years old.

NGC 2516 is right of the False Cross. To the eye it looks like a faint comet. It is a nice sight in binoculars. The cluster is about 1300 light years away.



Northern Evening Sky in March 2025

The chart shows the northwest to north sky in the evening. Jupiter, the brightest 'star' in the evening sky, is a beacon for the region. The chart may need to be tilted to the left to match the sky, depending on the time of night.

Chart produced by Guide 8 software; www.projectpluto.com. Labels and text added by Alan Gilmore,
University of Canterbury's Mt John Observatory, P.O. Box 56, Lake Tekapo 7945, New Zealand. www.canterbury.ac.nz

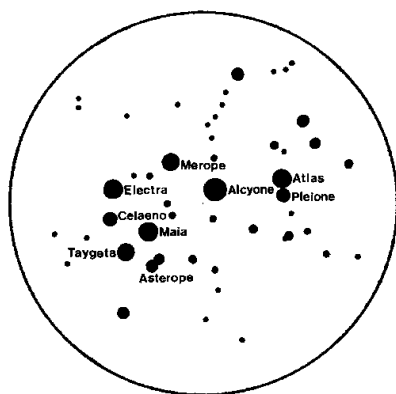
Interesting Objects in the North and Northwest sky in March 2025

Jupiter, the brightest 'star' in the evening sky, highlights this region. Above and left of Jupiter is orange **Aldebaran**, making one eye of Taurus the bull. High above and right of Jupiter is orange **Betelgeuse**, making one shoulder of Orion the hunter or warrior. **Mars**, well to the right of Jupiter, is another orange 'star'. Below and left of Jupiter is the **Pleiades/Matariki** star cluster, setting early.

Jupiter is worth a look in any telescope with its four 'Galilean' moons lined up on each side. Not all four are seen every night as they pass in front of Jupiter and behind it and are eclipsed in the planet's shadow. They can be seen in binoculars, if you can hold the binoculars steady enough. Larger telescopes show stripes in Jupiter's clouds. It is 780 million km away mid-month. Mars is tiny in a telescope, appearing a quarter the width of Jupiter. It is 147 million km away mid-month.

Aldebaran, near Jupiter, is at one tip of a V-shaped cluster of stars called the Hyades. The V is the face of Taurus. Aldebaran is not in the cluster, just on the line of sight at half the cluster's distance.

Orion, in the northern hemisphere view, has a shield raised toward Taurus and a club ready for action. The line of three stars makes **Orion's Belt**. The line of faint stars above and left of the belt form **Orion's Sword** in the northern view, dangling from his belt. To most southern hemisphere sky watchers the belt and sword form **The Pot**, The Iron Pot, or The Saucepan. A modern variation on this is 'the shopping trolley'. The Pot is the trolley's basket. Betelgeuse, and Bellatrix the star left of Betelgeuse, make the wheels. Like most constellation pictures, it requires imagination.



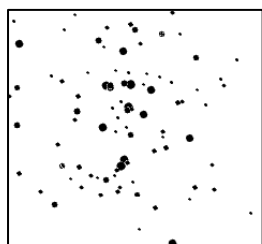
The **Pleiades / Seven Sisters / Matariki / Subaru**, and many other names, is a cluster of stars well known in both hemispheres. Though often called the Seven Sisters, most modern eyes see only six stars. Dozens are visible in binoculars. The cluster is about 440 light years away. Its brightest stars are around 200 times brighter than the sun.

One **light year (l.y.)** is the distance light travels in one year: about 10 million million km or 6 million million miles. Light from the sun reaches us in 8 minutes; from the moon in 1 second. Sunlight takes 4 hours to reach Neptune, the outermost significant planet, and 4 years to reach Alpha Centauri, the nearest star.



The **Orion Nebula** is visible in binoculars as a misty glow around the middle stars of Orion's Sword or the handle of The Pot. It is a vast cloud of dust and gas about 1300 l.y. away and more than 20 l.y. across. Ultra-violet light from a massive, extremely hot star in the cloud causes it to glow. Some stars in this region are only two million years old. The sun, by contrast, is 4.6 billion years old. Stars continue to form in a giant cloud behind the glowing nebula. There are many bright and dark nebulae in this region. The Horsehead nebula, a favourite of astronomy books, is beside the right-hand star of Orion's Belt, but too faint to be seen in small telescopes.

Below and right of Mars, at first, are Pollux and Castor, the heads of Gemini the twins. Mars is moving eastward, to the right, so is above the twins at the end of March.



Further right of Mars and higher is the **Praesepe** star cluster. It looks like a faint spot of light to the eye. Binoculars show it as a compact group of stars. It is 577 light-years away. Praesepe is 625 million years old, so its bright stars burnt out long ago. That's why its stars are more similar in brightness than those of the much younger Matariki cluster.