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LIVING

In plain sight

Timing is right this month for multiple-planet viewing



OUR CHANGING SEASONS

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positions of heavenly bodies than we are. The sky was their calendar. By taking note of where the sun would rise and set, the length of shadows, the phases of the moon and the appearance of certain stars and constellations, ancient peoples knew everything from when to plant crops to when to

celebrate events such as the winter solstice.

However, early Grecian astronomers soon noticed that certain "lights" in the night sky did not follow the typical east-west rotation of the sun, moon and stars, but seemed to stray somewhat haphazardly in the sky. Nor did these celestial bodies appear on a predictable seasonal basis. The Greeks therefore chose a word meaning "wanderer" to designate these strange objects. In English, of course, we know them as planets.

On any given day of the year, there is always at least one planet visible in the night sky. Those that can be seen with the naked eye are Venus, Mars, Jupiter, Saturn and Mercury. Sometimes, as many as three or four of these planets can be seen at the same time. This month is one of those occasions.

Planets always appear along the ecliptic — the apparent path that the sun follows through the sky. Most are not linked to any particular season, so a given planet does not necessarily appear at a given time of year. Unlike the "twinkling" stars, which are infinitely further from Earth, planets reflect a steady, even light. Any bright object along the ecliptic that does not appear in star charts is probably a planet. Even though they vary in brightness, knowing which planet you are looking at can be tricky.

The brightest and most striking planet seen from Earth is Venus. Only the moon outshines it.

Because Venus's atmosphere of thick clouds is very efficient at reflecting the sun's light, it appears 10 times brighter than even Sirius, the brightest nighttime star. Never very high up in the sky, you will find Venus close to where the sun rises or sets. When it appears on the eastern horizon, Venus is often called the "morning star." It remains visible in the east for about six months and then disappears behind the rising sun. For the next few months, it can't be seen at all. Then, Venus magically reappears on the western horizon as the "evening star." Its reign in the west will also last six months. Remember, however, that Venus is never visible for more than about three hours after sunset or before sunrise. Venus is especially dazzling during the twilight hours and adds an elegant touch to the start or finish of the day.



A first-crescent moon beside Venus (above). The left side of the moon is illuminated by 'earthshine' — sunlight reflected off the earth and onto the moon.

This year, Venus will become visible toward the end of December. Watch for it in the evening twilight, low in the southwest. It will be starting a six-month reign as the brightest object in the evening skies. If you watch Venus through to next June, you will see this glowing beauty slowly rise higher each night.

Jupiter is the second brightest planet. Shining stronger than any star, Jupiter is a commanding presence in the night sky over much of the year. Some 300 times bigger than Earth, this huge planet travels at a slow speed, moving westward across the sky. Viewed from Earth, Jupiter appears to spend a year in each of the constellations of the zodiac. At the end of the 12-year cycle, it starts its journey across the sky again. Jupiter is particularly interesting because several of its brightest moons can



A conjunction of Mars and the moon.

be clearly seen with binoculars. Right now, Jupiter can be seen low in the predawn sky, just above the southeastern horizon. It will also

be accompanied by two special guests. More about that later.

The ringed planet, Saturn, will put on the best show this holiday

season. This gas giant is a yellowish colour and, as seen from Earth, looks like an intensely bright, cream-coloured star. This sometimes makes it hard to identify as a planet. If you have access to even a small telescope, you should be able to see the beautiful ice crystal rings that surround Saturn.

This December, Saturn can be seen in the constellation Leo. Early in the month, it will rise around midnight, next to the sickle in Leo. It will then continue to rise earlier and earlier each night. By month's end, Saturn will be visible almost all night long. The morning of Dec. 10, however, is a date of special significance. As the sky is brightening, Saturn and the moon will be within half a lunar diameter of one another together, high above our heads.

As for Mars, it appears a definite reddish orange in colour. Mars can be entertaining to track because, compared to other planets, it moves quickly through the background stars. Over the course of several days, you will notice a definite change in its location in the sky.

The last of the planets visible to the naked eye is tiny Mercury. However, it is the most difficult planet to spot and is only visible for a few weeks a year. Mercury is always low in the sky and changes position from one night to the next. Unlike the other planets, Mercury follows a somewhat seasonal timetable. It is best seen after sunset in the spring or before sunrise in the fall.

From Dec. 9 to 11 this year, Mercury, Mars and Jupiter will form a tight, one-degree triangle low in the predawn sky. A planet rendezvous of this sort is known as a conjunction. In fact, it will be the closest grouping of three planets until 2053. They will be rising just before dawn above the sunrise point on the southeastern horizon. On the morning of the Dec. 10, Jupiter and Mercury will be so close together that they will look like a double star.

Unfortunately, the planets will be so close to the glare of the coming sunrise that they will be hard to see. Another challenge will be to find a location with an unobstructed view of the southeast skyline. Armour Hill in Peterborough may provide such a view. The sky at the horizon must also be free of any haze or cloud cover. Although the planets should be visible to the unaided eye, they will be much easier to pick out if you use binoculars. They will be sitting only one binocular field of vision above the horizon. Jupiter will appear brightest, followed by Mercury and then Mars. Look between 7:30 and 8 a.m.

Paying attention to the night sky is wonderful way of following the progression of the seasons. It also reconnects us with the myriad generations of our ancestors for whom watching the comings and goings of the celestial bodies was an integral part of life.

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