

NOTES, NEWS & COMMENTS

A Planet Outside the Solar System?

A team of astronomers has discovered what may be the first planet ever observed outside the solar system. If the observation and their interpretation is verified, it would climax a centuries-old quest to find such a body.* The presence of planets has been inferred by some astronomers because of the wobble of certain stars in their path across the sky, but never before has a companion to a star actually been seen and believed to be a planet outside the solar system.

The team of astronomers was led by Dr Donald W. McCarthy, jr, of the University of Arizona, and included Professor Frank J. Low, also of the University of Arizona, and Dr Ronald G. Probst, of NOAO. Their discovery was announced jointly by the National Science Foundation (NSF), the University of Arizona, and the National Optical Astronomy Observatories (NOAO).

The research workers used the 158-inches (4-metres) Mayall Telescope at NOAO's Kitt Peak National Observatory last May and the 90-inches (2.3-metres) telescope at the University of Arizona's Steward Observatory in June and July. They employed a relatively new technique, called 'speckle interferometry', to detect the heat from the planet in the infrared region of the electromagnetic spectrum. This enabled them to overcome the blurring caused by turbulence in the Earth's atmosphere that ordinarily would hide the dim planet in the glare of the much brighter star. The planet orbits the intrinsically faint star Van Biesbroeck 8 (VB 8) in the Milky Way constellation Ophiuchus, about 21 light-years from Earth. The star was named after George Van Biesbroeck, a Belgium-born American astronomer who discovered it in 1961.

The astronomers said they think this newly-discovered planet is a gaseous object resembling Jupiter in appearance

* and revive hopes of some forms of life existing elsewhere than on and around our Earth, thereby enormously extending our environmental sphere-of-action and what we should strive to conserve.—Ed.

and substance. The planet has been calculated to be between 30 and 80 times as massive as Jupiter, the fifth planet from the Sun which has a mass of about one-thousandth that of the Sun. The planet's surface temperature is estimated to be about one-fifth of that of the surface of the Sun.

The existence of planets as large as this has been hypothesized by astronomers who coined the term 'brown dwarf' to designate them. The name brown dwarf indicates that these objects are much cooler than 'red dwarfs', which are the coolest stars known. The star VB 8 is roughly 10,000 times fainter than the faintest star visible with the naked eye. If observed in visible light—wavelengths to which the human eye responds—the planet would appear about 100,000 times fainter than the star which it orbits.

'The body identified as a planet is too dim and too cool to be a star,' Dr McCarthy said, stressing that more studies must be made to determine the main characteristics of the planet—such as its orbital period, its mass, and its chemical composition. The astronomers said they have eliminated the possibility that the planet is a background object unrelated to the star VB 8. 'For the present,' they said, 'we assume the new source [to be] a close physical companion to VB 8, and we designate it VB 8B.'

In a report submitted to *Astrophysical Journal Letters*, the astronomers said: 'We have detected *via* infrared speckle interferometry a faint, very cool source one arcsecond [960 million km] from (the star) VB 8.' The properties of the source—such as temperature, radius, and energy output—are consistent with a substellar mass companion, i.e. a planet. Both astrometric and astrophysical evidence support this interpretation.'

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Saga of the Sacred Earth

Recently we received from Indian Ambassador Ayilam P. Venkateswaran, whom we had visited late last year in Beijing, China (but which he is leaving to return to a major post in New Delhi), a message reading in part:

'While going through some old papers in the process of my packing up, I have come across one of the most impressive and impassioned pleas for environmental conservation, which I thought would interest you. It is [the enclosed] plea made by the Chief Seattle to US President Franklin Pierce, who had offered to buy a large tract of Red Indian land from the tribe. Perhaps you may even think of reprinting it in... *Environmental Conservation*, since there is no copyright involved considering that the plea was made 130 years ago, in 1854. But the plea is no less relevant today.'

'How can you buy or sell the sky, the warmth of the land? The idea is strange to us. If we do not own the freshness of the air and the sparkle of the water, how can you buy them?'

Every part of this Earth is sacred to my people. Every shining pine-needle, every sandy shore, every mist in the dark woods, every clearing and humming insect, is holy in the memory and experience of my people. The sap which courses through the trees carries the memories of the Red Man.

The White Man's dead forget the country of their birth when they go to walk among the stars. Our dead never forget this beautiful Earth, for it is the mother of the Red Man. We are part of the Earth and it is part of us. The perfumed flowers are our sisters: the deer, the horse, the great eagle, these are our brothers. The rocky crests, the juices in the meadows, the body heat of the pony, and Man—all belong to the same family.

So, when the Great Chief in Washington sends word that he wishes to buy our land, he asks much of us. The Great Chief sends word he will reserve us a place so that we can live comfortably to ourselves. He will be our father and we will be his children. So we will consider your offer to buy our land. But it will not be easy. For this land is sacred to us.

This shining water that moves in the streams and rivers is not just water but the blood of our ancestors. If we sell you land, you must remember that it is sacred, and you must teach your children that it is sacred and that each ghostly reflection in the clear water of the lakes tells of events and memories in the life of my people. The water's murmur is the voice of my father's father.