

# The Discovery of Comet Lee

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When somebody like Bill Bradfield discovers a comet you know it's because of sheer hard work, but when somebody like me blunders into a comet one can but think how lucky some people can get. I can only agree as "blunder" is probably the right word. Let me tell you the story.

I have been a member of the [Sutherland Astronomical Society](#) for something like 25 years, from the time I was growing up in Sydney. Although for the past 20 years I hardly ever get to a meeting since I now live some 500km away. However, I still keep in touch with happenings in the society and when one of their members bought a property near Mudgee - a town just 180km away - and started holding star parties there for club members it meant that I could see a bit more of my old friends. The dark-of-moon weekend in April was the third such "official" star party and not only was I invited, but I was also asked to give a talk in my capacity as an amateur working at a professional observatory. The talk plays a crucial part in the discovery.

I arrived at "Observatory Downs" - John Vetter's property - around lunch time on the Friday. After a quick chat to those who were already there I went to set up my tent and get ready for the days ahead. The sky was blue and the sun hot and a good weekend's observing lay ahead. John had scheduled my talk for Saturday afternoon by which time more people would arrive.

Come the evening, I set up my binoculars on their new mount and started to do some basic binocular observing. After a couple of hours I decided to take a break and wander around a bit. I eventually left the main observing field and wandered up to where John's dome and the main meeting hall were. John was up there having just taken out his 16-inch Dobsonian to have a look at comet Hale-Bopp which he'd just been shown in a smaller telescope down on the main field. We looked at the now fading comet, remarking on the fact that it was well beyond the orbit of Jupiter and still a reasonable sight. A few people came and joined us and we had a short sight-seeing tour of a few of the brighter objects. Coffee and a warm-up were suggested and everybody else adjourned to the meeting hall .

In the first of two amazing pieces of luck, I didn't join them - I don't like coffee. Secondly, I wanted to find NGC 5189 as in my talk I had several images of that strange-shaped planetary nebula (PN) to show, and wanted to make sure that at least some people were acquainted with its appearance through a telescope. So I did a bit more sight-seeing and then set to finding it. I had no charts with me and only vaguely remembered that it was on the eastern side of Musca, underneath Beta Centauri. I started looking and after a minute or so of failure I saw something on the edge of the field. Assuming that it was the PN, I centred it. Immediately I looked more closely it was obviously not any sort of PN let alone the one I was after. Musca is home to a couple of nice globular clusters, but they are both near the brighter stars further to the west - a quick check in the finder proved that I'd not wandered that far.

If there was any skill involved in discovering this comet it was knowing the sky well enough to instantly recognise that what I saw shouldn't be there and so had to be something new. Even though my navigation skill wasn't good enough to find NGC 5189 when required, I was familiar enough with the region to know that there was nothing that bright within many degrees and so it had to be a comet. It was about 10:30 pm. What to do next?

I went to the shed and asked John to "have a look at this." He asked what, and I replied "I think I've found a comet." Movement back to the telescope quickly followed. It certainly looked like a comet. "Is it moving?" John asked. I said I'd memorised the pattern and I'd look again in 5 minutes to see. Some doubted my memory of the field and suggested a star chart to check. People appeared out of nowhere to look.

The atlas agreed with my memory (except it showed NGC 5189 a long way away from where I thought it was - no wonder I couldn't find it!) that nothing should be there - we estimated the coordinates to be roughly 14h and -69°. Another look through the eyepiece clearly showed movement, in fact quite a lot, and so that convinced me it was a comet. John had a list of comets currently known to be in the sky so that was duly checked in case it was already logged. That also drew a blank. It had to be a new comet!

So now it came down to doing something more about it. The first port of call is somebody to independently confirm it and hopefully get an astrometric image. In Australia there is nobody better than [Gordon Garradd](#). It was nearing 11pm and hopefully Gordon would be still up, busily charting some near or far asteroid. I raced back to my camp site (about as far away from the telescope as possible) to get my phone book. Alas, no answer from Gordon but at least he has an answering machine so I left details hoping that he would find it before it was too late. There was only one avenue now open - a call to America to Dr Brian Marsden's office to make an official report. Mel said she always carried his number around with her, just in case. (Ah, to be prepared for every situation.) But more disappointment - she couldn't find it, must have been cleaned out a few weeks ago. But she knew somebody who really did always have the number and didn't clean out their wallet. Again more frustration - this time the number was engaged. A wait. Finally it's ringing... and ringing... and ringing. The number was obtained and the call placed.

I was put through to Dr Marsden and detailed my discovery, knowing full well that he gets lots of calls like this, most of which turn out to be false. Now is not the time to remember that you didn't refine the coordinates on the star chart and haven't made a proper magnitude estimate. Just tell him what you can and hope that it doesn't matter.

It's done.

By now, many of the telescopes in the lower field were looking at the comet. I went to look, too. It was a lot fainter in smaller scopes than I expected - perhaps my estimate of 9th magnitude was a bit optimistic and I was fooled by using a larger telescope than I usually do. I had a chance to look at the coordinates that several digital setting circles were displaying before I was called to the telephone. It was Gordon - he'd got the message and wanted to know if I had more information. I was able to give him better coordinates and a revised magnitude and then he went away to secure some astrometric images. Now I knew that the comet wouldn't be lost and there was nothing more that I could do.

Doug turned up with a bottle of whisky and everybody found glasses. Observing ceased, toasts were made and celebrations began. The pessimist in me kept worrying that it would turn out to be already known or already discovered by somebody else or any other problem, and that the next day I would be crucified for ruining everybody's observing. But for the moment I could dream.

Some people said that at much the same time as I had found the comet they were observing NGC 5189. Because they were using digital setting circles they had gone straight to it and didn't waste any time in the way that I had. Perhaps there's a lesson there!

The next day was a study in frustration. How to find out whether it had been confirmed and whether anybody else claimed prior discovery. I didn't want to call Gordon because he'd probably still be asleep. Late in the morning the answer came - my wife rang and complained that I had not told her. News travels fast these days. By a chain of people she had been called several hours earlier asking her for the story. I pleaded that I didn't know for certain, but she said that an IAU circular had been issued ([number 7144](#)) announcing the comet and it had been picked up by Rob McNaught who called a friend who called her. Comet Lee was official - although it was called 1999 H1 for the moment.

Over the next week I got many congratulatory e-mails, and also some with which I could wholly sympathise. An independent discovery was made the following night from Victoria. They, too, had gone through the same agony I had once finding it, only to be told that they were a day late. I told them it pays to be more than a weekend observer because you miss the comets found on weekdays!

After a few days there were enough observations to determine an orbit, which showed the comet was coming in towards the Sun and so should become brighter. It was also currently fairly close to the Earth, something which had been speculated on the first night due to its rapid motion. Initial predictions say that it might get up to about magnitude 7, still too faint to be a naked eye object but reasonable in binoculars. Alas, the orbit also shows it heading rapidly north and so it will be harder for us in the southern hemisphere to view when at its best.

Finally, I must say that there is a certain thrill to know that you are the first person on the planet to see something, and also to know that this object will have your name attached to it when others view it. But it's not enough of a thrill to make me want to spend the hundreds or thousands of hours necessary in order to find another. If it should ever happen to me again then it, too, will be a tale of serendipity.

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