



ASTRONOMICAL LEAGUE

A FEDERATION OF ASTRONOMICAL SOCIETIES
A NON-PROFIT ORGANIZATION

- ★ *To promote the science of astronomy;*
- ★ *By fostering astronomical education;*
- ★ *By providing incentives for astronomical observation and research;*
- ★ *By assisting communication among amateur astronomical societies.*

ASTRO NOTES

Produced by the Astronomical League

Note : 23 Reporting a Discovery

In the 1920s, the International Astronomical Union established the Central Bureau for Astronomical Telegrams as an announcement center for new astronomical discoveries of objects such as comets, novae, supernovae, etc. Since the 1960s, the Bureau has been operated by the Smithsonian Institution's Astrophysical Observatory at the Harvard-Smithsonian Observatories in Cambridge, Massachusetts.

Today, the main publication of the CBAT is called the *IAU Circulars*, available in both printed form (via postal mail) or electronic form (via e-mail or the CBAT computer service). *IAUCs* are published irregularly, as required, typically 200 or so per year. A number of other publications deal with minor planets and cometary orbits. Further information about these publications can be obtained from the CBAT at SAO, 60 Garden Street, Cambridge, MA 02138, or from their Internet home page at <http://cfa-www.harvard.edu/cfa/ps/cbat.html>. Contrary to the Bureau's name, they no longer issue announcements via telegram.

Before You Report

If you think you have found a new comet, nova or other object, there are certain steps you should take before reporting your discovery:

Be absolutely certain the image is real. This may sound trivial, but reflections off optical surfaces, photographic film defects, defective pixels in CCD arrays and electronic noise have all been reported over the years. Move the object around within the field of view. Change eyepieces and observing positions. Make multiple photographic or electronic exposures. In each case, slight changes in the optical system or exposure should leave the object fixed against the background field stars.

Examine the object at high power. A fuzzy object at low power may resolve itself into a faint grouping of stars at higher magnification.

Check a good star atlas for any galaxy, nebula or cluster near the object's position. Check several different sources. Even the best single atlas may contain omissions or mis-plotted objects. Find and identify any known objects that are nearby to confirm that they are not the suspect.

Check the field for motion. Carefully sketch the field of view, noting in particular the suspect's position relative to identifiable stars. Note the time and date (UT only, please) of the sketch. Sketch the field again after at least an hour. Note, again, the time and date. Did the suspect move? Be skeptical if no motion is detected. Try to find the object a night later and sketch it a third time to detect motion. Better yet, get a few of your colleagues to confirm your object by independent observation.

Estimate the total brightness and any detectable size and orientation. Do this each time you make a field sketch.

Check published lists of any known comets or minor planets. This is a good way to pass the time between observations. *Astronomy's* Sky Almanac or *Sky & Telescope's* Calendar Notes and Observer's Page are probably the most readily available sources. The IAU *Circulars*, ALPO's *Minor Planet Bulletin*, *International Comet Quarterly* and the annual *Handbook* of the British Astronomical Association are other good sources. Be cautious of reports published in news groups or chat groups on the Internet as they are often unsubstantiated.

Making the Report

If your discovery passes all the tests above, it may well be a new object. Report your find to CBAT. Rather than the former telegram communication, they prefer that you report via their Internet website: <http://cfa-www.harvard.edu/cfa/ps/cbat.html>. A visit to that site will give you suggestions on the formats for reporting comets, supernovae, novae, outbursts of unusual variable stars and features on planetary surfaces. In most cases, they even provide a form that can be filled in and submitted electronically.

Basic information common to all reports includes your full name, street address and phone number where you can be reached. List the date, time, right ascension and declination (including equinox used -- they prefer 2000.0), magnitude and appearance for each observation. (That's why you noted all those things when you were trying to confirm its existence.) Then give the details of your equipment (telescope, aperture, magnification, film or CCD type and exposure times), observing location and any other observers who may have confirmed the object with you. Each type of object may require additional information specific to that type.