

Foreword

to the Sixth Edition

How does one identify celestial objects? In ancient times, people looked up at the sky, saw patterns in the fixed distribution of stars and gave names to those patterns (constellations). These early astronomers also named the brighter stars, as well as the handful of non-fixed “stars” (the planets) that moved across the sky. The ancient Egyptians painted star charts on sarcophagi and on tomb ceilings, and the ancient Sumerians recorded the names of their constellations on clay tablets. The earliest known catalogues of stars come from the Babylonians in the second millennium BCE. Chinese astronomers were active observers of the sky, producing star charts and catalogues, as well as providing many of the earliest records of cometary appearances. A number of Greek and Roman astronomers produced star catalogues. The best known is probably Claudius Ptolemy’s *Almagest*, based heavily on a catalogue created by Hipparchus about two centuries earlier, which listed 1,022 stars. During Europe’s Dark Ages, Islamic astronomers produced many star catalogues and many stars still retain their Arabic names. One common feature of these early catalogues was the use of names or descriptions of the location within a constellation to identify stars.

Designations for stars, as opposed to names or descriptions, were introduced in Johann Bayer’s *Uranometria* (1603), where he labelled each listed star with a Greek letter followed by the genitive case of the constellation in which it lay. The letters were assigned, roughly, in decreasing order of brightness: the brightest star in Cygnus is α Cygni. For constellations where there were more stars than the available 24 Greek letters, Bayer used lower-case Roman letters, then capital Roman letters. A second designation system was introduced in John Flamsteed’s *Historia coelestis Britannica* (1725), using numerals with the genitive constellation name: e.g., 61 Cygni. In modern catalogues, which can contain more than one *billion* objects, designations are used exclusively. There are simply too many objects listed in modern catalogues to use names or descriptions. Designations may be assigned by the catalogue compilers or may be derived from the published positions of the listed stars.

This natural evolution of stellar nomenclature from names to designations has been reflected in minor-planet nomenclature. When the first minor planets were discovered in the first half of the 19th century, each newly discovered object quickly acquired

a name. Designations for minor planets were introduced in 1852, when newly discovered planets received a sequential number. The rapid assignment of new numbers caused a number of situations where a new number was assigned to a known object that had become lost. The use of photography as a discovery tool in the last decade of the 19th century led to the concept of provisional designations. Objects would receive a provisional designation upon discovery and would receive a number only when their orbits were judged to be reliable enough to allow unambiguous future identification. Once numbered, objects could be named.

The assignment of names to numbered minor planets continues. The names are not the principal form of identification for minor planets, but discoverers like to name their discoveries, so the tradition continues. As recently as 1990, as many as 80% of the 4,357 numbered minor planets had names. However, the rate of numbering since then has far outstripped the rate of naming. Today, with over 300,000 numbered minor planets, only about 5% are named. This should not be viewed as a failure or problem, since it is not required that every numbered minor planet should have a name.

Since the 2000 General Assembly, the DMPN has been an official publication of the International Astronomical Union. This sixth edition, like its predecessors, has been produced by Lutz D. Schmadel and his team. The IAU delegates responsibility for approving new names to the Working Group for Small Body Nomenclature of its Division F. Although the proposers of each name are responsible for submitting the initial versions of the citations, significant editing is often required to correct spelling or grammatical mistakes, to trim the citation length to the required four-printed-line limit in the *Minor Planet Circulars*, or (in extreme cases) to rewrite the citations from scratch. Some of this editing work is undertaken at the Minor Planet Center before the names are sent to the WG SBN and some is done by WG SBN members during the approval process. It is worth noting that there is an art to writing a name citation that few astronomers seem to have mastered. In a broad sense, the DMPN is a collaborative effort by many individuals, but one must not underestimate the amount of work undertaken by Lutz D. Schmadel in preparing this publication. The astronomical community owes him a large debt of gratitude.

Cambridge, MA, January 2012

Gareth V. Williams
Associate Director
IAU Minor Planet Center