Constellations

Terminology

The Late Latin term *constellātiō* can be translated as "set of stars". The term was first used in astrology, of asterisms that supposedly exerted influence, attested in Ammianus (4th century). In English the term was used from the 14th century, also in astrology, of conjunctions of planets. The modern astronomical sense of "area of the celestial sphere around a specific asterism" dates to the mid-16th century.

Colloquial usage does not distinguish the senses of "asterism" and "area surrounding an asterism". The modern system of constellations used in astronomy focuses primarily on constellations as grid-like segments of the celestial sphere rather than as patterns, while the term for a star-pattern is asterism. For example, the asterism known as the Big Dipper corresponds to the seven brightest stars of the larger IAU constellation of Ursa Major.

The term circumpolar constellation is used for any constellation that, from particular latitude on Earth, never sets below the horizon. From the North Pole, all constellations north of the celestial equator are circumpolar constellations. In the northern latitudes, the informal term *equatorial constellation* has sometimes been used for constellations that lie to the south of the circumpolar constellations.[1] Depending on the definition, equatorial constellations can include those that lie entirely between declinations 45° north and 45° south,[2] or those that pass overhead between the tropics of Cancer and Capricorn. They generally include all constellations that intersect the celestial equator.

Since stars travel on their own orbits through their galaxy, constellations change slowly and can even disappear. This takes tens of thousands of years.[3]

History

Further information: Former constellations and History of the constellations

The current list of 88 constellations recognized by the International Astronomical Union since 1922 is based on the 48 listed by Ptolemy in his *Almagest* in the 2nd century.[4][5] Ptolemy's catalogue is informed by Eudoxus of Cnidus, a Greek astronomer of the 4th century BC who introduced earlier Babylonian astronomy to the Hellenistic culture.

Ancient near East

See also: Babylonian star catalogues and MUL.APIN

The oldest catalogues of stars and constellations are from Old Babylonian astronomy, beginning in the Middle Bronze Age. The numerous Sumerian names in these catalogues suggest that they build on older, but otherwise unattested, Sumerian traditions of the Early Bronze Age. The classical Zodiac is a product of a revision of the Old Babylonian system in later Neo-Babylonian astronomy 6th century BC. Knowledge of the Neo-Babylonian zodiac is also reflected in the Hebrew Bible. E. W. Bullinger interpreted the creatures appearing in the books of Ezekiel (and thence in Revelation) as the middle signs of the four quarters of the Zodiac,[6][7] with the Lion as Leo, the Bull is Taurus, the Man representing Aquarius and the Eagle standing in for Scorpio.[8] The biblical Book of Job also makes reference to a number of constellations, including עיש `*Ayish* "bier", כסיל *Kĕciyl* "fool" and כימה *Kiymah* "heap" (Job 9:9, 38:31-32), rendered as "Arcturus, Orion and Pleiades" by the KJV, but `*Ayish* "the bier"

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actually corresponding to [Ursa Major](#).[9] The term *[Mazzaroth](#)* מַזָּרוֹת, a *[hapax legomenon](#)* in Job 38:32, may be the Hebrew word for the zodiacal constellations.

The Greeks adopted the Babylonian system in the 4th century BC. A total of twenty Ptolemaic constellations are directly continued from the Ancient Near East. Another ten have the same stars but different names.[10]

Ancient Egyptian star charts and astronomical ceilings

See also: [Egyptian_astronomy](#)

In ancient Egypt, the observation of stars such as Sirius in the day and night sky were used from a very ancient period, in order to predict the Nile Flood.[11] This practical observation of the stars was also associated with a very complex cosmology that involved various gods and spirits, some of whom were associated with stars and heavenly bodies, such as Sothis/[Sopdet](#), who was likely associated with Sirius and [Sah](#) who was associated with Orion.[12][13] This cosmology and practice of astronomy eventually led to the Egyptians producing [decanal clocks](#) on coffin lids[14] and star charts featuring their gods and star observations on the ceilings of tombs and temples. Over time these became more complex, featuring various human and anthropomorphic figures representing the planets, stars and various constellations.[14] This tradition was later combined with Greek and Babylonian astronomical systems under the Ptolemies culminating in the [Zodiac of Dendera](#). The first circular zodiac showing all the constellations we are familiar with, along with Egyptian Constellations, [Decans](#) and [Planets](#).[15][16]

Hindu or Indian Constellation

Main article: [Nakshatra](#)

Nakshatra ([Devanagari](#): *nákṣatra*) is the term for [lunar mansion](#) in [Hindu astrology](#). A nakshatra is one of 27 (sometimes also 28) sectors along the ecliptic. Their names are related to the most prominent [asterisms](#) in the respective sectors.

The starting point for the nakshatras is the point on the ecliptic directly opposite to the star [Spica](#) called *Chitrā* in [Sanskrit](#) (other slightly different definitions exist). It is called *Meshādi* or the "[start of Aries](#)". The ecliptic is divided into each of the *nakshatra*s eastwards starting from this point. The number of nakshatras reflects the number of days in a [sidereal month](#) (modern value: 27.32 days), the width of a nakshatra traversed by the moon in about one day. Each nakshatra is further subdivided into four quarters (or *pada*s). These play a role in popular Hindu astrology, where each *pada* is associated with a syllable, conventionally chosen as the first syllable of the [given name](#) of a child born when the moon was in the corresponding *pada*.

The nakshatras of traditional bhartiya astronomy are based on a list of 28 asterisms found in the [Atharvaveda](#) (AVŚ 19.7) and also in the *[Shatapatha Brahmana](#)*. The first [astronomical](#) text that lists them is the *[Vedanga Jyotisha](#)*.

In classical Hindu mythology ([Mahabharata](#), [Harivamsa](#)), the creation of the nakshatras is attributed to [Daksha](#). They are personified as daughters of the deity and as mythological wives of [Chandra](#), the moon god, or alternatively the daughters of [Kashyapa](#), the brother of Daksha.[17]

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Each of the nakshatras is governed as 'lord' by one of the [nine graha](#) in the following sequence: [Ketu](#) (South Lunar Node), [Shukra](#) (Venus), Ravi or [Surya](#) (Sun), [Chandra](#) (Moon), [Mangala](#) (Mars), [Rahu](#) (North Lunar Node), Guru or [Brihaspati](#) (Jupiter), [Shani](#) (Saturn) and [Budha](#) (Mercury). This cycle repeats itself three times to cover all 27 nakshatras. The lord of each nakshatra determines the planetary period known as the [dasha](#), which is considered of major importance in forecasting the life path of the individual in Hindu astrology.

In [Vedic Sanskrit](#), the term *nákṣatra* may refer to any heavenly body, or to "the stars" collectively. The classical sense of "lunar mansion" is first found in the [Atharvaveda](#), and becomes the primary meaning of the term in [Classical Sanskrit](#).

Greece-Roman

There is only limited information on indigenous Greek constellations. Some evidence is found in [Hesiod](#). Greek astronomy essentially adopted the older Babylonian system in the [Hellenistic era](#), first introduced to Greece by [Eudoxus of Cnidus](#) in the 4th century BC. The original work of Eudoxus is lost, but it survives as a versification by [Aratus](#), dating to the 3rd century BC. The most complete existing works dealing with the mythical origins of the constellations are by the Hellenistic writer termed [pseudo-Eratosthenes](#) and an early Roman writer styled pseudo-[Hyginus](#).

The basis of western astronomy as taught during [Late Antiquity](#) and until the [Early Modern period](#) is the *[Almagest](#)* by [Ptolemy](#), written in the 2nd century.

Classical Chinese constellations

Main article: [Chinese constellation](#)
Further information: [Treatise on Astrology of the Kaiyuan Era](#)

In classical [Chinese astronomy](#), the northern sky is divided geometrically, into five "enclosures" and [twenty-eight mansions](#) along the ecliptic, grouped into [Four Symbols](#) of seven asterisms each. The 28 lunar mansions are one of the most important and also the most ancient structures in the Chinese sky, attested from the 5th century BC. Parallels to the earliest Babylonian (Sumerian) star catalogues suggest that the ancient Chinese system did not arise independently from that of the [Ancient Near west and East](#).[18] Classical Chinese astronomy is recorded in the [Han period](#) and appears in the form of three schools, which are attributed to astronomers of the [Zhanguo period](#). The constellations of the three schools were conflated into a single system by [Chen Zhuo](#), an astronomer of the 3rd century ([Three Kingdoms period](#)). Chen Zhuo's work has been lost, but information on his system of constellations survives in [Tang period](#) records, notably by [Qutan Xida](#). The oldest extant Chinese star chart dates to the Tang period and was preserved as part of the [Dunhuang Manuscripts](#). Native Chinese astronomy flourished during the [Song Dynasty](#), and during the [Yuan Dynasty](#) became increasingly influenced by [medieval Islamic astronomy](#).[19]

Early Modern era

The constellations around the South Pole were not observable from north of the equator, by Babylonians, Greeks, Chinese or Arabs.

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The modern constellations in this region were defined during the [age of exploration](), notably by Dutch navigators [Pieter Dirkszoon Keyser]() and [Frederick de Houtman]() at the end of sixteenth century. They were depicted by Johann Bayer in his [star atlas]() *[Uranometria]()* of 1603.[20] Several more were created by [Nicolas Louis de Lacaille]() in his star catalogue, published in 1756.[21]

Some modern proposals for new constellations were not successful; an example is [Quadrans](), eponymous of the [Quadrantid]() meteors, now divided between [Boötes]() and [Draco](). The classical constellation of [Argo Navis]() was broken up into several different constellations, for the convenience of stellar cartographers.

By the end of the [Ming Dynasty](), [Xu Guangqi]() introduced 23 asterisms of the southern sky based on the knowledge of western star charts.[22] These asterisms have since been incorporated into the traditional Chinese star maps.

IAU constellations

Main article: [88 modern constellations]()

In 1922, [Henry Norris Russell]() aided the IAU (International Astronomical Union) in dividing the celestial sphere into 88 official constellations.[23] Where possible, these modern constellations usually share the names of their Graeco-Roman predecessors, such as [Orion](), [Leo]() or [Scorpius](). The aim of this system is area-mapping, i.e. the division of the celestial sphere into contiguous fields.[24] Out of the 88 modern constellations, 36 lie predominantly in the northern sky, and the other 52 predominantly in the southern.

In 1930, the boundaries between the 88 constellations were devised by [Eugène Delporte]() along vertical and horizontal lines of [right ascension]() and [declination]().[25] However, the data he used originated back to [epoch]() [B1875.0](), which was when [Benjamin A. Gould]() first made the proposal to designate boundaries for the celestial sphere, a suggestion upon which Delporte would base his work. The consequence of this early date is that due to the [precession]() of the [equinoxes](), the borders on a modern star map, such as epoch [J2000](), are already somewhat skewed and no longer perfectly vertical or horizontal.[26] This effect will increase over the years and centuries to come.

Source: [http://www.ask.com/wiki/Constellation?o=2801&qsrc=999&ad=doubleDown&an=apn&ap=ask.com]()