

Tyson's Zodiac: Are There Really Fourteen Signs?

by Diana K. Rosenberg

Dr. Neil deGrasse Tyson, research scientist in astrophysics at Princeton University and Curator of Astronomy at the Hayden Planetarium of the American Museum of Natural History, has become a familiar face on television. He frequently appears on talk shows, cheerily and with gusto declaiming that astrologers are ignorant of the “fact” that there are fourteen zodiacal constellations, rather than twelve. He has also authored several books, among them *Universe Down to Earth*. In this work, he states:

... the zodiac contains fourteen constellations, not twelve. The Sun, after leaving the constellation Scorpius, enters the constellation Ophiuchus. It then stays in Ophiuchus for a *longer* [emphasis Tyson's] period of time than Scorpius, the sign that is advertised to precede Sagittarius. The confusing conclusion is that most Scorpions are actually Ophiuchans, and all Scorpions and Ophiuchans are currently Librans. The fourteenth constellation in the set is Cetus. It is a large constellation that dips into Pisces. The Sun passes through Cetus briefly as it ambles through Pisces, but you are not normally informed of this in the horoscope pages.¹

But we are speaking of astrology, and Dr. Tyson knows that astrologers use celestial longitudes.² He knows (or should know) that the Sun enters the *longitudes* of Scorpius and Ophiuchus *at the same time* and remains in those longitudes for the same length of time. It is true that the ecliptic runs through part of Ophiuchus, thus rightly making him part of the zodiac; however, the span of Ophiuchus the Serpent-Bearer, *in celestial longitude*, matches that of the Scorpius, so he *cannot* be called a “thirteenth sign”! In actuality, the eighth zodiacal constellation should be called Scorpius/Ophiuchus. Indeed, the two figures actually contact each other, as the left foot of Ophiu-

chus treads upon the Scorpius (according to tradition) in order to crush it. (See **Figure 1**, page 60.) *It is this overlap that creates a problem* and makes it seem as though Ophiuchus's allotment of degrees exceeds the Scorpius's.

Tyson wrote that the ecliptic stays in Ophiuchus for a longer period of time than in Scorpius, but this holds true only if the artificial demarcation lines imposed by the International Astronomical Union (IAU) in 1930 are adhered to.³ The astronomers who determined those lines could not bring themselves to accept overlaps or combinations; the lines, they believed, must keep each figure entirely separate, and the sky figures, like caged animals, must remain within them.⁴ A quick glance at the lines dividing the Scorpius and the feet of Ophiuchus shows that *absolutely no allowance was made for the Scorpius's upper half*. Ophiuchus's left foot, which is treading upon the Scorpius, is given all; the Scorpius, none. The poor arachnid, already truncated early on in history by losing his claws to form the Scales of Libra, has been further mutilated by the loss of his northern legs!

Here's the real zodiacal story, based on celestial longitude:

- The Scorpius's earliest stars are Xi Scorpium in the north claw and Delta Scorpium (Dschubba or Isidis) in the forehead, at **1°18' Sagittarius** and **2°34' Sagittarius**, respectively.⁵
- Ophiuchus's earliest star is Yed Prior, Delta Ophiuchi, at the left hand, grasping Serpens, the Serpent, at **2°18' Sagittarius**.
- The Scorpius's last stars (actually clusters — the Scorpius's tail lies in the nebulous Milky Way) are Acumen, M7 Scorpium, near the sting, and Globular Cluster

NGC 6496 below the sting, at **28°43'** and **29°48' Sagittarius**, respectively.

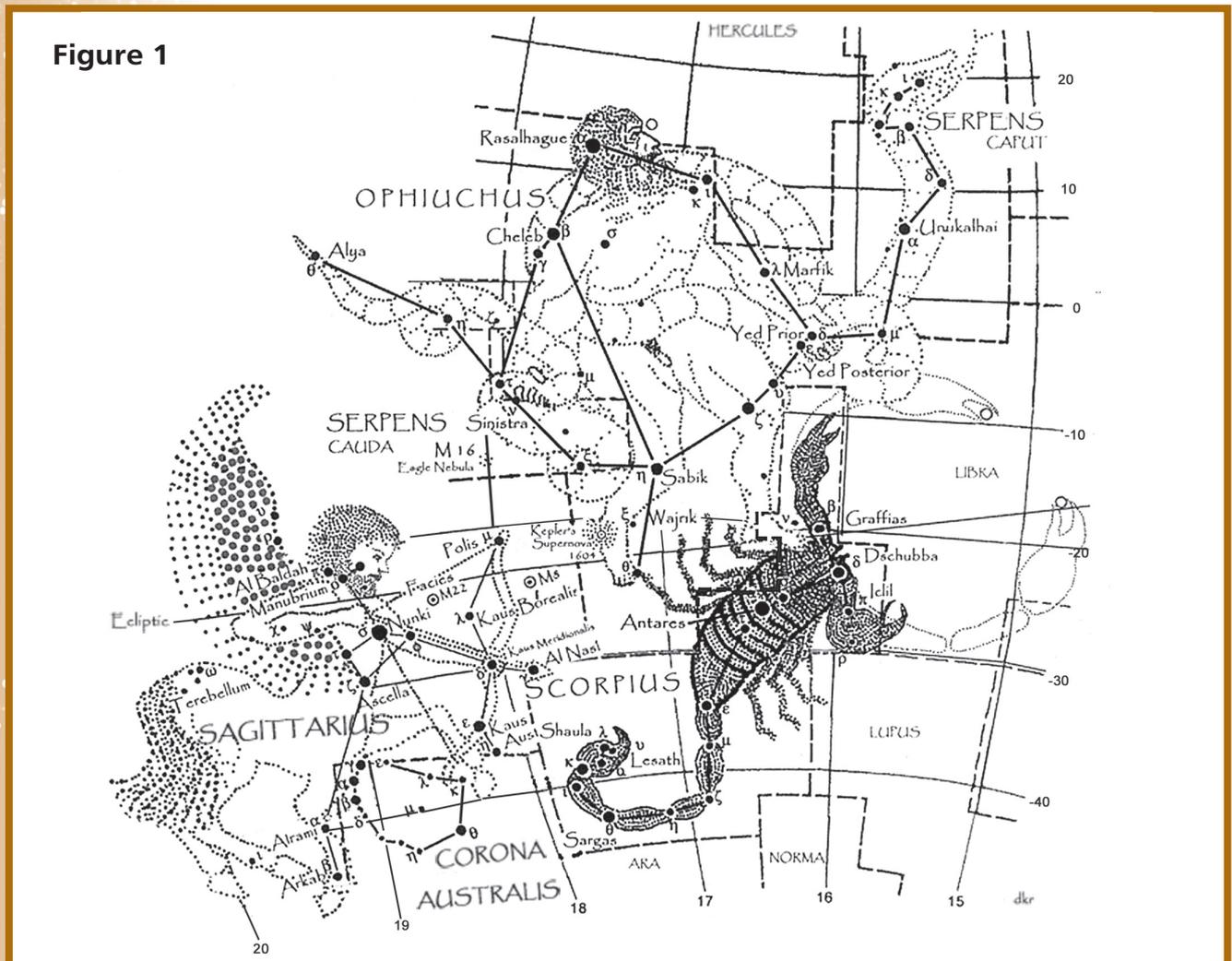
- Ophiuchus's last star is Sinistra, Nu Ophiuchi, at his right hand, grasping the Serpent: **29°45' Sagittarius**.

Tyson claims that Ophiuchus is longer than Scorpius, but only if you include its outlying, dim stars. And since we are talking *zodiac* here, note that the first stars of the Sagittarius Archer *precede* the longitudes of those faint, outlying Ophiuchus stars, thus seizing the zodiacal baton where Scorpius/Ophiuchus hands it off. So, the Serpent-Bearer *cannot be considered a longer zodiacal figure than Scorpius*. The earliest Sagittarius star is variable

X Sagittarii at **27°15' Sagittarius** — showing that the constellation of the Archer takes its position as the rightful ninth zodiacal figure, precluding any claims of Ophiuchus.

The span of Serpens Cauda (the tail of the Serpent grasped by Ophiuchus) continues into tropical Capricorn. It is this continuance of the Serpent's stars that may have deluded Dr. Tyson into thinking that Ophiuchus himself extends so far. (In ancient times, they were one figure called "Serpentarius" or "Ophiuchus vel Serpentarius" — a shamanic figure⁶ struggling with the darkly powerful Serpent and, at the same time, attempting to crush the Scorpion of death.) But the IAU officially declared these to be separate constellations, ignoring centuries of knowledge

Figure 1



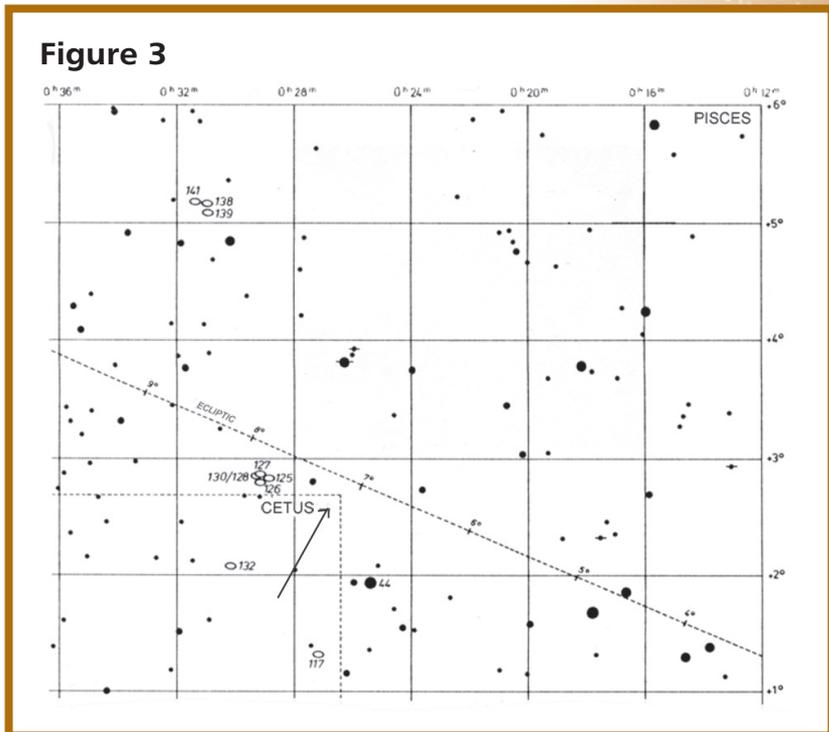
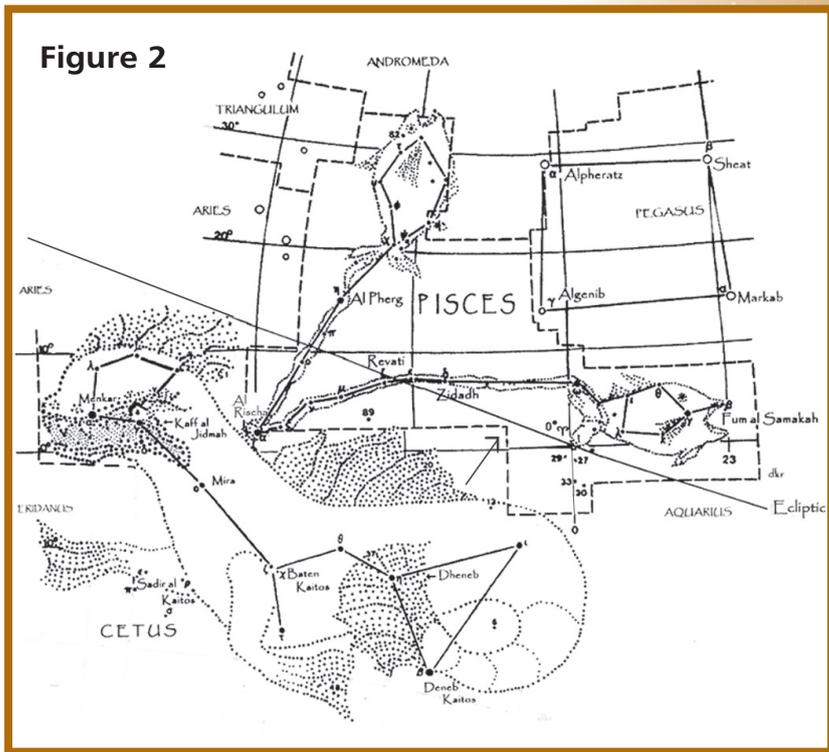
and tradition, even dividing Serpens itself into two entirely distinct parts: Serpens Caput, the Head, and Serpens Cauda, the Tail.

As for the statement that “all Scorpions and Ophiuchans are currently Librans,” that’s a howler. Apparently, Dr. Tyson, in his rush to mix apples and oranges (in this case, the sidereal zodiac and the tropical zodiac), has got his head in a twist. Switching from the star figures to the tropical zodiac, one must go *forward* one sign. What he (apparently) wanted to say was that all sidereal Scorpions and Ophiuchans are currently *Sagittarians* (tropical Sagittarians, that is).⁷

As for Cetus “dipping” into Pisces (a strange description, since Cetus is south of, i.e., below, the Fishes), or for the Sun transiting Cetus (which would make the Sea-Monster part of the zodiac: Dr. Tyson’s so-called “fourteenth sign”), one look at a star map shows that it just ain’t so. (See **Figure 2**, upper right.) The ecliptic does come close (below the cord of the West Fish of Pisces) but nonetheless stays clear of the Sea-Monster’s domain. (Here, the IAU astronomers got it right, taking care to keep the most northerly point of Cetus just below the ecliptic line — see **Figure 3**, lower right.)⁸ Given this, it is hard to understand Dr. Tyson’s claim.

Although his purpose is not to enlighten but to mock, we are indebted to this astrophysicist on one important point: Many astrologers, even those who use constellations in their work, are unaware of Ophiuchus’s “membership” in the sacred twelve, due to the fact that his feet touch the ecliptic. But he is no “thirteenth sign” — he is part and parcel of the span of the Scorpion and should be recognized, included, and honored as such. The Scorpion was seen as a death-dealing creature⁹ and Ophiuchus as a healer; thus, combined they represent life-or-death issues and choices.

Nonetheless, if Dr. Tyson is going to indulge in one of his very favorite pastimes, attacking astrology — a discipline studied and employed by Hipparchus, Ptolemy, Galileo, and Kepler, to name a few — it is incumbent upon him, laden with honors and academic credentials as he is, to get it right!



Illustrations by Diana K. Rosenberg

References and Notes

1. Neil deGrasse Tyson, *Universe Down to Earth*, Columbia University Press, 1994, p. 210.
2. Celestial longitude is the distance between the first point of the tropical zodiac (0° Aries) and any celestial body, measured eastward (to the left on the map) along the ecliptic. The celestial longitudes of stars are determined by projecting their positions perpendicularly onto the ecliptic.
3. Constellation boundaries were set by the IAU in 1930, following reports from committees set up for that purpose.
4. Other distortions forced upon the constellation figures by the IAU include the diminution of the Great Square of Pegasus; it is “officially” a square no more, having lost its northeast corner to Andromeda. The fact is, of course, that Alpheratz (a.k.a. Sirrah) is, and always has been, *both* Delta Pegasi, the Navel of Pegasus, and Alpha Andromedae, the Head of Andromeda. Another example of IAU meddling involves the right foot of Auriga the Charioteer (Gamma Aurigae) and the north horn-tip of Taurus (El Nath, Beta Tauri). They are the same star — but “official” sky maps will only own to its being Beta Tauri.
5. All positions in this article are epoch 2000.0.
6. To the Greeks, Ophiuchus was Aesculapius, God of Medicine.
7. Our tropical zodiac *sign* of Taurus was originally the sky figure of the Bull, but now, each year, as the Sun moves through the *sign* of tropical Taurus, it is actually traveling through a skyscape of the stars of the Ram — and tropicalists who call themselves “Aries” were actually born when the Sun traversed the original Pisces Fishes. In just this way, each tropical sign now largely overlays the star figure (or morpheme) that originally came before it. Just as tropical Taureans have backed up onto the Ram, tropical Arians dive with the Fishes; tropical Pisceans swim over most of the original figure of the Water-Pourer; tropical Aquarians now brave the stormy waves with the Sea-Goat (one arm of the ancient Water-Pourer stretches over him); tropical Capricorns ride the back of the half-human, half-equine Archer; tropical Sagittarians attempt to tame the menacing Scorpion; tropical Scorpios nest in the Scales of Justice (which were, even very far back, *both* Scales and the great Scorpion's extended claws); tropical Librans now find their balance in the midst of the magnificent Virgin-goddess (feeling right at home, for she was called “Justicia”); tropical Virgos have taken over the body and tail of the Lion (but, at the end of the sign, still possess the upper part of the Virgin's face and head); tropical Leos, while still hanging on to the head and forepaws of the original Lion, have the earlier two-thirds of their sign in the cautious, self-protective Crab; tropical Cancers now envelop the adventurous Twin brothers; tropical Geminis have bravely taken over the thundering, sensual Bull of Heaven; and we are back to where the zodiac started:

the Bull, leader of the great cycle of signs from about 4500 B.C.E. until about 2300 B.C.E.

8. See the *Uranometria 2000.0* grid; it shows that the northwest corner of Cetus definitely lies below the ecliptic.

9. Royal-and-war star Antares, Alpha Scorpii, lies just under Ophiuchus's intruding left foot; since ancient times, this star has been known to threaten assassination. It culminates on the charts of Julius Caesar and Abraham Lincoln (who also had Neptune at the star); it was the Saturn of Pompey the Great and Cicero and the Uranus-North Node conjunction of Lord Louis Mountbatten, *all of whom were assassinated*. The Moon and Ascendant were aligned with Antares when Lincoln was shot; Mercury, when John F. Kennedy was shot; Neptune, at two attempts on Gerald Ford's life in 1975; Uranus, when Indira Gandhi was assassinated in 1984; and Mars, when Yitzhak Rabin was assassinated in 1995. But of course, all this is sheer coincidence — or so Neil deGrasse Tyson would have us believe.

Bibliography

Allen, Richard Hinckley. *Star Names: Their Lore and Meaning*. Dover Publications, Inc., 1963.

Hirshfeld, Alan, and Roger W. Sinnott, eds. *Sky Catalogue 2000.0* (2 vols.). Sky Publishing Corp., 1982.

Rosenberg, Diana K. *Secrets of the Ancient Skies: Fixed Stars and Constellations in Natal and Mundane Astrology* (in preparation). Constellation illustrations are by the author.

Tirion, Wil, Barry Rappaport, and George Lovi. *Uranometria 2000.0*. Willmann-Bell, Inc., 1987–88.

Transactions of IAU, Vol. 4, Cambridge University Press, 1933.

© 2009 Diana K. Rosenberg – all rights reserved

Robert Hand has called **Diana K. Rosenberg** “the leading authority on Fixed Stars.” A faculty member of NCGR and ISAR and a lecturer at every UAC, she has devoted herself to the research and recovery of the most ancient roots of sky knowledge, so that they may be restored to astrologers, their rightful heirs. She is Vice President of NCGR's Uranian Society (Uranian/Cosmobiology SIG) and Copy Editor of the NCGR Journal, and she has written articles for many astrological publications. She is the author of *The New Fixed Star Workbook and Encyclopaedia of Fixed Stars and Constellations*. *Llewellyn's The Astrology of the Macrocosm* includes her chapter on earthquake prediction; *Groundswell Press's Hindu Astrology Lessons* contains her chapter, “Fixed Stars and Lunar Mansions”; and *NCGR's Essentials of Intermediate Astrology* includes her essay on Fixed Stars. Her book, *Secrets of the Ancient Skies: Fixed Stars and Constellations in Natal and Mundane Astrology*, is in preparation.