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Starry Dandelion and Cosmic Gecko

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The (Tale of the) Starry Dandelion Seed and the Cosmic Gecko

Millions of years ago, a dust cloud about 5,200 light-years from the Sun coalesced to begin the process of star birth. Today, some 190 million years later, NGC 6520 is ablaze with hot, massive young stars arrayed in a dandelion seed-shaped cluster. Not far away (with a little imagination) lies the gecko-shaped remains of what may be their birth cloud, Barnard 86.

The total stellar mass of NGC 6520 is roughly equivalent to 300-400 times the mass of the Sun, while the nearby cloud contains enough material to make about 3,000 solar-mass stars. The close proximity between the star cluster and its nearby dark-cloud companion suggests that two may be related. A survey of the southern sky (released in 2001), that singled out hydrogen-alpha emissions from warm, ionized interstellar gas, shows a nebula extending from the dark globule to embrace the star cluster.

The tale of the birth of NGC 6520 begins with Barnard 86, which is likely the remnant of a once-larger cloud of gas and dust. This mysterious dark spot is a Bok globule, one of many dense, dark gas and dust collections in our galaxy. They are usually found in larger complexes of glowing gas and dust called HII regions (so-named for their high abundances of hydrogen gas molecules, a building-block of stars). These regions are often backlit by surrounding stars, but the clouds themselves appear dark because they're so dense they don't permit much, if any, visible light to pass through. Whatever lies inside stays hidden at optical wavelengths.

If NGC 6520 and Barnard 86 lie at the same distance from us, then it's likely that they are closely related, and that the dark, gecko-shaped cloud comprises the leftovers from the long-ago birth of the cluster NGC 6520. Further study of the cluster stars and their proper motions through space, particularly relative to the cloud, will help determine the connection between them. In addition, infrared and other studies of the globule could give astronomers a way to probe the stability of gas condensation in such clouds as they go through a full rotation cycle of the Milky Way Galaxy. This will open a new window onto the process of star birth hidden deep within such dusty clouds.

Technical Data:

Field of View: 9.7 x 5.4 arcminutes
Orientation: Rotated 17º East of North
Instrument: Gemini Multi-Object Spectrograph (GMOS) on Gemini South.

Filters and Color Assignments for composite color image:
U: Blue
G': Cyan
R': Yellow
I': Red

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