

FOCAL POINT

Making the Photo Connection by James Mullaney

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Making the Photon Connection

IMITATION, we're told, is the sincerest form of flattery. Such is the underlying nature of the traditional but often-overlooked relationship that exists between "sky show" presentations in a planetarium and seeing the real thing through a high-quality telescope. The scope's precision optics permit us to confront the original masterworks of the heavens on a face-to-face, even personal level. And through some ingenious engineering we attempt to reproduce the starry sky inside a theater as faithfully as possible.

Over the years I've introduced tens of thousands of people to the stars using a variety of the largest, most sophisticated planetarium instruments ever made. I've also had the privilege of showing like numbers the wonders of the heavens through some of the finest telescopes in existence, among them a historic 13-inch Fitz-Clark refractor, a 22-inch Schmidt-Cassegrain, and a 30-inch Brashear refractor (the fifth largest in the world).

This experience in "star hustling" (to use Jack Horkheimer's famous phrase) both the real and artificial skies leaves no doubt in my mind that for maximum impact the wonder awakened in a planetarium presentation must be complemented by firsthand viewing of celestial objects through a telescope. By this I mean a transforming and elevating personal encounter with astronomy that students or visitors will carry with them for the rest of their lives.

In a previous Focal Point entitled "Metaphysical Stargazing" (*S&T*: March 1990, page 244) I pointed out the subtle but very significant benefits that an individual gains by "communing" directly with the heavens through naked-eye, binocular, and (especially) telescopic observation of its wonders. Among these benefits are the therapeutic relaxation, expansion of consciousness, and spiritual contact that come with contemplative viewing of the cosmic depths.

The enthusiastic response I received

from amateur and professional astronomers, planetarium educators, science teachers, and students from around the world clearly showed that a resonant chord had been struck.

Central to all this is what I call the "photon connection." Incredibly, when we look at celestial objects — anything from the Sun a few light-minutes away to galaxies and quasars billions of light-years distant — we are in direct *physical* contact with them. Their photons of light have made a long journey across

space and time to reach the retinas of our eyes. In a very real sense, a piece of something once inside them ends up inside us!

Recognition of this profound fact helps explain the strange fascination we all seem to have with the stars, how something so remote and beyond our reach can have such a lasting impact upon us. It also has some bearing on why the CCD and video imaging that's

all the rage today — even given its attendant wondrous capabilities — simply doesn't cut it. Looking at celestial objects on a TV monitor or projected onto a planetarium dome (even in real time) cannot fulfill the need of the human mind and soul for that direct personal contact with the cosmos from which we sprang. As Eric Hoffer so well expressed it, "It's a kind of homing impulse — we are drawn to where we came from."

My premise then is that providing an opportunity for firsthand telescopic encounters with the day or night sky as part of a planetarium visit is essential to any truly meaningful and lasting educational astronomy experience. In other words, every such facility — be it a large museum installation or small school setup — should have one or more good telescopes available for regular use in conjunction with its programming.

The size, type, and make of such an instrument really matter little, so long as the optics are good and the mounting stable. Nothing so draws attention as an open observatory dome. I've found that

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ELEANOR DAVIES

a large telescope tube looming against the sky in a planetarium's parking lot is a veritable curiosity magnet. This is especially true for the big, popular Dobsonian reflectors that look for all the world like huge celestial cannons aimed heavenward.

However, the instrument selection should involve factors like observer convenience, portability (if required), light grasp, resolution, field of view, image scale, and atmospheric and thermal considerations. Few realize that, given stable atmospheric seeing, an instrument of 8- to 14-inch aperture can show features on the Moon's surface only several hundred yards across and detail in sunspots down to a few hundred miles! Likewise, on nights of good atmospheric transparency, scopes of this size are capable of revealing the nearest quasars — even from the heart of a light-polluted city!

In years past it was traditional at most major planetariums to offer a look through a telescope as the climax to a visitor's encounter with the universe. Sadly, that is now rarely the case. So I challenge those among you who operate or administer such facilities to “do the

right thing.” If you lack the funds to buy and operate a decent telescope, contact astronomy clubs in your area; undoubtedly there are qualified amateurs eager to help out.

But let me also invite each of you, as fellow stargazers, to put my premise to a smaller-scale test. Some crystalline night, and on no particular occasion, invite your friends and neighbors over for a little “quality” observing time. Experience for yourself the wonder in their eyes, the excitement in their voices, and the astonishment on their faces as they peer into space. You'll then know beyond any doubt that they have indeed “connected” with the cosmos. And you will realize all over again why it is you point your telescope skyward in quest of the photon connection.

JAMES MULLANEY

Formerly an editor at Sky & Telescope and curator of Buhl Planetarium, Mullaney has logged more than 20,000 hours of star-gazing and is coauthor of the Sky Publishing booklet The Finest Deep-Sky Objects.

Focal Point invites contributions from readers who wish to comment on contemporary issues in astronomy and space science.