September 1998

The Objective View
Newsletter of the Northern Colorado Astronomical Society
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Meetings first Thursday of each Month
Next Meeting: September 3 7:30 pm Discovery Center Fort Collins
"Jovian Planetary Atmospheres" by Bill Massman
** Club Business will precede the program, 7-7:30 pm **

September 3 NCAS Meeting Directions
Discovery Center, 703 E Prospect Rd, Fort Collins
From Loveland go North on US 287 to Prospect Rd in Fort Collins, go East about 0.5 miles. Look for the Discovery Center sign on the South side of the street. From I-25, take Exit 268, head West into Fort Collins. Continue past Lemay Ave about 0.5 miles and see the Discovery Center on the left.

NCAS Star Party, September 12 or 19, Stove Prairie Site
From the Stove Prairie School go 1.1 mile west and bear west(right) after the fence for a tenth or two. Tom will put out the star party sign on the left side of that road. You can call 482-5702 if the weather is in doubt. The Stove Prairie School intersection is 13 miles west from Bellvue and over the Rist Canyon Road, while in place this is a steep road, the county takes VERY good care of it. If you’re coming from the Loveland area use the Masonville Road, the S.P.S. is 14 miles from the Masonville intersection. The site itself is at about 7500ft, it has a good open horizon (5°-10°), but not cacti or services. So bring warm clothes, several layers. Be prepared!!! This site is allowed us through the auspices of the land manager/owner, he wanted us to CALL before we went up there and asked that we leave the site clean and in the same condition as we found it. Call Tom Teters with questions about the star party status, site or dates, 482-5702, or Email tjteters@ezlink.com.

NCAS Events, from Randy Moench, Vice President
October 1 Show and Tell
November 5 Mars Society Brad Jarvis

Other FRASC Events
Longmont Astronomical Society Meetings
7:30 pm, Third Thursday, monthly
Longmont Christian School, 550 N Coffman St

Little Thompson Observatory Dedication
October 10

August 6 Program: Establishing a Human Mission from Planet Earth: Technology Assessment and Social Forecasting of Moon/Mars Synergies" by CSU’s Eligar Sadeh

Sadeh introduced various premises which have been used to promote space travel. The need to explore was the theme of the Apollo program. Feeding utopian desires, space offers an escape from the pollution-damaged Earth. At best, the Earth is finite, so we must look to space to support continued growth. Questions abound about the origins and prevalence of life in the universe, and will require exploration to get answers. For some, life lacks fulfillment without exploration, and space is the last novel place. He then reviewed our progress to date, from 19th Century science fiction, through the rocket motors of Robert Goddard and Hermann Oberth, to the 1950’s, when the technology matured to send humans into space. The VonBraun paradigm of orbiting space stations, lunar bases, and a mission to Mars dates to the 1950’s, and is still NASA’s paradigm. The 1960’s, the Cold War, brought military competition with the USSR and accelerated the program considerably. The country was caught in a swell of optimism, verbalized by NASA administrator James Webb: If we can go to space, we can do anything. JFK’s promotion of the space program contrasted with Eisenhower, who considered space for science but not humans. Reaching the Moon was a Cold War Must. Once we succeeded, the demise of the Apollo rapidly followed. Space exploration was rapidly followed by space utilization, for applied science missions, communications and remote sensing. The 1970’s saw missions based on hardware leftovers, the Skylab and Apollo-Soyuz. Coincident with backlash against social engineering ideals, then Watergate, there was a general loss of support for big government programs. NASA became discretionary spending, competing with other programs. Time scales slipped, and whereas Apollo reached fruition in 7 years, the Space Shuttle was developed in 9 years, and the International Space Station has stretched to at least 16. The Challenger accident, HST’s problems, and loss of the Mars Observer
sapped morale. Human missions to the Moon and Mars were postponed indefinitely. Some asked, can democracies fly in space? Post-Apollo, visionaries like Carl Sagan and Robert Zubrin have sought to tap tangible rewards, and intangible, philosophical motivations to go back into space. If governments’ goals no longer embrace an active space program, it is time to seek funding outside the federal budget. NASA now finds more modest success with the smaller, better, faster, cheaper missions promoted by administrator Daniel Goldin. Development runs 2 years instead of 8-10. In the response to these robotic missions, space travel proponents claim they fail to fulfill a basic imperative of human nature. When NASA’s $500 Billion Mars plan was sidelined, Zubrin promoted the Mars Direct approach for 1/10th the cost, bypassing the Moon with a bold, shoestring, self-sufficient mission to Mars. Sadeh however sees the Moon as a technology testbed, much safer at 3 days away, and promising for lunar-based astronomy, nuclear fusion, systems sustainability. He noted potentials for robotic/human synergies. Finally, Sadeh summarized preliminary specifications for a novel inflatable habitat, and the Engineered Closed Controlled Ecosystem. The model is a steppingstone to expansion beyond Earth. He anticipates lunar habitation will follow the life of the Space Station, likely 2020. He emphasized that humans made a fundamental leap, becoming a space-faring civilization in 1968. It remains to us to follow through.

Bio Note: Eligar Sadeh is NASA Fellow and Coordinator, Center for Engineering Infrastructure and Sciences in Space, Colorado State University.

Upcoming CEISS Seminar: September 22. Projects for Exploring the Outer Planets. David Wuerner, JPL. Lory Student Center, CSU.

1999 Magazine Subscriptions: Club annual rate for Astronomy Magazine is $24, and for Sky & Telescope is $27. Bring your renewal card, or address label, and check made out to the magazine, hand or send to Dan Laszlo.

Discovery Center Star Parties Next date is Wed, September 23 at 8pm. Exact site is to be announced. Let Brad Jarvis know if you can come, 686-7317. Other dates 10/21, 11/18, and Dec 16.

Scope for Sale: Brand new, never used Orion refractor telescope - made by Vixen of Japan. Item description/original cost: VX102 GP refractor, achromatic, 102mm diameter, focal length 1000mm, with high-precision GP equatorial mount and Sirius Ploss 26mm, 1.25” eyepiece ($1199.00) Accessories: Motor drives for R.A./Dec. ($198.00) Dual-axis drive controller ($199.00) Sirius Plossl 7.5mm, 1.25” eyepiece ($49.95), eyepiece and accessory case ($27.95) Total original cost ($1673.90) Will sell entire package for $1300.00. Jim Best in Longmont at (303)684-8774 or e-mail jbest@rmi.net

Astro Titles Needed to Replenish CSU Library. The collection was devastated by last year’s flood. Bring or send a list of titles, books less than 20 years old, to Emily Thurston. The library will likely be ready for books early in 1999.

September Observers’ Guide, by Brad Jarvis
During September, we are once again treated to evening views of bright planets. The outer planets, Jupiter and beyond, all can be found after 9:00 p.m.

On the 5th, from about 12:09 a.m. until about 2:00 a.m., Jupiter crosses in front of the magnitude 9.7 star PPM 207856 (RA 23h42m13s, DEC-03d36m14s).

Moving roughly northeast to southwest near Jupiter in the sky, the 523 km wide asteroid Pallas can be found at eighth magnitude this month as it travels in its 4.6 year orbit around the Sun. At 9:00 p.m. on the 15th, Pallas can be found at RA 23h34m48s, DEC -02d38m42s, 2.1 au from Earth, with an apparent speed of 46 arcsec per hour.

Also visible is the recently discovered comet Meunier-Dupouy, C/1997 J2. This comet has an almost exactly parabolic orbit. By the middle of this month it will be 2.7 au from Earth, at magnitude 11.2, moving south by southwest in the sky at 1.1 arcmin per hour. Its position at 9:00 p.m. on the 15th will be RA 21h08m50s, DEC +01d20m01s.

For deep-sky objects, we’ll look toward the southeast. Before moving on to new objects, don’t forget to take another look at the great Andromeda Galaxy, M31, north of the great square of Pegasus.

In Pegasus you will find, with a big enough telescope (12” or greater), a group of 14th magnitude galaxies called Stephan’s Quintet (RA 22h35m58s, DEC +33d57m58s), four of which are interacting with eachother. About a half a degree to the northeast is a much brighter target, the barred spiral galaxy NGC 7331 (RA 22h37m05s, DEC +34d25m10s; mag 10.1).

One of the brightest stars in the sky, Altair (RA 19h50m47s, DEC+08d52m03s; mag 0.8, dist 5.1 pc = 17 ly), defines the constellation Aquila the eagle, and can be found just northeast of Scutum along the Milky Way. This white star is a binary, and was recently found to be a periodic variable. Altair is flanked by the reddish star Tarazed (RA 19h46m16s, DEC +10d36m48s; mag 2.8, dist 141 pc).

Planetary nebulae abound this month. In the western wing of Aquila is the faint nebula NGC 6781 (RA 19h19m24s, DEC +06d33m; mag 11.8, diam 109 arcsec). Nearby is a nice globular cluster, M72 (RA 20h53m30s,
The Helix Nebula (NGC 7293: RA 22h30m, DEC -20d48m; mag 6.3, dist 153 pc), also in Aquarius, has the distinction of being the closest planetary nebula to us, a faint ring covering 960 arcmin in the sky.

Near the NGC 7009 - M72 - M73 grouping, in the constellation Capricornus, you will find the two outer gas giants of our Solar System. Uranus at mid-month can be found at RA 20h49m39s, DEC -1'8d27m17s. Neptune will be at RA 20h07m54s, DEC -19d50m41s.

The map overleaf is for September 15 at 10:00 p.m.

**Mir in September.** Times are estimates as of late August. Best passes are underlined.

Times are MDT, Fort Collins/Loveland. Az is compass direction, N=0, E=90, S=180, W=270. Elevation above horizon, 10 degrees, about a hand-width at arm’s length.

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**The Mars Society Founding Convention.** From August 13-16, the founding convention of the Mars Society was held in Boulder, and was attended by over 700 people from around the world. Many were motivated to come by reading engineer Robert Zubrin’s book *The Case For Mars* (The Free Press, 1996), which details a plan to get people to Mars in a decade. Many scientists, engineers, and others have worked tirelessly and without major recognition over many years to develop the basic principles, knowledge, and technologies necessary for such a venture. As Zubrin put it at the meeting, the Mars Underground has come above-ground. They feel it is time to go, and are willing to do whatever it takes to do so. Their motivations are varied, but focus on the need for humans to expand our physical boundaries for our continued survival. If you are interested in learning more, or helping out, see the Mars Society Web page at <www.mars society.org> or contact me, Brad Jarvis, by e-mail <bjarvis@ezlink.com> or phone (686-7317).
Map for September 15 at 9:00PM MDT

From:
c/o Dan Laszlo
2001 S Shields St Building H
Fort Collins CO 80526

TO: