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Roaming the Region

Approximately 1000 people visited the facilities of the Milwaukee Astronomical Society at seven open houses during the summer. Visitors were able to look at and through the various telescopes at the MAS observatory. The number of visitors was particularly gratifying when the weather of the various nights was considered. Parking, donations and the sale of books, soda and pins added nearly $500 to the MAS 26" Telescope Fund.

Ed Plamondon was unanimously chosen as the Dubuque Astronomical Society's "Astronomer of the Year". His name will be submitted as the DAS candidate for 1982 Astronomer of the Year for the state of Iowa. Besides his continuing commitment to spreading interest in astronomy, Ed founded the DAS group 24 years ago.

For the third year, the Naperville Astronomical Association had an exhibit at the Fox Valley Leisure Fair. An estimated 1500 interested spectators viewed the display and observed terrestrial objects through four telescopes provided by members of NAA. Although it always seems impossible, many people mentioned that they were unaware of the activities of the NAA. (A common problem of most amateur astronomy groups! - ed.)

Mount Jennings - 1982

What do these things have in common: campfires, hikes, dew, S'mores, mushrooms, Darlington, Gratiot and Monroe, Wisconsin, large telescopes, "War of the Worlds", cheese samples, dark clear skies and Jenny? If you were not on this year's Mount Jennings expedition of the Chicago Astronomical Society, you will never really know!

This was the year of the **Big** telescope. John Phelps had his 17.5" Dobsonian; Jon Nehls had a DS-16; Gene Waldo had a C-14 and Dave Goldman brought a 12". Five ten inch scopes were on hand and several eight inchers. Bert Stevens was photographing with a six-inch that seemed small in comparison.

Our daytime activities were as variable as the weather. Mushroom hunting in the woods and cheese sampling in Monroe were among the most popular activities. The nighttime weather was also cooperative, giving four clear nights out of seven.

All of the scopes performed well, but the large ones really pulled out the elusive objects. Some of the highlights of observed objects are: Polarissma (the faint galaxy near Polaris); the "companion" galaxy near NGC 7331; individual members of Stephen's Quintet; dark lanes in M-13; NGC 2168, the small cluster near M-35; and many, many more.

(cont. p.4)

1981-82 Mars Apparition Report

(by Dan Troiani, Chicago AS, reprinted from the CAS Observer)

This apparition was a very exciting one for Mars observers. It all started in late December, 1981, with the reappearance of the Rima Tenuis in the northern polar cap (NPC). The Rima Tenuis is a thin, dark rift across the NPC that was rediscovered in December, 1979, after not being seen since 1918. It was photographed by Parker, assistant Mars recorder, ALPO. I observed it visually on December 26, 1981. It was still observed across the NPC remnant in large instruments in late April. At that time, there were a few small ice-fog and frost patches that complicated definition of the true arctic cap remnant.

In late March, I had the opportunity to go on an observing trip to Lowell Observatory in Flagstaff, Arizona. I was invited there by Charles Chapen, Lowell Astronomer and Mars recorder of ALPO, because of my visual work on Mars, to observe with him on the 24", f/16 Clark refractor located there. John Phelps and Bert Stevens went with me on this trip. Because of weather problems, it turned out that we had only two nights on the 24" with only fair to poor seeing. But even with poor seeing, the telescope's images were still fairly good. I was able to make ten full disk drawings of Mars with different color filters plus a few photographs for Mr. Capen's Mars research at Lowell Observatory.

Color filter observing of Mars is used to get different types of observational data. With different filters you can work on albedo surface feature changes, atmospheric clouds, limb brightening, frost or ice patches and others. With the 24" telescope, I was able to observe some limb clouds, frost patches near the NPC, a good blue clearing and equatorial cloud bands. These latter might be caused by the upper global circulation of Mars. Besides observing Mars, I did get some beautiful views of Saturn and Jupiter with the 24" and its 12", f/15 refractor guide scope.

By observing with Capen, I got to learn a lot about how to work with color filters, what they can show, what to look for and how to interpret what is seen through them. We had many hours of informal discussions on current observing phenomena, observing techniques, planetary photographic techniques and visual drawing methods. It was a great experience, one that was profitable to us all. We got a personal tour of Lowell Observatory facilities.

In mid-April I observed transient changes of the surface albedo features in the Nilokeras and Lunae L regions, as well as in the Arcadis and Amazonis region in the west. Mr. Capen, who confirmed my observations, is doing a comparitive study of the April and May, 1982, observations with those of the same areas made in 1964-65 and in 1966-67. In these earlier observations, these regions had many areas that were bright in green and integrated light. These same regions were reported to be bright during the current apparition. The bright areas distort the outlines of Nilokeras, sometimes covering the Lunae L. The Achillis F and in between areas were very dark and large, with Lunae L fading at times. More observations and work are needed to better understand this albedo phenomenon.

From the "Martian Chronile '82, Mars Observer Newsletter," Mr. Capen reports that Mars observations reported up to then had shown slightly different seasonal trends in the Martian meteorology than had been expected. This indicates a possible change in the Martian climate. Little limb haze and cloud activity were observed through the spring. The NPC had a fast thawing rate this past Martian spring. Several small, transient yellow dust clouds were reported during this apparition. One bright yellow cloud was reported within Chryse, over the still active Viking Lander I.

I saw many of these clouds along with a strong violet clearing (blue clearing in violet light) throughout this apparition. Again this year, I observed a very bright frost and fog in the Hellas. This region is to the north of Syrtis Major and has been mistaken by many observers for the SPC because it is often as bright as the NPC and it is located near the southern limb. To date, I have made 297 full disc drawings and have taken 22 photographs of Mars. Even with Mars below six arc seconds' size, serious observations of atmospheric phenomena can still be made using color filters.

This 1981-82 apparition is very exciting to all students of the Red Planet. Because of the condition of present spacecraft missions to Mars, it is up to the Earth-based planetary observer to keep an eye out for future developments in Martian meteorology.

Life and Death of a Blue Supergiant

(by Bill Leighly, Fox Valley AS)

It could be said that stars form the base of nature. It seems that the basic form of matter is a spherical organization of hot thermonuclear gas, poised in a typical galaxy. Clouds of them stain the night sky like a blue shimmering fog twisted against the velvet of interstellar darkness, multicolored mists glowing in subtle hues of red, orange, yellow and blue.

Contrary to common belief, stars are by no means static, unchanging entities. All stars are born, live out their lives and perish to be dispersed once again into the space from which they came. They are changing, evolving things, having a set series of events occuring between birth and death. This series of events is called "stellar evolution." Although stellar evolution may vary slightly from one star to another depending on its mass, the general outline tends to be uniform. The following is the story of a common star.

The nebula had lain in this section of the galaxy for many millenia, a glowing remnant of a supernova explosion, draped across the face of darkness like a cold veil of chilled cherry-red web. It stretched for many light years, spanning at least the distance between the two stars glowing dustily from its hot interior. It had been a long time since this gas had seen change; a long time since that tremendous explosion that had ripped the very guts from a star and spread them throughout space to slowly cool. Yet slowly, almost imperceptibly, change was coming to this cold cloud of dust and gas that had remained dormant for so long.

When the force of the explosion that had brought it into being subsided, the nebula felt its outward momentum dropping as the inexorable force of gravity pulled from its center. Finally, under the influence of this gravity, the cloud began to contract, reversing the explosion that had happened many millions of years ago. Twisting and churning, the immense bulk of the gases found themselves suddenly compacted into a small space. This caused heat generation as the kinetic motion of molecules in the gas began to rise. Yet the cloud was still huge, many light years across.

As the contraction continued, heat continued to build up in the center of the nebula. The building of this heat and the contraction of the nebula continued until, when the cloud was only a light day or so across, a wonderful thing occurred. Flashing on within the murky interior of the nebula's heart, a star was born. The center had generated so much heat that that the hydrogen nuclei fused and liberated thermonuclear energy. In one quiet corner of the universe, unseen and unheard, a star had quietly come to life.

As soon as the newborn star established itself, the rest of the nebula condensed to form a family of planets circling the hot, blue giant. Life did not come to the the rocky, blasted surfaces of these star-baked wowrlds, as all were much too hot.

Soon, the gases of the nebula were blasted into space by the radiation of the hot, young giant and it shone free and clear. Once again, another beacon shone in the darkness in the stead of the unknown entity that had gleamed here eons before and had ripped itself apart in that most spectacular of nature's awesome show, a supernova.

Yet this star was a reckless blue giant. Within three million years, a mere flicker in the timescale of the universe, all the hydrogen in the star's core was converted to helium and a strange thing happened. The helium, under the influence of the horrific temperature and pressure at the core, began to fuse in turn, releasing still more energy.

Suddenly, history repeated and the star destroyed itself in a tremendous explosion. The substance of the star was once again dispersed into the void to form another nebula. It would expand for many millions of years until it, too, began to feel the beginning of gravity's contraction, once more toward its center...

16" Cassegrain Donated to Loras College Observatory

The Dubuque Astronomical Society recently received the donation of a 16" cassegrain telescope of 190" focal length with the stipulation that it be given to Loras College, in the society's name, for permanent mounting in the college observatory. Dr. Pasquale Di Pasquale, Jr., college president, has acknowledged the gift with the thanks of all at the college. The gift stipulates that society members will have the opportunity to use the instrument when it is not being used for class work or research.

Frank Miller and Tom Goodman received the telescope in the name of Loras College during the summer. They have removed the old 12" Newtonian from the observatory and are in the process of installing the new scope. For the time being, the new instrument will be mounted on the base and drive of the old 12". Work is progressing slowly, but both Miller and Goodman hope to have the cassegrain mounted and ready for use by year end.

Anyone who has had to stand on the top of a high stepladder to use the older Newtonian instrument will appreciate the ease with which the new telescope can be used. It will be particularly beneficial for extended observing.

The addition of this telescope to the Loras College facility will provide the college and the DAS members with one of the largest instruments in the state of Iowa. All DAS members are extremely grateful to the anonymous donor and are anxious to begin using the instrument for a variety of observing and photographic programs.

Mount Jennings (cont.)

This year's trip was well attended. In addition to the CAS, amateurs from Joliet and a large group from the Lake County Club were present. On Saturday, the entire inner circle of the camp was filled with astronomers. And what about Jenny? You will have to come along next year, yourself, to find out!

February 28th is Deadline for March Issue