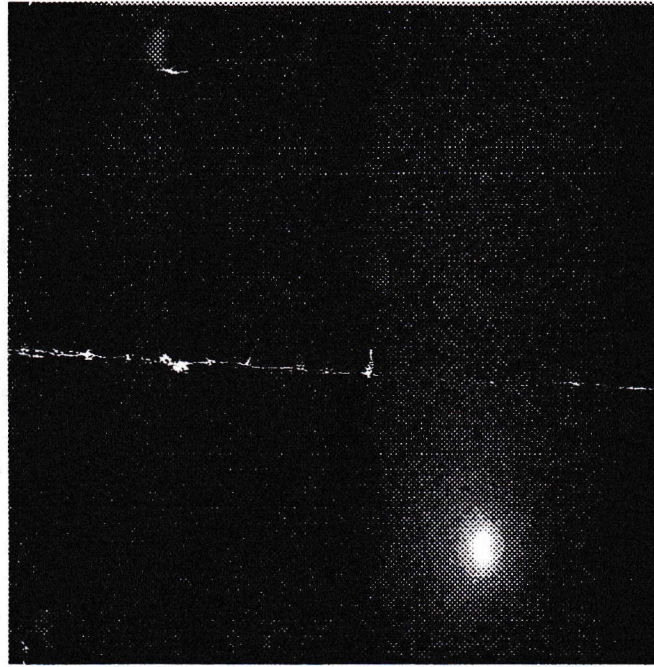


REFLECTIONS



REFLECTIONS

November , 1991

This CCD image of comet Faye was taken on October 17th by R. Tanner with a 12.5" f6 telescope, unguided, 200 seconds

R. Tanner, ed.

University Lowbrow Astronomers

The University Lowbrow Astronomers is a club of astronomy enthusiasts which usually meets in the historic "Detroit Observatory" on the corner of Observatory and Ann Streets in Ann Arbor. The meetings start at 7:30 on the third Friday of each month and are open to the public. For further information, call Fred Schebor at 426-2363.

This Month:

November 15 - Meeting, At the Pioneer High School Planetarium, Ann Arbor. Steve Schaefer will present a demonstration of the planetarium with a inside look at how the planetarium is run and how the planetarium produces the stars and images. The map to the school is shown on the next page.

November 30 - Club Observing Session, Peach Mountain Observatory, here is a chance for the clubmembers to get out and observe as a group, without the constraints of a public open house.

Next Month:

December 1 - Computer Subgroup Meeting at Tom Ryan's house. The topics for this meeting are; improving the sky map in this newsletter, possible improvements to the 24" scope, and a demonstration of the software for the new SBIG ST-6 CCD camera which has some 16 bit images taken with the camera. Note that this date is a **Sunday**.

December 7 - Club Observing Session, Peach Mountain Observatory.

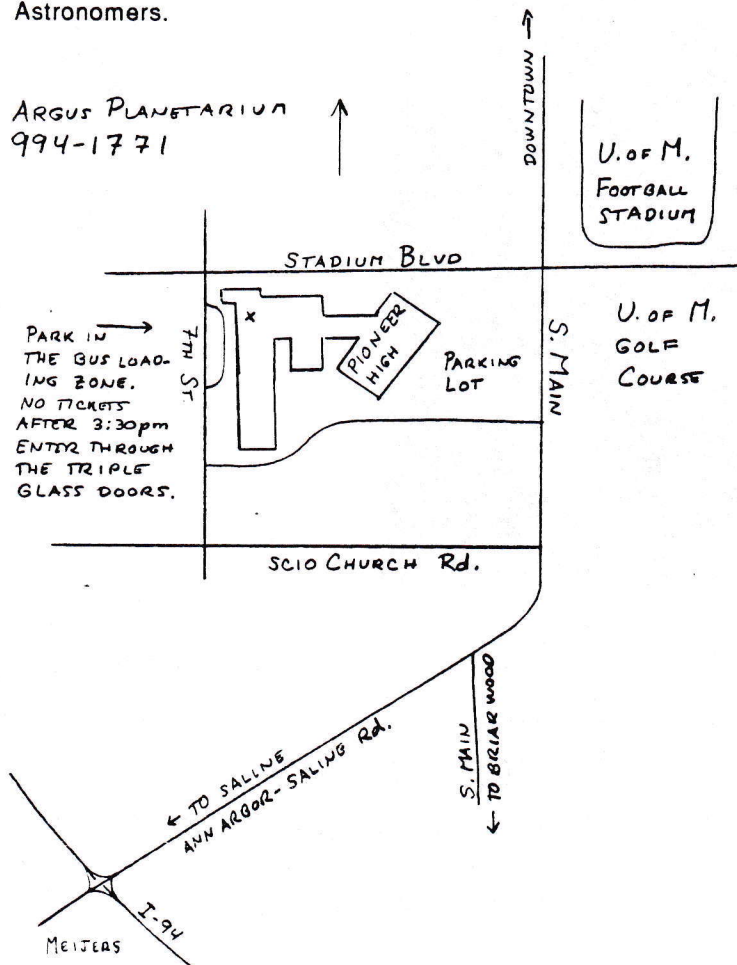
Observations of Comet P/Faye, 1991n

At the last meeting John Laffitte reported that by punching the coordinates from the finder chart in last months newsletter into his computer controlled scope he located the comet on October 17th. He said that the comet was very faint and difficult to see.

I (R. Tanner), found the comet the same night with some difficulty at a Fenton observing site. Visually, there was a nucleus with a faint coma around it. A CCD image taken at the same time showed a very faint tail and some asymetry of the coma. The night of the Galaxy NGC 676 passby was clouded out, and the next time I found the comet was the night of November 8, the great aurora night. Another image of the comet that night showed a more symetrical coma and no tail. I would be interested in any other observations of this comet.

Club News

Map to the November meeting of the University Lowbrows Astronomers.



An Observing Report by Roger Tanner

The Great Aurora of November 8, 1991

This night will go down in my memory as the greatest auroral display I have ever seen. It started out during the drive home when I noticed that the planes flying into Metro were particularly sharp even several miles away, in a good clear sky. This prompted me to think about an observing run that night. When I got home, a call to go observing by a member of the Warren Astronomical society finalized the decision and I loaded up my computer and CCD camera and headed off to Doug Bock's house and observatory in Fenton. It was already dark as I drove past Novi, and glancing out the window I noticed what appeared to be some white streaks like contrails lighting up the sky, "damn planes" I thought. Little did I know that this was the start of the auroral display and it was visible even in the light polluted suburbs of Detroit. Traveling up I-23 I got stuck in a traffic jam left over from some accident. Looking out the window I noticed that the sky was covered with whitish patches all over and that it was hard to see any stars. I

was resigning my self to a night of watching the sky get clouded out which has happened so many times before.

Finally turning off the highway I realized that the white clouds were moving and this was one very bright and large aurora. I raced down the dirt road to Doug's and he was out with his daughters viewing the aurora. As I stoped the car and got out I was stunned by the brightness and activity of the display. There were well defined curtains in the north and a flower type display over head with streamers reaching down to the curtains in the north and down to 30 degrees from the horizon in the south. And this is without any dark adaption. The over head display showed the most activity, there were bright spots of red glow several times during the night. I have difficulty seeing color in faint objects whether they are nebulas or auroras but I could see **green** and **red** in this aurora it was so bright. The flower display is very rare this far south because it means the display is right over head and the streamers are running out in all directions in a parallax effect like meteor trails.

As I greeted Doug, he said "Its too bad you didn't get here earlier for the really bright start of it", he said the **aurora was so bright and red that it cast shadows on the ground !!** His brother in law agreed and said that the aurora was bright enough to read by. I arrived at 8:45 and the brightest part of the display was around 8:00. I wonder if the accident on I-23 was caused by people looking out their windows at the aurora and not watching the road?

I watched the aurora for several hours and as it ebbed and flowed, it presented an ever changing spectacle. The other thing that impressed me was the length of the display, the aurora lasted until I left at 4:00 AM, and although it was faint over head, it was still bright in the north. The aurora was so bright in the south, I had to wait until after midnight to even find the stars in Pisces which would guide me to comet Faye,

I had seen several aurora at Doug's during the last five years ! have been observing there, but this was many times brighter, covered more of the sky, and longer lasting. Doug, who has been in astronomy for 20+ years, said this was the best display he has ever seen.

Because I was going to do some CCD imaging I didn't bring my 35 mm camera and didn't get any pictures, arrg ! The member of the WAS that met me out there was a professional photographer and always brings his camera, but not tonight ! Two people were mentally kicking themselves that night for several hours.

Subgroup Reports

Computers in Astronomy Subgroup

The ninth meeting of the Computers in Astronomy Subgroup was held at Roger Tanner's house. There was a turnout of 3 members.

The meeting proceeded with a discussion of the different programs available to generate sky maps. There are several types of star maps available, from a view of a small portion of the sky to an all sky map as produced for the Reflections. The problem is that most programs produce hardcopy maps of limited usefulness.

Most of the programs which produce maps usually only produce a map on the screen and then copy the screen to the printer. This limits the resolution of the map to the resolution of the screen. A program which runs in VGA mode will output a map of with a typical resolution of 75 dots per inch which limits the amount of readable information you can get on the page. This is the way Sky Globe, Dance Of The Planets (I think), and Cosmos produce their sky maps. Deep Space 3D is one of the cheaper programs which can produce a sky map which takes advantage of the printer resolution. Version 2.1 of the program will output a star map with additional detail beyond what appears on the screen. Version 3.0 will print the map at the highest resolution of the printer, 300 dots per inch for laser jets, and 360 dots per inch for 24 pin printers. These resolutions produce maps which look very much like the Sky Atlas 2000 maps. Doug Nelle used Deep Space 3D to produce this months sky map on his 9 pin printer and there is more detail and objects shown than last months map which is a screen dump from Sky Globe.

After increasing the resolution to show a useful amount of information, the next requirement is to have a database with the objects you need to build the map from. The all sky map used in the newsletter only needs to show the brightest few stars to show the constellations. The map should also show the brighter deep sky objects, the planets, and the moon. This probably can be done with Deep Space 3D but will require more experience with the program.

However, a map used as a finder chart for a comet, faint planet, asteroid, or deep sky object needs to show stars down to the faintest magnitude possible. Uranometria goes to magnitude 9.5 and includes 330,000 stars. Yet a 8" telescope can show stars down to 13th magnitude, which is far beyond the reach on all available maps. This is an ideal way to use a computer generated map as a supplement to the available maps for a small area finder chart. The problem is finding a database or mapping program which has the necessary depth. Most of the available programs stop at magnitude 10 except those that use the Hubble Guide Star Catalog on CD ROM. The HGSC extends the magnitude limit down to >15th. Consider that the typical

eyepiece field is .5 degrees and that in .5 degrees the Uranometria typically shows only a few stars. This is ok for galaxy and nebula hunters but if you were looking for asteroids you would need a really deep map to know that the "stars" in the eyepiece were all stars.

The discussion then turned to what could be done to enhance the usefulness of the Sky Map page in the newsletter. The additional ideas brought up were ; include a graphic showing the times of the month when the moonless observing time would be available, add a list of interesting objects for various sizes of scopes and observing skills, including some challenge objects. This is an area where the computer subgroup could contribute a great deal to the newsletter. This discussion will be continued at the next subgroup meeting.

Home Brew Image Processing Program

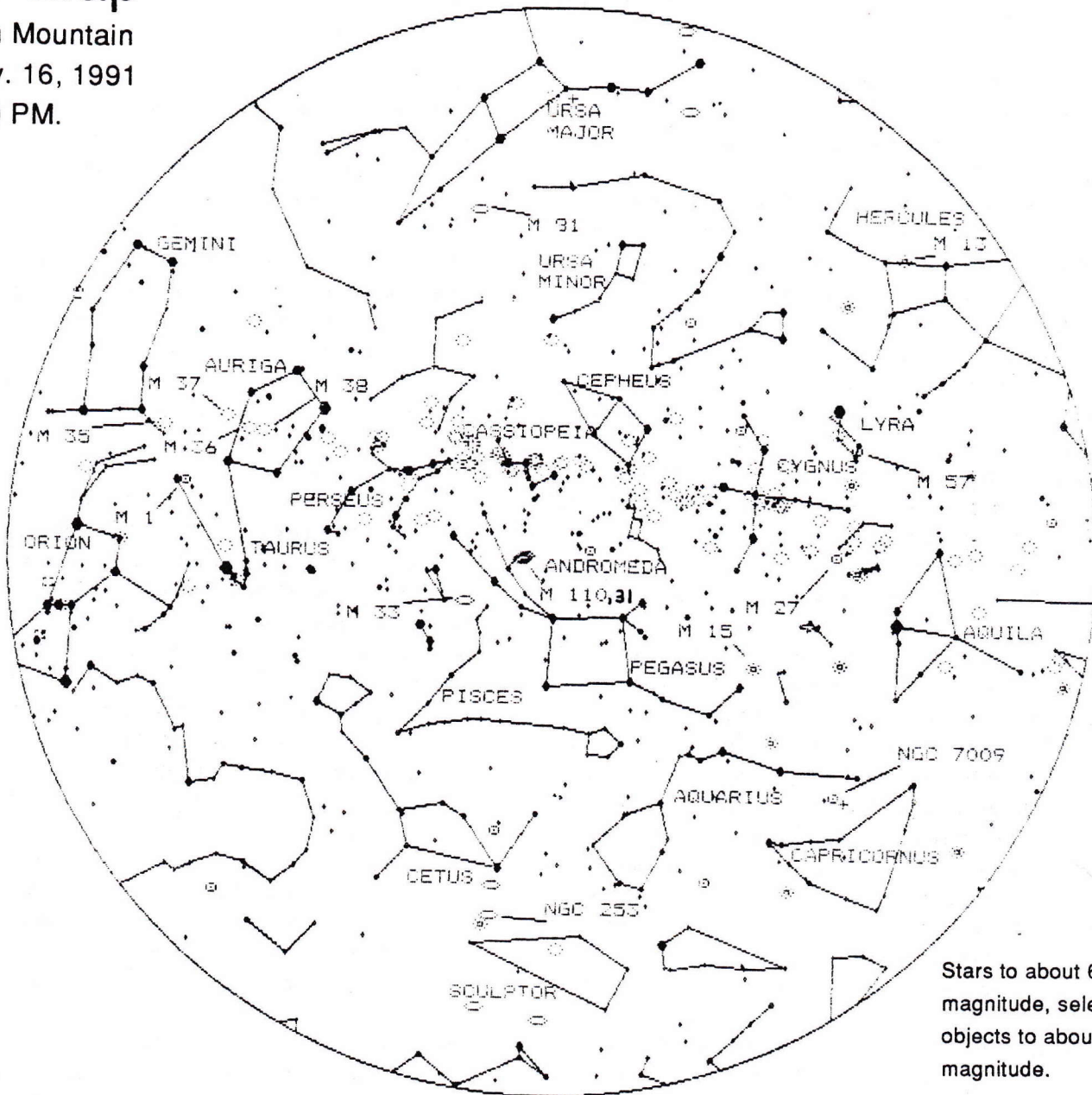
I demonstrated a program I was trying to write to view and manipulate astronomical CCD images in Windows on an IBM computer. I wrote it in Visual Basic which is a new programming language developed by Microsoft to make Windows programming easy for the Basic programmer. The program design and debugging environment is a Windows program with full use of the mouse and windows. This programming environment makes it an easy point, drag, and click task to design a graphical user interface and can eliminate most of the programming work to produce and support this style of interface. However, as was demonstrated, Visual Basic has some important restrictions in supporting image processing. First the program has no way to move a image array into a picture window, the image must be moved in a pixel at a time. This takes 52 seconds for a 31,000 pixel image on a 486 machine!. Second, either Windows or Visual Basic doesn't allow the grey scale to be set exactly, but sets the pixel intensity to the nearest Windows color. This results in a 256 grey level image showing up in about 8 shades of grey. The group discussed this and didn't come up with a fix.

Next Meeting

The next meeting will be on **December 1, a Sunday**, at **Tom Ryan's house at 7:30**. The topics for the meeting are; improving the usefulness of the star map page of the newsletter, and , what could be added to the club 24" to improve it's user friendliness (like a microcontroller with the 1000 brightest deep sky objects to drive the scope). I will show the software for the Santa Barbara Instrument Group's new 91,000 pixel CCD camera with some 16 bit demo images. Future topics could be " Online astronomy databases and BBS's ",or, " User programming for various astronomical calculations". Any other topics that are desired please contact me (Roger Tanner). As always, if anyone wants to demo some astronomy software feel free to bring it to the meeting.

Sky Map

Peach Mountain
on Nov. 16, 1991
at 9:00 PM.



Stars to about 6th magnitude, selected objects to about 9th magnitude.

Some data on interesting objects up this month.

Solar System Objects:

Planets: Uranus - 5.8 Mag., Neptune - 8.0 Mag., Saturn - 1.1 Mag.

Comet: Periodic comet Faye in Pisces (see map in last issue) about 9.5 Mag.

Local objects in the Milky Way:

Open clusters: Pleiades - 20 M years old, 470 LY (light years) away.

Double cluster in Perseus 2 groups of stars 7400 LY away, each 70 LY in dia.

Globular Clusters: M13 in Herculse - 25,000 LY away, with 1 million stars in 160 dia.

Planetary Nebulas: M57, The Ring Nebula - .5 LY in dia. and 1400 LY away.

M27, The Dumbell Nebula - 7.5 LY in size, 900 LY away.

Outside our Galaxy:

M31, The Great Galaxy in Andromeda - 2.2 M LY away, inclined 15 deg. from line of sight, 180,000 LY in dia.

M32 - the closer of the two easily visible dwarf companion galaxies of M31, 2,400 LY in dia., Mag 9.5.

NGC 205 - The farther away of the two companions to M31, 5,400 LY in dia., Mag. 10.8.

Places:

The *Detroit Observatory* is at the corner of Observatory and Ann Streets in Ann Arbor, across from the old U of M Main Hospital. The Detroit Observatory is an Historic Building which houses a 19th century 12-inch refractor and a 6-inch transit instrument.

The *Peach Mountain Observatory* is the home of the U of M radio telescope and the 24-inch McMath telescope used by the Lowbrows. This observatory is located northwest of Dexter, off North Territorial Road, West of Dexter-Pinckney Road. The entrance is just west of Sportsman's party store and is marked by a small maize and blue university sign. Go through the gate and follow the gravel road. Once parked at the observatory parking lot, follow the path away from the radio telescope and around the fenced in compound to the telescope.

Times:

The monthly meetings are held on the 3rd Friday of each month at 7:30 pm. Meetings are either at the "Detroit Observatory" in Ann Arbor or at the Peach Mountain Observatory. Meetings held at Peach Mountain are cancelled if the sky is not clear at sunset.

Public Star parties (Open Houses) are held on the Saturdays before and after the new moon at the Peach Mountain Observatory. Star parties are cancelled if the sky is not clear at sunset. Many members will bring their own telescopes. Your scope is welcome. Wear warm clothes for the season and bring insect repellent. The next scheduled Open Houses are listed on the first page.

Dues:

Membership in the Lowbrow Astronomy Club is \$20 per year for individuals or families, and \$12 per year for students. Among other things, this entitles you to use the club telescope after some training.

Magazines:

The Lowbrow Astronomy Club offers discount subscriptions to popular astronomy magazines:

Sky and Telescope : \$18/yr.

Astronomy : \$16/yr., 12 issues.

Magazines: (cont)

Deep Sky : \$10/yr., 4 issues.

Odyssey : \$10/yr., 12 issues.

Telescope Making : \$10/yr., 4 issues.

Contact Dick Sider (663-3968) for more information or write to him at the address below:

Dick Sider

902 Pauline Blvd.

Ann Arbor, Mich. 48103

Sky Map:

The *Sky Map* section in this issue of *REFLECTIONS* is produced by Doug Nelle. Doug uses the program Deep Space 3D and prints the sky for the meeting night.

Newsletter Contributions:

Please send any information, short articles, or drawings to the address below. The closing date is 10 days before the meeting. Currently there are not many people contributing and we could use some fresh observations from the members.

University Lowbrow Astronomers Reflections

1770 Walnut Ridge Circle

Canton, Mich. 48187

Important Numbers:

President: Fred Schebor 426-2363

VicePres: Stuart Cohen 665-0131

Doug Nelle 996-8784

Paul Etzler 426-2244

Treasurer: Richard Sider 663-3968

Observatory: D.C. Mocs 795-8159

Newsletter: Roger Tanner 981-0134

Membership: Ron Avers 426-0375

Peach Mountain Keyholders:

Tom Ryan 662-4188

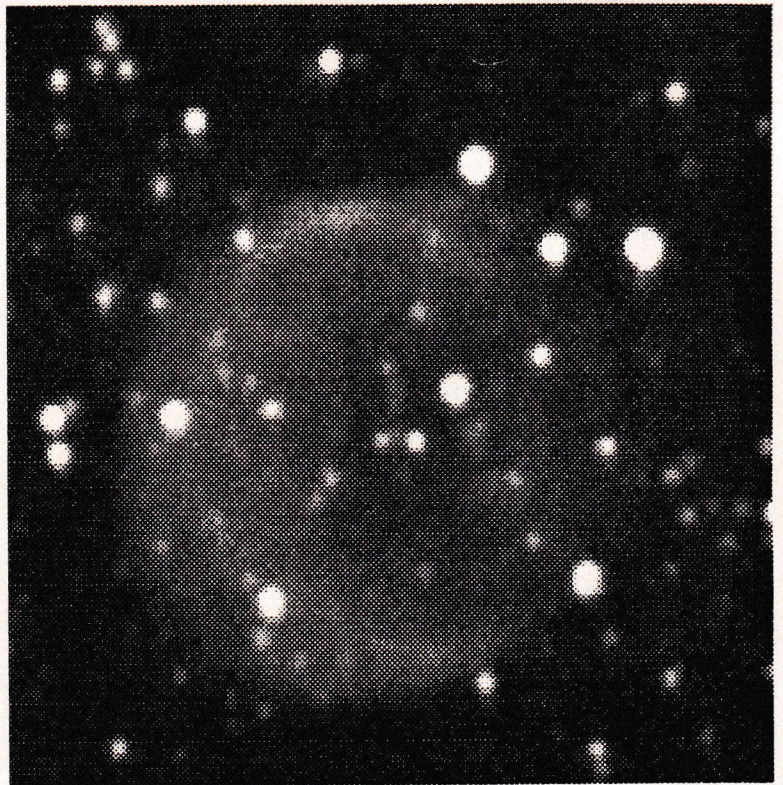
Fred Schebor 426-2363

Doug Nelle 996-8784

Monthly Meeting:

Pioneer High
School
Planetarium
Demonstration

At the
Pioneer High School,
Ann Arbor



This CCD image of the planetary nebula NGC 6781 in Aquila was taken by Jack Newton with a 25" f5 telescope and a SBIG ST-4 camera.

University Lowbrow Astronomers
9287 Chestnut Circle
Dexter, MI 48130