

The Skyscraper

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The monthly publication of



Amateur Astronomical Society
of Rhode Island

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The Skyscraper

April 2006

April Meeting

FRIDAY, APRIL 7TH AT SEAGRAVE OBSERVATORY

Dr. Upgren has had to cancel his visit to Seagrave for our April monthly meeting. The report is that his health has taken a significant turn for the worse. We wish Art a speedy recovery and hope he can reschedule in the near future.

Brown University graduate students Clara Eberhardy and Carolyn Ernst will present us with an update of the research being done on the data from the Deep Impact Mission with Comet Tempel I.

Elections

Enclosed is the ballot for the election of officers for the 2006-7 fiscal year. Please vote and mail it back right away, or bring it with you to the April meeting.

Renewals

Membership renewals are now due. There is a renewal form on the back page of this newsletter. Please renew promptly to avoid disruptions in your newsletter and magazine subscriptions.

APRIL 2006

7

FRIDAY

7:30PM **April Meeting**
Seagrave Observatory

8

SATURDAY

8:00PM **Public Observing Night**
Seagrave Observatory,
weather permitting

15

SATURDAY

8:00PM **Public Observing Night**
Seagrave Observatory,
weather permitting

22

SATURDAY

8:00PM **Public Observing Night**
Seagrave Observatory,
weather permitting

29

SATURDAY

8:00PM **Public Observing Night**
Seagrave Observatory,
weather permitting

IN THIS ISSUE

PRESIDENT'S MESSAGE/
VAN VLECK TRIP 2
Dave Huestis

HOW I BECAME AN
AMATEUR ASTRONOMER 3
Gerry Dyck

SOME BRIGHT SPRING
DOUBLE STARS 4
Glen Chaple

APRIL METEOR SHOWER 5
Dave Huestis

SECRETARY'S REPORT 5
Joel Cohen

THE "CONJUNCTION" OF
FRANK SEAGRAVE AND
PERCIVAL LOWELL 6
Dave Huestis

PLANETS IN STRANGE
PLACES 11
Trudy E Bell

President's Message

Dave Huestis, President

A special thank you to Gerry Dyck for his contribution to our "How I Became an Amateur Astronomer" series. Please share your story with us in the May or June issue of the Skyscraper.

April is election time for the Skyscraper organization. Please fill out the ballot accompanying this newsletter and follow the instructions. We have a good slate of officers ready to guide our society for the next year.

Annual dues are also payable in April, the beginning of our fiscal year. Please fill out the renewal form in its entirety so we can insure our records are complete. You may pay your dues at the April meeting or you can send it to our mailing address. Please continue to support our organization. Make checks payable to Skyscrapers, Inc.

Please see an announcement in this issue regarding a field trip to Van Vleck Observatory in Middletown, CT, planned for Saturday, April 15th.

Most importantly, we will be returning to Seagrave Observatory for our April monthly meeting on Friday, April 7. I'm looking forward to welcoming everyone back to our home! The winter months really seemed to drag on this year.

Mr. Uppgren has had to cancel his visit to Seagrave for our April monthly meeting. The report is that his health has taken a significant turn for the worse. We wish Art a speedy recovery and hope he can reschedule in the near future.

Late yesterday our good friend Peter Schultz of Brown University confirmed that two of his graduate students have volunteered to present a talk about their experiences with the Deep Impact Mission with Comet Tempel I.

Because the newsletter is required to be in your hands 10 days before our April 7 election, we were not able to update it to reflect the commitment of our volunteer speakers. When I send out my meeting reminder on the Wednesday before the April 7 meeting, I will provide more details about the speakers and their presentation.

We thank Pete Schultz for helping us to secure not one, but two speakers on such short notice.

Also, just to let you know, Glenn Jackson has rescheduled Ron Dantowitz for our November meeting. Thank you Glenn and Ron!

So please join us for a wonderful evening at Seagrave Observatory as we welcome in Spring.

Van Vleck Observatory Trip

Dave Huestis, President

Have you had a "taxing" April? Want to relax and enjoy the heavens?

Skyscrapers is planning another trip to Van Vleck Observatory at Wesleyan University in Middletown CT. On Saturday, April 15, Skyscrapers will have exclusive use of their 20-inch Alvan Clark refractor from 8-10:30 pm, thanks to members of the Astronomical Society of Greater Hartford (ASGH) who have agreed to host our organization.

Here's an opportunity to observe Saturn through the much bigger cousin of our 8 1/4 -inch Clark.

We will meet at Seagrave Observatory and car pool the 1 1/2 hours to Van Vleck. Departure time will be 6:30pm sharp. If it is more convenient for you to meet us there, by all means please do so. You may get directions from the Van Vleck home page:

<http://www.astro.wesleyan.edu/>

If you plan on going, please send me your name, phone number and email address. On the day of the trip, please check the Skyscraper web site for any weather cancellation notice. If you do not have email, be sure to include your phone number so I can notify you of any cancellation.



How I Became an Amateur Astronomer

Gerry Dyck

Here are a few vivid memories of events from my childhood and youth which guided me along the path of amateur astronomy. I have related to you several times how my father, Walter, and my Uncle Paul were the two people who laid the groundwork for my astronomical interest by their innovative determination to build a 7" f/10 reflector from scratch on their Kansas farm in 1931. This was eight years before I was born. That story can rest, but the fate of the telescope itself should be told.

In 1940 the builders' paths parted as Uncle Paul moved to California and my Dad took his family to Nebraska, where I grew into self-consciousness. The telescope was too massive for a long trip and which one should have it? The solution was to donate it to a high school in nearby Burton KS, where its makers hoped it would live a long and useful life and serve the community as a valued educational tool. But it was not to be. World War 2 was raging and in the wake of Pearl Harbor came public appeals for scrap metal to support the massive military buildup. The patriotic fervor of the Burton school board overcame their scientific loyalties and the scope was donated to the war effort as junk metal.

When my Dad learned of this outrage he was as mad as a pacifist Mennonite minister might justly be. He made a hurried trip back to Kansas to try to salvage his masterpiece. He was just in time to save the tube assembly from the metal crusher, but not the mount. And so it came to be that my first impression of a telescope was a big, long metal tube to be carried to the back yard and leaned against a chair or fence post. For some reason Dad never remounted the scope. He did lift me up to the eyepiece for my first look at the moon and the planets. It made a lasting impression. That tube assembly was never remounted until my brother Charlie undertook the project in a welding class in college in 1956.

Dad was always keen on keeping us aware of the sky. I can recall being roused from sleep and lifted

out of bed to go outside to see a meteor shower or the sky glowing red and green with the Northern Lights. When I was five or six Dad announced one evening that he would wake us before dawn the next morning to see a comet. And so he did. He drove my sister Evelyn and me in the old Hudson to the eastern edge of town to see a small, but very bright comet. I cannot say which one it was, but it was similar in aspect to Comet Bennet in 1970.



I recall a frightening experience in my seventh or eighth year. We neighborhood boys were playing outside after dark one summer evening when the ground beneath us was suddenly lit up with a greenish glow brighter than the full moon. We looked up to see the glowing trail of a giant fireball. When I stopped running I was safely under the covers of my bed. I had much to ponder under the covers, for I had been suffering all that day from a guilty conscience from helping myself to some pears from a neighbor's tree. Until I finally summoned up the courage to confide in my mother a week later, I was sure that I had just barely escaped divine retribution

for my thievery.

A happier recollection will resonate with many of you. As a teen I went to our church camp in the sparsely inhabited wilderness of western Kansas. We were all supposed to sleep in our cabins under the watchful eye of our supervisor. But Laurence and I were able to sneak out and spend two or three nights in our sleeping bags under a moonless Milky Way. The brilliance of all those knots of light, which I later learned to attach "M" names to, made a deep and lasting impression. The sky was so vivid that it became for me a thing of mystic awe and wonder. My mind still flies back to those silent nights, those holy nights, when it was not difficult to believe that a divine presence was pressing down from heaven above.

A milestone I shall not forget was when, at about age ten, I was able to carry the steel telescope tube

outside on my own. On a cold winter night in 1950 I was able to find the right tube-to-chair angle to target Saturn on my own for the first time. I could not keep this to myself, but had to drag my older sister and brother out to see too. They were mildly impressed by the view. But I was doubly proud - not only of the object of our wonder, but by the fact that I was now an independent observer of the night sky.

My first astronomy book, which I nearly memorized, was Kelvin McKready's *A Beginner's Star-Book*, Knickerbocker Press, 1912. Thanks to this publication my list of known constellations and familiar heavenly objects began to lengthen. I could find M31, the Great "Nebula" in Andromeda, as it was called then. M33, too, was a naked-eye object. Those were the days when Percival Lowell's drawings were Gospel and the opera glass was a serious observing instrument. Brass refractors were the elite instrument

of choice and McKready's photos convinced me that I certainly must have one.

The early 1950s were also the glory days of the Unitron Company on Milk Street in Boston. I set my heart on a 2.4" equatorial refractor priced at \$240. Dad let me hire out to a farmer who would give me \$200 for 60 days of summer work. I extracted promises from my four siblings to contribute \$10 each and Dad agreed to pay the freight charges. Three weeks later the world as I knew it ended and a new one began - a world in which I had a telescope with a proper mounting! This small, but fine instrument served me for many decades until aperture fever began to afflict me in the 1970s. It was the momentous decade when my astronomical youth came to an end, for it was then that I built the 10" reflector, learned about the workings of the AAVSO, and joined an exciting new astronomy club in Rhode Island.

Some Bright Spring Double Stars

Glenn Chaple

To most deep sky enthusiasts, spring means "galaxies." Hundreds of these island universes - many in the Coma-Virgo cluster - are within the reach of backyard scopes. Often forgotten are the beautiful double stars that also inhabit the spring skies. Here are ten of the best:

zeta Cancri magnitudes 5.6, 5.9, and 6.0, separations 1.0 and 6.0 arcseconds

A grand triple that requires a 6-inch scope and steady seeing to resolve the closest components.

Phi2 Cancri mags 6.3 and 6.3, sep 5.2"

Pretty twin system, located about 10 degrees east of Pollux.

iota Cancri mags 4.2 and 6.6, sep 30.5"

A springtime "Albireo," with striking gold and blue colors.

alpha Leonis (Regulus) mags 1.3 and 7.6, sep 176"

Despite their wide separation, these two stars share a common proper motion. Like the similar pair epsilon Pegasi, this duo displays an illusory oscillating motion when you jiggle the telescope tube back and forth in a direction perpendicular to a line joining them.

gamma Leonis (Algeiba) mags 2.6 and 3.8, sep 4.5"

Beautiful slow-moving binary; both yellow.

xi Ursae Majoris mags 4.3 and 4.8, sep 1.6"

A rapidly-moving binary system with a period of about 60 years. A good test for a 3-inch scope.

N Hydrae mags 5.8 and 5.9, sep 9.1"

Observers in northerly latitudes usually don't see this beautifully matched pair at its best.

Wnc 4 Ursae Majoris mags 9.0 and 9.3, sep 50"

What is so faint and wide a pair doing on this list? Simple - it's a Messier object! Unable to find a nebulous object reported to be in the area, the great comet hunter found this dim pair and (for reasons we can only guess) assigned it as his 40th object.

Alpha Canum Venaticorum (Cor Caroli) mags 2.9 and 5.4, sep 19,6"

One of the finest double stars in the sky for small telescopes. Colors have been described as white and slightly yellowish. What do you see?

Zeta Ursae Majoris (Mizar) mags 2.4 and 4.0, sep 14.4"

The first telescopic double discovered (Riccioli - 1650). Like Cor Caroli, one of the finest pairs for small telescopes. Forms a naked eye pair with 4th magnitude Alcor, located 12' to the east.

April Meteor Shower

Dave Huestis

"Say kids, what time is it?" If you're old enough your response would be "It's Howdy Doody time!" Well, depending upon when you are reading this column, the time may be later than you think! Most of the United States changes over to Daylight Saving Time at 2:00 am on April 2nd this year. It can't be much earlier! Or can it?

Most of us were taught the phrase "Spring ahead, Fall back" to help us remember how to adjust our clocks twice annually. Therefore, in Spring, usually the first Sunday in April at 2:00 am we would set our clocks ahead one hour. In the Fall, on the last Sunday in October, we would set the clocks back one hour. Fairly easy to remember, yes? Well, this year is the last time for those rules.

Beginning in 2007, as part of the government's Energy Policy Act of 2005, Daylight Saving Time will be extended. Most of the US will spring ahead three weeks earlier on the second Sunday in March. Technically it won't be Spring, but I guess we can still use the same mnemonic to jog our memories on what to do.

Consequently, in the Fall we won't revert back to Eastern Standard Time until the first Sunday in November! It's going to take some time to get accustomed to these new rules. I don't think most folks are going to like it at all. Time will tell.

Well, we haven't observed many meteors of late. Reason one: there are no major meteor streams visible to us during February and March; reason two: the more prominent showers during the second half of last year were either clouded, rained or mooned out!

So I, and many fellow stargazers, are anxiously awaiting a decent display of shooting stars. Our first

opportunity presents itself on the night of April 21st to the early morning of the 22nd. That is the date when the April Lyrid meteor shower peaks. What can we expect to see if the skies remain clear for this annual event?

For starters, a waning crescent Moon will rise around 3:30 am, so it will not overshadow many of the shooting stars. Also, besides the favorable Moon phase, some recent observations indicate increased activity during the last few years.

The Lyrids always perform better after midnight, so that's when I would suggest you start scanning the sky for meteors. The constellation Lyra, from where the meteors will appear to radiate, will be well up in the eastern sky. The swift and bright Lyrid meteors disintegrate after hitting our atmosphere at a moderate speed of 29.8 miles per second. They often produce luminous trains of dust that can be observed for several seconds.

Because moonlight will not interfere, an observer can expect to see perhaps 15 to 20 meteors per hour well away from city lights. Since the Lyrids are a narrow stream of particles, the nights before and after the peak night will display perhaps less than half of the peak night numbers.

Enjoy the annual shooting star display known as the April Lyrids. Let's hope a third reason doesn't spoil our chances of watching the best of the April showers!

Seagrave Observatory is open to the public every Saturday night, weather permitting of course. Check our web site at <http://www.theskyscrapers.org> for any closure notice.

Keep your eyes to the skies.

core sample research from beneath the sea floor on Earth to finding life on other planets or objects in our Solar System. Dr. D'Hondt ended his presentation with an editorial note on the state of funding in the upcoming NASA budget.

Secretary's Report - accepted as published in the Skyscraper

Treasurer's Report - accepted as read and posted. Dave mentioned that we will be working with an annual budget and that we have had some unique cost items occur in the last few years. We had some Star Parties scheduled

Secretary's Report

Joel Cohen, Secretary
Monthly Meeting

March 3, 2006

North Scituate Community Center

Meeting Start - 9:20 PM After a short break for refreshments, Dave Huestis called the business portion of the monthly meeting to order. The evening's speaker had been Dr. Steven D'Hondt of the University of Rhode Island and Principle Investigator for NASA Astrobiology Institute. Dr. D'Hondt spoke about the relationship of his

Continued on page 9

The “Conjunction” of Frank Seagrave and Percival Lowell

Dave Huestis

Soon after I joined Skyscrapers, which is now more than 31 years ago, I became very interested in the history of our organization and the legacy of Frank Evans Seagrave. On occasion, long time member and then Skyscraper Historian Bill Guca would present a few historical tidbits at one of our monthly meetings about this noted astronomer and his accomplishments. Bill and I were kindred spirits from the start, and we became good friends. Since Bill had little or no spare time to do further research, he encouraged me to carry the torch.

At Bill's direction I visited the Rhode Island Historical Society's library where I found many articles by and about Seagrave among the microfiched archives of *The Providence Journal*.

Much of the initial information I gleaned about Frank Seagrave came from an article published in the August 16, 1934 edition of *The Providence Journal*. That story announced Frank Seagrave's death on the evening before, following a major operation. He was 75 years old. After reading the *Journal's* recap of Seagrave's life and achievements, I became intrigued with this individual for whom our observatory is named.

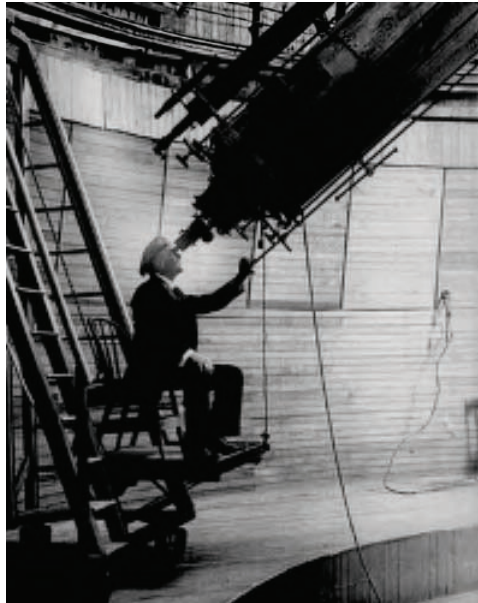
More and more articles were uncovered as I tediously cross-referenced the many reels of microfiche. One, and only one, carried a statement which read, “It was Percival Lowell's wish, that when his planet “X” was discovered, his friend Frank Seagrave would compute its orbit.” I never saw this information reported in any other article, nor in any of the letters I researched in the collection of E.C. Pickering up at Harvard. It might be in there somewhere. The collection is quite vast, since Pickering was Director of the Harvard College Observatory (HCO) from 1877 until 1919.

When noted author Bill Sheehan visited Skyscrapers for Astro Assembly 2005, Dan Lorraine had an opportunity to enlighten him on the legacy of Frank Seagrave. Dan mentioned the possible Lowell

connection, and asked Bill if he had any contacts at Lowell Observatory. Sheehan did, and he promised to see if he could uncover any collaborative materials.

Bill retrieved some documents from Lowell Observatory that not only prove Lowell and Seagrave were frequent correspondents, but also that Seagrave often visited Lowell when both of them were in Boston.

So how did it come to pass that the orbits of these two gentlemen would resonate? As I write this story now, I do not know when Lowell and Seagrave first corresponded or met. I hope to uncover that information at a later time. But to start this story we must begin with the life of Percival Lowell and the paths he chose during his lifetime.



Lowell was five years older than Seagrave, having been born in 1855. In 1876 he graduated from Harvard with a degree in mathematics. Though he had an interest in astronomy as a child, he didn't immediately pursue that career after graduation. He spent a year in Europe and then returned to work as treasurer in his grandfather's cotton mill, a job he kept for six years. Then he was fortunate to visit the far east, including Japan and Korea. He returned to Boston in 1893.

Sometime during his far east travels Lowell caught the Mars bug! He learned of Schiaparelli's observations of “canals” on our second nearest planetary neighbor. Though Lowell observed Mars from the Boston area, he realized steadier seeing was required to discern great detail on the planet's surface. Through his connections at Harvard, he, William Pickering and A.E. Douglass traveled to the southwest in 1894 to find a location with great seeing to observe the opposition of Mars that year. Lowell's favorite spot was a hill in Flagstaff, Arizona, now known as Mars Hill. This spot is the location from which Lowell performed all his “infamous” Mars observations.

Though Lowell spent much of his time out at

Flagstaff, he did maintain an office in Boston. About 1905, Lowell began another quest. Because of small perturbations in Neptune's orbit, it was suggested another "Trans-Neptunian planet" existed. Lowell, with his mathematics background, and with the help of colleagues, tried to derive a possible orbit. They even took photographic plates in 1906 of an area of sky where they thought planet "X" might be located, but with no results. Revisions were made, and on December 28, 1908, Lowell wrote of his own calculations, "The results so far are both interesting and promising."

Now let's review highlights of Frank Seagrave's life and see how the "conjunction" of these two great individuals unfolded. Frank Evan Seagrave was born in Providence, Rhode Island on March 29, 1860. Frank attended a private school where he acquired a knack for mathematics. On October 26, 1874, at the age of 14, his interest in astronomy was awakened by an eclipse of the moon. So great was this new interest that his father bought him a 3-inch refractor soon after. It is reported that Frank observed every fair night.

In 1875, Frank (then only a youth of 15 years old) began traveling to the Harvard College Observatory twice a week, where, even though he wasn't enrolled as a student, he was given access to the library and instruments. He obviously knew Director Pickering and Assistant Director Leonard Waldo. Frank even went on several Harvard eclipse expeditions.

Many parents encourage their children's hobbies, but Frank must have really impressed his dad. For as you may already know, Frank's father bought him an 8 1/4-inch Alvan Clark refractor (which Skyscrapers owns today) for his 16th birthday (March 1876) and erected an observatory at 119 Benefit Street in Providence two years later, in May 1878. Present for the dedication was Leonard Waldo and Alvan G. Clark himself.

Over many decades Seagrave was very well known up at Harvard, having sent many letters to Pickering containing computations for the orbits of comets (including Halley's Comet in 1910) and asteroids. In my opinion it was probably inevitable that he and Lowell would eventually meet. Though Seagrave had no formal education after private

school, he and Lowell had much common ground. They both had a flair for mathematics, and both loved astronomy.

Mars continued to be a hot topic, and Seagrave was very interested in the planet. In fact, Seagrave (now 47 years old) gave a local talk about Mars on July 9, 1907, where he spoke of Lowell's observations and those of his own. Though Lowell (now 52) had an office in Boston at the this same time, I have not as yet uncovered any correspondence between these two gentlemen during this period.

However, less than eight years later, when Seagrave was "working" as an assistant at HCO (1915 - 1917), it is apparent from their letters to one another, and from those to other astronomers at a much later date, that in the intervening years Lowell and Seagrave had become fast friends.

The first verification of the Seagrave/Lowell connection (ages 55 and 60 respectively) that I have received so far can be found in a couple of postcards

that Seagrave sent from Boston to Lowell at Flagstaff in January and February 1915. It is evident from the way the text is written that Lowell and he are friends. In fact, one of the postcards does have the salutation, "My Dear Friend." Seagrave was trying to compute a new asteroid's orbit. Frank wrote,

"Well how do you do. Hope you arrived safe at Flagstaff. I am at work on that asteroid orbit and will send figures to you when finished. Thank you very much for all you have done and are doing for me. Let us hear from you. Hope you will find X."

Seems it wasn't an asteroid but a comet, for Lowell sent a response to Seagrave on March 3, 1915 saying,

"So the Harvard 'harvest on their plates' have made an asteroid into a comet! That's going some. And I am told The Herald tried to credit us with the transformation. No! No! We are only astronomers, not astro-misnomers. I wish this definition, which I just dropped off the end of my obliging pen, had occurred to me yesterday when I wired a modest denial of such ultra-heavenly powers with a 'please correct' to the Herald."

Lowell died at age 61 on November 12, 1916. Frank continued his correspondence with Dr. Slipher,



the new Director of Lowell Observatory. On April 23, 1917, Seagrave wrote to Slipher,

"Have you taken any observations of Mellish's latest Comet? I want some positions. The computed orbit is away off, and I wanted to see what I could make out of it. Three positions, say a week apart. How are you getting along these days since Dr. Lowell died? I do miss him so. I am yours."

In a follow-up letter in an obvious response to Slipher's answer, Seagrave wrote,

"Thank you so much for your letter that I received Sunday morning. If you should at anytime find any conspicuous object that you think is "X" please send me some positions. Dr. Lowell many times promised me that I should be the first one to work on its orbit when discovered."

The search for Planet "X" continued. Finally, on February 18, 1930, Clyde Tombaugh discovered Lowell's distant world by "blinking" photographic plates he had painstakingly exposed. As Clyde told Skyscraper members when he visited Seagrave Observatory for Astro Assembly in 1987, until he informed his colleague Dr. C. O. Lampland across the hall from his office and then his boss V.M. Slipher, for 45 minutes he was the only person in the world who knew of the new planet's existence.

This monumental discovery was announced to the world on March 13, 1930. I'm sure Seagrave, now 70 years old, was quite excited, because it had been 25 years since Lowell had begun calculating a possible orbit for the now named Pluto. Though I do not currently have any correspondence from Lowell to Seagrave during their many years of friendship that states that Seagrave would be allowed to be one of the first to compute Pluto's orbit, it doesn't seem to me to be a leap of faith that it had been verbally promised to Frank. In fact, all along Seagrave may have been contributing calculations to Lowell on potential places in the heavens to search for planet "X." Since Lowell had died some 14_ years previous, who would know of his promise to Seagrave if it wasn't written down? Seagrave most certainly remembered.

In a letter to Dr. Slipher in Flagstaff on March 14, 1930, Seagrave wrote,

"Can you send me some positions of planet X, the newly discovered one beyond the planet Neptune. Many years ago (say from 1912 to 1915) the late Dr. Lowell promised me that if the Lowell Observatory ever found X that he would let me be one of the first to compute its orbit ... Thank you in advance for anything you can send me in relation to this most

interesting planet. I am yours. Frank E. Seagrave."

Well, Seagrave didn't immediately receive an answer to his query. One month later, on April 15, 1930, an impatient Seagrave sent another letter to Dr. Slipher at Lowell Observatory in Flagstaff. He wrote.

"About the middle of March I sent you a letter asking for some photographic positions of the outer Neptunian planet, or the new Asteroid, or the new Comet, whatever it proves to be. Up to date I have never heard from you. I am wondering why as the newspapers all mention positions secured during January and February. The last time I was with Dr. Percival Lowell was late in September 1916. At that time he was getting ready to leave Boston (I was at the Lowell Observatory Office, 53 State St, Boston with him.) for Flagstaff, and was to stop at three or four places on the way to lecture. He showed me his computations in relation to the outer Neptunian planet, and said to me, "Seagrave, if the Lowell Observatory is the Observatory that will first find this planet, you will be the first one to compute its orbit." No writing to this effect. Only a verbal statement. I am wondering why you did not send me some positions as you seem to have sent some to Dr. Miller of Sproul. Dr. Van Biesbroeck of Yerkes Observatory sent me four positions. From two of these positions one of March 16 and one of March 20, I have computed approximate circular elements as per enclosed sheet. The enclosed look "OK," and all check "OK"." Here Seagrave supplies some formulas and provides the sheet of elements. In closing, Seagrave writes, "I shall hope to hear from you soon, and tell me the very latest. Is it "X", an Asteroid of enormous size, or a Comet great in size and nearly 40 units from the Sun. I am yours. Frank E. Seagrave."

Slipher finally responded to Seagrave on April 19.

"It was my aim to get off to you yesterday some of the early positions of Lowell's Transneptunian object, apparently planet X, but the day was not long enough. In fact, as you can imagine the days have for weeks all been too short for us to get done what should have been done, and we, in consequence have had to appear unfriendly or discourteous to many good people like yourself. And just now your second letter has come to hand with your orbit, for which we thank you.

Even before making the announcement of the finding of what has been appearing to be Dr. Lowell's Planet X, it seemed to me that we here should determine for it a preliminary orbit. This because it

seemed best for Lowell Observatory to find it out and make it known if the object were thus shown to be less important than it had appeared. Dr. Lowell and the Observatory had put so much into the problem as to appear to justify this policy. We have felt that in such a case special carefulness was necessary and we have tried to be careful. (This, of course, concerns the general matter, not the orbit.)

Dr. Miller was here at the Observatory and worked with us on the orbit. Accurate positions for orbit purposes were not sent out although besides yours there were many urgent requests for early positions. The enclosed positions are being mailed to you in advance of any other person (this is, of course, in confidence). And I hope you will feel that we have tried to be fair. We of course realized at the outset that you who compute orbits were better equipped to do such work, but the reasons given above decided our course. We hope that you will get from these early places and other more recent ones an improved orbit,

Secretary's Report

continued from page 5

last year that were cancelled due to cloudy weather. We lost the income from those events. He asked for all available volunteers to help with this year's heavy spring schedule of Star Parties.

Trustee's Report - Jack Szelka reported that both the 12" Meade and the 16" Meade had been sent out for maintenance. The flashing on the Clark building has been repaired. There are Star Parties coming up where we need more volunteers beginning mid March. It's also important to remember that since the two pier mounted scopes are out for repair, we will need members to bring their own scopes or binoculars to Seagrave to handle the expected numbers of visitors. Please note the e-mail call for volunteers and sign up for any evening you can.

Upcoming Speakers - Glenn Jackson reported that due to a new grant, Jay Pasachof will not be available in July and will need to reschedule his visit to Seagrave.

Librarian's Report - Dan Lorraine thanked Gene Kusmierz for donating a copy of The Dobsonian Telescope and Kay Peterson's daughter for donating a CD with images from the Hubble Space Telescope.

Historian's Report - Dave announced that he had started work on an article, portions of which may be found on the website, regarding the relationship between Frank Seagrave and Percival Lowell.

Nomination Committee - the nominations for the upcoming

and needless to say we shall be greatly obliged to you for letting us know what results you get. With best wishes. V.M. Slipper"

Seagrave responded to Dr. Slipper's letter on April 30, stating,

"I thank you for the positions of planet "X" that you sent to me. I did not receive them until yesterday as the North Situate people neglected to forward your letter to me here. Too bad that we have not a larger arc to base orbit elements on. I will see what I can do. I am yours, Frank E. Seagrave, North Situate, RI and 8 Durham St., Boston, Mass."

So, from what I have revealed to you in this story, Frank Seagrave and Percival Lowell were more than just associates. They were friends. And the verification of their collaboration and friendship is just one more highlight in my goal to complete the life story of Frank Evans Seagrave.

Now if I could only locate all his personal notes, observations and computations ...

ing year's slate of officers are complete. They include: President, Dave Huestis; 1st VP, Glenn Jackson; 2nd VP, Theodore Ferneza; Treasurer, Allen Schenck; Secretary, Mercedes Rivero; Member-at-Large, Jerry Jeffrey; Member-at-Large, Jim Brenek; Trustee, Tracey Haley. A ballot will be available in the Skyscraper. The election of Officers will be held at the April Meeting at Seagrave. Please print the ballot from the Skyscraper and bring it with you.

New Business - Membership applications were received from Bernie Kubaska and Mark Hartonchik.

Old Business - The membership applications of Kevin Correnti and Janet Bessette were accepted unanimously.

Good of the Organization - Ted Ferneza enlisted the aid of a new neighbor on Peep Toad Road to help keep an eye on the property during the daytime. Dave thanked Bob Howe for his article in the Skyscraper and Gerry Dyck for his upcoming article. There will be an evening of classic television sci-fi programming on Wednesday, March 8th at the Meeting Hall at Seagrave. It will start at 7:30 PM and feature some episodes of Outer Limits.

Story Musgrave will be appearing in Groton, MA for a free public lecture on April 5th. Dave is working on setting up a field trip to Van Vleck Observatory Saturday, April 15th. Harvard Museum of Natural History has an interesting exhibit on display of meteorites.

Adjournment - 9:53 PM

Skyscrapers 2006-7 Elections Ballot

Please fill out this ballot and bring it to the Skyscraper Monthly Meeting on Friday, April 7, or mail it to the address below:

Skyscrapers, Inc.
47 Peepoad Road
North Scituate, RI 02857
Ballot

Mailed ballots must arrive at Skyscrapers by the April 7th meeting. Mailed ballots and ballots brought to the meeting must have the voters name on the outside of the envelope for verification. All entries must be marked "Ballot" on the envelope. Validated ballots will be set aside and counted without identity.

PRESIDENT

- Dave Huestis
- (write-in)

TREASURER

- Allen Schenck
- (write-in)

1ST VICE PRESIDENT

- Glenn Jackson
- (write-in)

MEMBER AT LARGE #1

- Jerry Jeffrey
- (write-in)

2ND VICE PRESIDENT

- Theodore Ferneza
- (write-in)

MEMBER AT LARGE #2

- Jim Brenek
- (write-in)

SECRETARY

- Mercedes Rivero
- (write-in)

TRUSTEE

- Tracey Haley
- (write-in)

Planets in Strange Places

By Trudy E. Bell

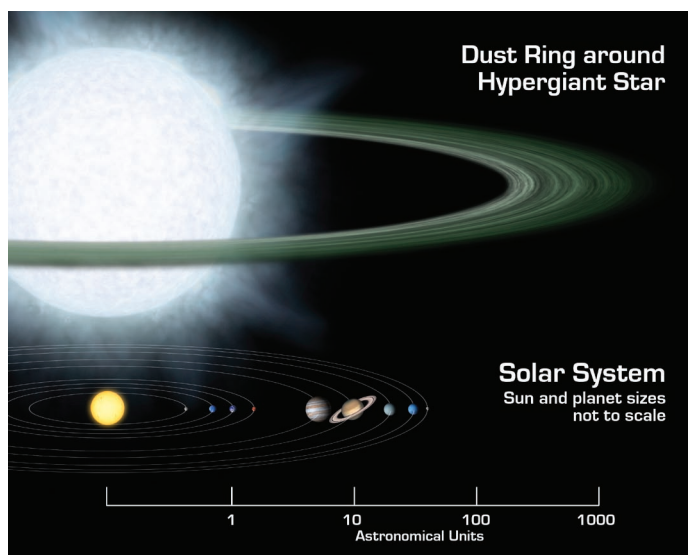
Red star, blue star, big star, small star – planets may form around virtually any type or size of star throughout the universe, not just around mid-sized middle-aged yellow stars like the Sun. That's the surprising implication of two recent discoveries from the 0.85-meter-diameter Spitzer Space Telescope, which is exploring the universe from orbit at infrared (heat) wavelengths blocked by the Earth's atmosphere.

At one extreme are two blazing, blue "hypergiant" stars 180,000 light-years away in the Large Magellanic Cloud, one of the two companion galaxies to our Milky Way. The stars, called R 66 and R 126, are respectively 30 and 70 times the mass of the Sun, "about as massive as stars can get," said Joel Kastner, professor of imaging science at the Rochester Institute of Technology in New York. R 126 is so luminous that if it were placed 10 parsecs (32.6 light-years) away – a distance at which the Sun would be one of the dimmest stars visible in the sky – the hypergiant would be as bright as the full moon, "definitely a daytime object," Kastner remarked.

Such hot stars have fierce solar winds, so Kastner and his team are mystified why any dust in the neighborhood hasn't long since been blown away. But there it is: an unmistakable spectral signature that both hypergiants are surrounded by mammoth disks of what might be planet-forming dust and even sand.

At the other extreme is a tiny brown dwarf star called Cha 110913-773444, relatively nearby (500 light-years) in the Milky Way. One of the smallest brown dwarfs known, it has less than 1 percent the mass of the Sun. It's not even massive enough to kindle thermonuclear reactions for fusing hydrogen into helium. Yet this miniature "failed star," as brown dwarfs are often called, is also surrounded by a flat disk of dust that may eventually clump into planets. (Note: This brown dwarf discovery was made by a group led by Kevin Luhman of Pennsylvania State University.)

Although actual planets have not been detected (in part because of the stars' great distances), the spectra of the hypergiants show that their dust is composed of forsterite, olivine, aromatic hydrocarbons, and other



Artist's rendering compares size of a hypothetical hypergiant star and its surrounding dusty disk to that of our solar system.

geological substances found on Earth.

These newfound disks represent "extremes of the environments in which planets might form," Kastner said. "Not what you'd expect if you think our solar system is the rule."

Hypergiants and dwarfs? The Milky Way could be crowded with worlds circling every kind of star imaginable – very strange, indeed.

Keep up with the latest findings from the Spitzer at www.spitzer.caltech.edu/. For kids, the Infrared Photo Album at The Space Place (spaceplace.nasa.gov/en/kids/sirtf1/sirtf_action.shtml) introduces the electromagnetic spectrum and compares the appearance of common scenes in visible versus infrared light.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.



47 PEEPTOAD ROAD
 NORTH SCITUATE, RI 02857

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