

The Custer Comment

★ For The Curious ★

February-March 2008

Volume XXXVIII, Issue 2

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In Memoriam

Frederick C. Hess, PhD (1920 – 2007)



Highlights for February-March 2008

- Personal accounts and images from the many wonderful people who had the singular privilege of knowing Dr. Hess
- For additional Highlights, please see inside front cover

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Highlights for February-March 2008

- **Brother Guy Consolmagno Responds**
Exclusive to Custer
 An insider's account of what's happening at the Vatican Observatory. Brother Guy Consolmagno, S.J., the "Pope's Astronomer", provides a rare and incisive look into the relocation of the Vatican Observatory and what effect that will have. Brother Guy provides fresh and colorful commentary in response to recent articles that have appeared in the international press. See Brother Guy's complete article inside.
- **Al Nagler to attend Spectrum Thin Films Open House**
 Please see Open House invitation on page 13

Announcements & General Interest

EXHIBITS NOW ON VIEW IN CUSTER'S STOKES GALLERY

The Eclectic Eye: The Photographs of Jeffrey Owen Katz
Visions of the Cosmos: The Astrophotographs of David Barnett

After the exhibit closes, Mr. Barnett's beautifully framed photos will be Custer's thank you gift, one photo for each donation of \$50 or more (while supplies last). All proceeds will benefit Custer's research and educational programs.

Editor's Column

Tom Madigan, Editor

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Cutoff for submissions is the 15th of the month preceding publication

Visit the new Custer Website at
<http://www.custerobservatory.org>
Custer Comment Archive:
<http://www.tommadigan.net/custer>

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*"I have loved the stars too fondly to
be fearful of the night."*

Sarah Williams

*"The brilliant ones among us see
things but darkly; they catch a
notion, a fleeting glimpse, a brief
insight, a hint that fades and flickers
as a candle set atop a desert
mountain"*

T. Madigan

In addition to the regular columns and other items that were slated for publication in this issue, this issue, as promised, is devoted to the memory of Fredrick C. Hess, PhD, friend, Life-time Custer member, author, astronomer, Gentleman Scholar, world-renowned teacher, lecturer extraordinaire and giant among men. Instead of writing a special piece in this column, I will include my tribute with the many others that are published further on in this issue.

Cheers,

Tom

Tom Madigan, Editor

Fellow, RAS

Member, AAS

*"If the Stars should appear one night in a thousand years, how would men believe and adore;
and preserve for many generations the remembrance of the city of God which had been shown!
But every night come out these envoys of beauty, and light the universe with their admonishing
smile"*

~Ralph Waldo Emerson

Spring Skies

By Tom Madigan

With Lyra climbing the Northeastern sky towards midnight along with Cygnus and the rich summer Milky Way following close behind, we're certain that spring is here and that summer will soon follow. This is my favorite time of year, a time that harkens me back to younger days to a time when you could see magnitude 5.5 stars and a breathtaking Milky Way from Commack. With the fresh spring air, the sweet smell of Lilacs and Honey Suckle wafting about and the temperature and humidity still moderate, it's truly a pleasure to be out under the stars.

The late winter, early spring provides an opportunity to take in both the subtly beautiful winter Milky Way and its more striking counterpart, the brilliant summer Milky Way, visible later on the same night. The winter Milky Way is observable immediately following astronomical twilight during this time of year with the summer Milky Way well placed for observation about 2 hours before sunrise.

Early March Sky following sunset as seen from mid-Suffolk County



The first print illustrates the brilliant stars of Orion and Canis Major as seen against the backdrop of the ethereal winter Milky Way. The striking trio of stars that identifies the belt of Orion points to Sirius, one of a handful of stars that lie within 9 light years of our solar system. Rigel, a beacon rivaling Sirius in brightness but at the much greater distance of 800 light years, is well placed prominently to the west. These 2 stars, Sirius and Rigel, represent an object lesson in comparative stellar luminosities with the dazzling Rigel having an intrinsic luminosity almost 2,000 times that of Sirius! If placed at the distance of Sirius, Rigel would rival the full moon in brightness! Another point worthy of mention regarding the winter sky, specifically concerning Rigel and the winter Milky Way, is that our solar system is located in the Orion Arm of the Milky Way galaxy, our home in the universe.

Early March Sky preceding sunrise as seen from mid-Suffolk County



With Jupiter prominently placed low in the southeast, the last print illustrates the rich summer Milky Way, looking south towards Sagittarius and Scorpio. Almost on the meridian at this hour, Antares, a red giant star and the heart of Scorpio, appears as a beautiful ruby set against the rich star clouds of our galaxy's center. If placed at the center of our solar system, Mars would orbit *inside* of Antares!

Heavenly Events To Watch For March 2008

“ Beneath some sky, each night, these three
Of genus Capra Bovidae,
Shine, if no cloud their way besets.

The young appear triangular.
Capella is the great goat-star:
The trio are Auriga’s pets. “

- Lillian White Spencer

as Jupiter resides in Sagittarius all year, so has SATURN made its home in Leo for the year. In mid-March Saturn is due south around midnight and sets in the west in the bright light of dawn.

In March the inner planets MERCURY and VENUS are spending the entire month in close company of each other, and very low in the east-southeast during the hour before sunrise. To keep track of them binoculars are suggested, and by month’s end both will be hard to spot anyway. This month MARS leaves Taurus for Gemini. Still very high in the south in evening twilight, Mars sets after 3AM at midmonth. JUPITER, a diamond among all the jewels of Sagittarius, rises in the southeast by 4 AM as March begins and around 3AM (EDT) at month’s end. Just

“Auriga’s pets” in the poem are known as The Kids. They are the stars ϵ , ζ and η Aurigae, a few degrees south of Capella. The one closest to Capella is ϵ (Epsilon), which evidently has a torus of gas and dust (with a star or two) orbiting the supergiant primary star. Every 27.1 years the primary is partially eclipsed by this cloud; (see pp. 274-275 of the 2008 RASC Handbook for discussion.) The next eclipse, due to begin early summer, 2009, should be monitored. (Some members of Babylon’s Percy M. Proctor Stargazers’ Club did some informal charting of the last eclipse in 1982 - 1984. Comparison stars used were η , δ and ζ Aurigae; ζ , δ and ξ Persei; and ζ , ϵ and γ Tauri.) Consider practicing finding and comparing these stars with binoculars before they get too low in the west. The eclipse will take more than two years. (Note: One of the Kids, ζ (Zeta) Aurigae, is itself an eclipsing binary, so its next two 40-day minima in Mar.-Apr. 2009 and Nov.-Dec. 2011 should be avoided for comparison purposes.)

- 2 This morning the waning crescent Moon is in the Teapot of Sagittarius with Jupiter not far off to the left. (Wait for the rising of Venus and Mercury well after daybreak.)
- 2 Fifty years ago today, on March 2, 1958, the Association of Universities for Research in Astronomy, Inc. chose Kitt Peak, Arizona for the location of a new National Astronomical Observatory.
- 3 Mercury is at greatest elongation west of the Sun this morning.
- 5 The slim crescent Moon cuddles very close to both Venus and Mercury before sunrise.
- 8 Daylight Saving Time begins tonight. Set clocks ahead one hour.
- 15 First quarter (slightly gibbous) Moon finds Mars really high up there this evening.
- 18 Algol, β Persei, is in mid-eclipse at 9:26 PM. Elsewhere, the waxing gibbous Moon drifts by the star Regulus and draws near to Saturn as the night wends its way toward dawn.
- 20 Spring begins at 1:49 AM this morning.
- 21 Full Worm Moon rises shortly after sunset.
- 24 Venus and Mercury rise less than 1° apart around 6:20 AM, less than $\frac{1}{2}$ hour before sunrise.
- 29 This evening Mars passes into the same field of view (0.3°) with the 3rd magnitude star Mebsuta, ϵ Geminorum, calling to memory that same star being occulted by Mars on the evening of April 7, 1976!
- 30 Moon approaches Jupiter again.

Prepared by Robert Chapin

Brother Guy Consolmagno Responds

By Brother Guy Consolmagno, S.J.

In early January, a British newspaper called *The Independent* ran a story with the headline “Science bows to theology as the Pope dismantles Vatican observatory.” The story accompanying that remarkable headline was filled with a number of unsupported (and wildly inaccurate) assertions; but even the article itself didn’t support the claim bannered by its headline. The Vatican Observatory is not being dismantled; anything but!

As an astronomer and a Jesuit, I’m used to newspapers getting their facts wrong. Both science and religion are subtle and tricky topics. To understand them is difficult enough; explaining them clearly and correctly to a general audience requires extraordinary skill. Good journalism is very difficult; that’s why it is so rare.

Some of the harshest criticism of this story, though, came not from my scientist or religious friends, but from other journalists. “Unbelievable...” is what one journalist in Rome said after checking out the story with me; “clearly someone had an agenda, rather than just straight reporting,” an American reporter commented. As fellow workers in the field, I think they were particularly embarrassed by *The Independent*. Where I saw mere incompetence, they detected maliciousness. I guess I should be honored; apparently our work is important enough to somebody that it’s worth their time to lie about us.

Actually, though, reading that article, it is clear that the author is just as ignorant of astronomy as he is of the church. For example, he has no idea what astronomers actually do; he claims our work is centered on explaining the star of Bethlehem! (Well, at least he doesn’t think we’re out to baptize extraterrestrials, or cast horoscopes for the Pope -- both of which we have been accused of doing.) In fact, what I see in this article a kind of sad anti-intellectualism that is peculiarly British; it reminds me of the Philip Pullman fantasies, where both religion and technology are presented as evil. I am an American, I don’t pretend to understand the roots of this antipathy; we have our own, very different, anti-intellectual streak to deal with!

But enough of that; let me tell what’s going on with our Observatory. Yes, at some future date, the offices and Jesuit quarters now located in the Papal palace will be moved to a nearby location within the Papal gardens. It’s hardly a demotion. Nor is it the first time we’ve shifted quarters.

As you probably know, the Vatican has supported astronomers on and off since the reform of the calendar in 1582, and they’ve been housed in a number of different locations. After the unification of Italy and the subsequent confiscation of the Roman College observatory by the anticlerical Italian government, in 1891 Pope Leo XIII re-established the Observatory with offices at the Vatican in the Tower of the Winds and telescopes on the walls of the Vatican itself. Once the Papal summer home was restored to the Vatican (in 1929) the observatory was moved out there, both for the dark skies outside Rome and as a way of having someone live in the then-remote castle during the wintertime. At that time, two new telescopes were installed on the roof of the summer palace.

In the 1950’s, the focus of the observatory shifted to a set of domes and offices in the Papal gardens, where a Schmidt telescope and, later, an IBM computer were installed. But the growing light pollution around Rome eventually reached Castel Gandolfo. At that time, the observatory looked to move away from the Papal Palace altogether, to a darker site; they checked out mountains in the south of Italy, and the island of Sardinia, but none of the possible locations were really suitable (earthquake risk in southern Italy, cloudy skies in Sardinia). Instead, most of the scientific staff moved to Tucson, Arizona, to use the telescopes there. In the 1990’s the Observatory built its own telescope, the Vatican Advanced Technology Telescope, on Mount Graham in Arizona; and we continue to maintain the majority of our staff in Tucson.

At that point, Castel Gandolfo still was our official “headquarters” but it had become not much more than a library, a museum of old astronomical equipment, and a place to hold conferences and summer schools. During some winters in those days there might be only one or two elderly Jesuits holding the fort.

However, over the last fifteen years, science has returned in a big way to Castel Gandolfo. For one thing, I joined the staff as a meteoriticist in 1993 and began doing serious research with the meteorite collection housed here, installing a lab for measuring physical properties such as density, porosity, and magnetic susceptibility. For another, good internet connections meant that we could now reduce our data and write our papers there, especially during the summer when the working climate is more congenial in Castel Gandolfo than in Tucson.

A big development during this time was the boom in astronomy in Europe (and the developing nations of Asia and South America). The old post-war paradigm that astronomy was happening mostly in the US just isn’t true anymore, and having a location in Europe and, through our Castel Gandolfo summer schools, connections to institutions around the world is now vital. Now it is the Americans coming to Europe for collaborative efforts.

Another change, still ongoing, is the development of modern CCD cameras for the telescopes. We are presently in the process of testing a system that might mean returning the 1930’s telescopes to active, regular scientific observing for certain well-chosen projects consistent with the obvious challenges of being so close to Rome.

Meanwhile, we’ve been talking for more than twenty years about moving out of the Papal Palace. It was a point of some discussion during our 2002 Observatory retreat; note, this was three years before Benedict became Pope. (So much for it being his idea to “dismantle” us.) While the views from our windows are wonderful, and there is a great symbolic advantage to being visibly and literally “supported by the Pope”, it is awkward to try to run a scientific enterprise in a 400 year old building, spread out over six floors, with a mishmash of electrical wiring (and ethernet cables), that’s hot in the summer and cold in the winter.

In addition, we’re likely to be adding five new young Jesuit astronomers to the staff in the next couple of years. There just isn’t room in Tucson, or our present quarters, to make room for them all.

Meanwhile, the office in charge of the Papal Villas (including the gardens and the summer palace) had their own concerns, including upgrading security at the Papal palace and the need to renovate the building where we are living now. They came to us with a specific proposal for a move in 2006.

At first we were hesitant. The drawbacks to moving were the expense and effort involved in the move itself; and the fear that someone not paying close attention to our work might think that somehow the Vatican was “downgrading” us by giving us better quarters! But as the plans developed for the new location, we became quite enthusiastic for the change.

The Vatican approved our move in late 2006, and after going through some more bureaucracy the Jesuit order, to whom the Observatory has been entrusted, issued a press release about our move on March 20, 2007. (So not only is The Independent’s story rather inaccurate, it is also about ten months past its sell-date.) In that release, it was noted that we will continue to use the telescopes on the roof of the Papal Palace; the Vatican is still supporting us literally as well as philosophically... and financially. (Our budget runs about a million euros a year.)

Since then we’ve been working with the Vatican architects to come up with a good set of plans for our new quarters, and we’re really pleased with the results. Highlights: along with the space in a remodeled convent in the gardens, we will have several extra rooms, and essentially a new building, for overflow housing when the Tucson contingent visits, and for the summer school. The offices (including the library and my meteorite lab) will be on the ground floor, mostly surrounding a beautiful garden. The main set of bedrooms upstairs will be en-suite; no more waiting in line for the shower in the morning! We’ll have access to a roof garden. And we

should be a little more comfortable in the summer and winter; we're sharing a corner of the building with an apartment that will serve as the summer residence of the Cardinal who acts as "mayor" of Vatican City!

A couple of weeks ago, and temperatures outdoors were near freezing and there was a fierce east wind coming off Lake Albano. The rooms on the lake side of the Papal Palace were like refrigerators, it never got above 60 F. (That including my lab, some bedrooms, the kitchen, and the bathrooms... an issue first thing in the morning!) By the end of the week, we were all thinking, "I can't wait to move into the new quarters..." I also feel that way every time I am in my fifth floor office and realize that something I needed, I left in the lab down on the ground floor. Or vice versa. And every time I go to the library trying to find something, not knowing which of five library rooms (scattered over three floors) to look in. And every time I try to plug something in, and find out that the outlet on *this* wall is different from the outlet on *that* wall and neither matches the plug I am trying to use.

The summer palace is undergoing a lot of renovation right now — for a building this old, fixing pipes means using jackhammers to get at them — and our move will have to wait until the workmen can get to renovating our new quarters, which hasn't even been started yet. We'll be in the old quarters for another year at least. Nothing moves fast in Rome. And moving 80 years' accumulated junk will, no doubt, be traumatic. But I am looking forward to the new location in the Papal Gardens. Everyone who's seen it has commented on how beautiful a site it is.

+++++

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Editor: Originally published as "*Vatican astronomers to move to bigger, more modern facilities*" by the Catholic News Service on 21st December 2007, this first report and a subsequent article that appeared in The Independent for 4th January:

<http://news.independent.co.uk/europe/article3307586.ece> were to become object lessons in opposing journalism. In addition to his duties as a Jesuit and responsibilities to the Vatican Observatory (<http://www.vaticanobservatory.org>), Brother Guy is an accomplished author, having published the following titles:

- God's Mechanics: How Scientists and Engineers Make Sense of Religion (19th October 2007; Ed: This is Br. Guy's latest publication)
- Turn Left at Orion: A Hundred Night Sky Objects to See in a Small Telescope--and How to Find Them
- Brother Astronomer: Adventures of a Vatican Scientist
- Worlds Apart: A Textbook in Planetary Sciences
- El Otro Cielo
- Thermal history models of icy satellites (Massachusetts Institute of Technology. Dept. of Earth and Planetary Sciences. Thesis. 1975. M.S (Ed: This is Br. Guy's Master's Thesis)

All titles are available through Amazon at <http://www.amazon.com/s?ie=UTF8&search-type=ss&index=books&field-author=Guy%20Consolmagno&page=1>

Custer Institute's 2008 Astronomy Science Fair

If you are a *student* who is interested in participating in our astronomy science fair and/or internship program and/or upcoming seminar on May 31, 2008, "How to do an Astronomy Project," or if you are a *teacher* who would like to help encourage students to participate in our programs and/or learn more about educational opportunities such as our upcoming seminar for teachers (in June 2008), "Astronomy for Teachers," please email CusterDonna@yahoo.com. If you would like to attend the Astro Fair and Jamboree, please join our notification list: <http://www.custerobservatory.org/List/Signup.htm>

PRELIMINARY INFORMATION ABOUT THE ASTRO FAIR

- When:** October 4, 2008, 10:00 A.M. to 6:00 P.M.
Where: Southold High School, 420 Oaklawn Avenue, Southold, NY 11971
Cost: There is no registration fee for participating students, who will also receive free admission and two free tickets to Custer's annual "Astronomy Jamboree" (conference), which will be held concurrent to the Astro Fair.
Who: Students who will be in grades 9-11 by October 4, 2008 are eligible
Sponsor: The Astro Fair is being sponsored by the Custer Institute and Observatory, 1115 Main Bayview Road, P.O. Box 1204, Southold, NY 11971; 631-765-2626.

Overview

The Custer Institute Inc. (est. 1927; a NYS chartered educational institution) has a distinguished, long-standing commitment to education and research in the science of astronomy. Throughout the year, the Institute holds lectures, classes and workshops to further science education. This year, the Institute's Research Committee is launching two programs: an astronomy science fair and a internship program to provide students with hands-on training and mentoring by professional scientists and academicians. The Committee includes researchers from Custer, SUNY Stony Brook, Brookhaven National Lab, SCCC, Motorola, and elsewhere. Participants in the science fair will have the opportunity to receive assistance with their projects from the researchers. As long as the objective of the project is related to astronomy, the approach may be from any other discipline: computer science, engineering, mathematics, etc. The fair itself will be held concurrent with our annual astronomy conference (aka "Astronomy Jamboree"), now in its 30th year. The following awards will be made courtesy of the Leonard Vail Memorial Scholastic Awards Fund:

FIRST PLACE

\$200 toward registration for
2009 LISEF or any comparable science fair
\$200 cash award
Internship Opportunity
One year complimentary family membership

SECOND PLACE

\$200 cash award
Internship Opportunity
One year complimentary family membership

THIRD PLACE

\$100 cash award
Internship Opportunity
One year complimentary family membership

Projects & Proposals

The Astro Fair is intended for original presentations that are relevant to the science of astronomy; however, the subject may be approached from any other discipline (e.g., computer science, mathematics, physics, engineering, biology, etc.). For example, "The use of computer technology and mathematics to perform data mining on existing astronomical image databases"; "The use of electronics and radio technology to study solar activity"; "The use of spectral analysis to understand the chemistry of deep space objects"; "The study of exoplanet transits using CCD imaging"; "The detection of asteroids and comets using common digital SLRs"; "The study of the effects of solar and geomagnetic activity on living organisms."

Students are responsible for providing their own presentation materials and equipment. However, it may be possible to arrange access to Custer's facilities/resources for the purpose of conducting the research. Assistance with the protocol of the project may be obtained from Custer's Research Committee. Students who are Custer Research Interns may base a project on the work done while serving in that role.

Eligibility: Any student who is a Long Island resident and who will be in grades 9-11 by the date of the Astro Fair (October 4, 2008) is eligible.

There are a limited number of openings for Astro Fair participants so send in your proposal as soon as possible. Proposals will be judged on such factors as timeliness of their receipt, relevance of the project, adherence to scientific standards, and originality. The review process will continue for the duration of time that there are available openings. Proposals should be emailed to CusterDonna@yahoo.com

Proposals should include:

Student's name, address, telephone number, email address, grade level, school affiliation

Title of Project

250-750 word description of the Project: including hypothesis, methodology and proposed analysis

Research Committee

Jeffrey Owen Katz, Ph.D., Observatory/Research Director, Custer Inst.; Pres., Scientific Consultant Svcs

Matthew Blaszczak, Engineer, Motorola

Brent Gingrich, Engineer, Motorola; Pres., Red Dot Electronics

Urszula Golebiewska, Ph.D., Department of Physics and Astronomy, SUNY Stony Brook

Peter Guastella, Science Research Instructor, Manhasset High School; Vice President, LISEF

Ted Koukounas, Chair., Dept. of Science & Mathematics, Suffolk County Community College

Mike Kozma, Engineer, Veteran Radio Astronomer

Donna L. McCormick, President, Custer Institute

Steve Orlando, Senior Observatory Staff, Custer Institute; Chemistry Instructor, BOCES

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Chiaki Yanagisawa, Ph.D., Department of Physics & Astronomy, SUNY Stony Brook

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As a Sponsor, you will be demonstrating your commitment to education and research efforts that will inspire tomorrow's young scientists. Sponsors will be acknowledged in the Astro Fair & Jamboree program, on the Sponsor page of Custer Institute's website, and in its newsletter. Sponsorship may be in the form of donations of funds, materials, equipment or services. *The Custer Institute is a 501(c)(3) publicly supported NYS educational organization; contributions are tax deductible.* To show your support and become a Sponsor, please contact CusterDonna@yahoo.com

If you would like to be informed about Custer's activities and upcoming events, click here:
<http://www.custerobservatory.org/List/Signup.htm>

Please check back in the future as information will be updated and added to this page.

Highlights For March and Upcoming Events

Events At Custer

Friday, March 28:	Members' Night
Saturday, March 29:	StarLab Portable Planetarium Shows
Saturday May 10:	Lecture by Dr. George Redlinger, Physicist, BNL
Friday May 30:	Members' Night
Saturday May 31:	StarLab Portable Planetarium Shows
Saturday June 7:	Annual Meeting and BBQ

Ongoing

Custer is open to the public every Saturday from dusk until midnight. Volunteer Staff provide guided tours of the night sky (weather permitting) via laser pointers and powerful telescopes, and are happy to answer all questions. Group visits by classes, scouts, and others are welcome (contact CusterDonna@yahoo.com to arrange). The facilities are also available for private functions.

For Astronomers

If you're wondering what's up in the sky (and at Custer) each month, Custer's Observatory Director and Board Member, Jeffrey Owen Katz, Ph.D., now publishes a monthly astronomy column in *Long Island Pulse* magazine, and Observatory Staff Member, David Van Popering, writes one for NorthForkParents.com. Additionally, veteran observer and Custer member Bob Chapin publishes his monthly "Heavenly Events" column every month in the Custer Comment. To compliment these regular columns, this editor frequently publishes a column in the Custer Comment highlighting astronomical events and objects of note.

About Custer

The Institute began in the 1920s in a house on Cedar Beach owned by Charles Elmer and his wife, May Custer Elmer, the niece of General George Armstrong Custer. A group of amateur astronomers met regularly at the Elmer house. Among them was Henry Giles "Harry" Fitz, the son of and successor to

acclaimed telescope maker Henry Fitz (1808-1863) whose workshop was on display at the Smithsonian Inst. The first building was erected at the present location in 1937. Around that time, founders Charles Elmer and Richard Perkin formed a company that produced the finest optical equipment in the U.S., including the mirror used in the Hubble telescope. Over time, the Custer Institute continued to grow and its reputation spread beyond the North Fork. In the 1942, it incorporated and received a charter as a New York State Educational Institution. In 1945, the wing containing the lecture hall, library, museum, and a domed observatory was added; the three-bay ground observatory followed in the early 1960s. The contributions of Fitz, Perkin and Elmer, and the unique Institute they established, served to gain Custer notoriety throughout the astronomical community. The Custer Institute is a 501(c)(3) N.Y. State educational nonprofit that operates exclusively on public support (proceeds from events, dues, and small donations). It is staffed by volunteers dedicated to advancing Custer's educational and research goals, and its service to the community. In addition to observing and research facilities, Custer has a mirror grinding workshop, a dark room, an extensive astronomical library, a museum containing many fascinating artifacts from the region as well as from the universe, gallery space, and much more.

Benefits of Membership

In addition to the reward of supporting a unique organization such as Custer, members also enjoy the following: Email subscription to our newsletter, *The Custer Comment*; Library borrowing privileges; Discounts on classes, lectures, and other events; Invitations to Members-Only events; Voting privileges; Scholarship eligibility; Access to the facilities and resources; Special training programs; Opportunity to become an Observatory Staff Member. Dues: \$45 Individuals; \$60 Family; \$25 Seniors/Students; \$100 Sponsor; \$1000 Corp. Sponsor.

Editor: Events are always being added so check the website for updates

Spectrum Thin Film Open House

By Tony Pirera (Tony@spectrumthinfilms.com)

My company manufactures optical coatings for astronomical industries like Televue, Astrophysics, Questar, used to make all of the Coronado Solar Filters line, major observatories throughout the world. We have just relocated to Hauppauge, a 16,000 building with a 3000sq ft clean room, and many more offices. This ***open house will include a tour of the laboratory*** and demo on how optical coatings are produced. We will have party supplies that include light food, deserts, coffee and soda. I will allow people to go into the clean room. I feel this will be a very rare and educational experience for all and people will learn how telescopes and optics are coated. I will also have a raffle where someone will win TeleVue OIII and Nebustar light pollution filters and my dielectric mirrors which I developed many years ago. After I introduced this dielectric mirrors it was highly successful for many years.

Where: Spectrum Thin Films (<http://www.spectrumthinfilms.com>)

135 Marcus Blvd
Hauppauge,ny 11788

When: Friday, 7th March, 2008; 8:00 PM

Contact Info:

Phone 631-901-1010

Editor: Al Nagler of TeleView fame will be in attendance

Frederick C. Hess, Gentleman Scholar, Teacher and Giant among men

Arrangement and introduction by Tom Madigan; articles and images reproduced with permission

He was truly a diamond of a man, one who could converse with a child in one breath and Einstein in the next.

Frederick C. Hess, PhD, legendary astronomer and popular lecturer at New York's Hayden Planetarium, passed away on December 13th 2007 after a three-year battle with cancer. He was 87 years old. The following humble tribute is an attempt to capture the essence of a man who truly was larger than life. He is survived by his devoted companion and loving wife of 67 years, Eileen. Via con Dios, Fred, you will be sorely missed.



Fred with Bob Little at the 1982 Custer Jamboree

Image credit: Barbara Lebkuecher

By Joe Rao

Among those of us who promote astronomy in the New York area, Fred had a status worthy of Joe DiMaggio. Let me explain with this vignette: Back in 1999 I was delivering a slide show on the Leonid meteors at the Andrus Planetarium in Yonkers, New York. In the middle of my talk I mentioned that when I was 10 years old I attended a sky show at Hayden, and the lecturer behind the console provided a dialog that literally lifted me up out of my seat. As I said

those words I brought up a slide of Dr. Hess, and before I could name him or say anything else, the entire audience applauded spontaneously.

They obviously were among his disciples.

The next day I called Fred and told him that if Joe DiMaggio was baseball's greatest living ballplayer, then certainly — so far as the general public was concerned — he was the greatest living planetarium astronomer.

Fred Hess was the "evangelist of astronomy" and the dean of New York amateur stargazers. His title at Hayden was Instructor of Astronomy and Navigation, though he was well versed in all aspects of science. He was a longtime professor of physical science at SUNY Maritime College and authored a very popular book, *Chemistry Made Simple*, in 1955. For four years during the late '60s and early '70s he also served as the science editor and on-camera weathercaster for WPIX Channel 11.

And as a testimony to his abilities as a lecturer, in 1975 he received the prestigious SUNY Chancellor's Award for Excellence in Teaching.

Nobody ever fell asleep at a Fred Hess lecture. Some of his presentations were not so much lectures as stem-winding sermons. He was one of the most dynamic and powerful speakers you would ever hear.

It wasn't only Fred's resonant voice that made him a popular raconteur. I once asked him for his secret on how he was always able to hold an audience. He answered, "Just tell a story."

He sometimes recalled how, in 1814, the night assistant at Sicily's Palermo Observatory quietly entered two strange star names, Sualocin and Rotanev (for adjacent stars in Delphinus), into the observatory's star catalog. Not until the names had been considered official for many years did someone realize the joke: they were the night assistant's first and last names spelled backward! So Fred chose two adjacent stars and named one "Derf" (Fred backward) and the other "Bob," for his friend astrophotographer Robert Little, whose name is Bob spelled backward.

Then there was the one about the constellation Lyra, the Lyre. Fred explained that a lyre was a small harp that, hundreds of years ago, young men strummed while courting dewy-eyed young ladies under the cover of darkness. Fred would remark that this custom is still practiced today. Using a homonym for his final word, he always got a huge pop from his audience by stating, "I'm sure that even as I speak to all of you tonight, at this very moment, there are countless young ladies out there, listening to liars."

Fred could take a subject and make it understandable for all ages. In 1983 he was conducting a class for 6 to 8-year olds in one of the basement classrooms of the old Hayden facility. It was a Saturday morning, and I was there to help run the outdoor solar observing in front of the planetarium. I stepped downstairs to say hello to Fred — amidst about 20 kids running and shrieking. Through the din I asked him what he planned to talk to them about, thinking it might be something along the lines of "What is the Moon?" or "How to find the North Star." "No," he

said, "I'm going to talk to them about the [Hertzsprung-Russell diagram](#)." I left quickly, thinking that he had finally bitten off more than he could chew.

About a half hour later I checked back. Every child was sitting in rapt attention as Fred was bringing the class to a close. He was asking them what color a cool star would be, and every kid enthusiastically shouted back: *red!* He then asked what color a very hot star would be, and 20 voices yelled back: *blue!* He had those kids eating out of his hand.

Twenty more disciples.

This is perhaps the greatest tragedy of this wonderful man's passing: That so many will never have the opportunity to hear Fred's booming voice. But I've kept a small collection of audio tapes from lectures, planetarium shows, and interviews that I did with Fred for radio broadcasts.

One of these tapes, which I've just finished listening to, is a recording of a half-hour program on WPAT radio back in 1985, about Halley's Comet. The moderator asked Fred about how to pronounce the comet's name: *Hay-lee* or *Hal-lee*? Fred pointed out that the latter is correct, adding, "Hay-lee is probably derived from a certain musical group and a wonderful song-and-dance man [Jack Hailey] who played the Tin Man in *The Wizard of Oz*."

I immediately thought of the scene in the movie where the Tin Man receives that ridiculous, albeit beautiful, heart-shaped clock. Like me, maybe you've watched it more than a dozen times in your life. I realized that what the Wizard said to the Tin Man sums up the life of Fred Hess:

*"And remember, my sentimental friend,
that a heart is measured not by how much you love,
but by how much you are loved by others."*

He gave so much of himself and enjoyed sharing astronomy with people of all ages. He will be sorely missed.

Editor: Joe Rao is the chief on-camera meteorologist at News 12, serving Westchester County and Hudson Valley of New York and a member of the Amateur Observers Society of New York. This tribute by Joe appeared in *Sky & Telescope* for December, 2007 (<http://www.skyandtelescope.com/news/home/12565506.html>)



Image credit: Barbara Lebkuecher

From the right: Fred & Eileen Hess, Hap Parnham (in the background) and Mrs. Parnham

By Craig Small

I write this with a heavy heart because I wished this day had not arrived. This is the time that, that giant among giants, that icon of intellectualism, that teddy bear of a man, passed from our world. Dr. Fred Hess is gone and our world is very much at a loss without him. Most of us live and eventually pass on and make but a ripple in the ocean of life. And like all ripples, they quickly fade away in to nothing, leaving no trace behind. Not so for Dr. Hess. He was more like a tide and tides repeat and repeat, ad infinitum. And so will it be with Dr. Hess-"Fred" to me. He may be physically gone, but his legacy, his spirit, his influence will survive for generations to come. I first met Fred in 1958, when, as an enthusiastic 11 year old, I attended a Hayden Planetarium show with my family. Thanks to Fred, it was love at first sight...and sound. Love for astronomy...and for him, for it was the sound of his booming voice and unmatched gift of theatrics that so enthralled me with the magical field of astronomy.

For the next 49 years, this magical attraction for both the science and the man continued. It will continue for as long as I will endure. From that enthralling first meeting, I ended up taking several courses in astronomy given by Fred. That led in 1964 to a National Science Foundation program at the Hayden led by Fred and several other heroes of mine...Franklyn Branley and Kenneth L. Franklin. The rest, they say, is history.

Over the next 36 wonderful years, Fred taught many courses in Astronomy and Navigation at the Hayden Planetarium, all the while "dressing for the stars", wearing tuxedos to give live star talks both in the Hall of the Sun and the dome. At the same time, Fred gave 39 wonderful teaching years at the New York State Maritime College at Fort Schuyler in the Bronx, where he won a

New York State Excellence in teaching award, among many other honors. Nurturing my interest in astronomy, he eventually helped me to become a colleague of his as a teaching lecturer on the Hayden Planetarium staff. What an honor and a thrill to be able to work now side by side with this gentleman.

In 1977, Fred, myself, Joe Rao, and Glenn Schneider started the "Art of Stargazing" program at the Mohonk Mountain House in New Paltz, New York. The program lasted a dozen years. What fun it was! I'll never forget, one night it was totally overcast when we took the people out into one of the dark Mohonk fields. Fred gave a rousing sky talk and star I.D. lesson, and I swear all of the people really believed they saw the heavens in all their majesty, including me. That's just how convincing and inspiring a speaker Fred was.

In addition, Fred played a major role in forming "Astronomy Island", a yearly cruise to Bermuda. Lectures would be given aboard ship both going there and coming home, as well as star I.D. talks on deck at night, and talks at our private viewing site on the Island. What a joy it was to sit at our site, listening to the whistling tree frogs and Fred's rousing voice all at the same time.

Fred was also an integral part of the world's first major eclipse cruise on the T.S. Olympia in 1972. The Greek Line ship sailed from New York to intercept the shadow of the moon off the coast of Nova Scotia. As chief science advisor, he got us right under the shadow of the moon- a passion that nurtured and grew in him for most of the rest of his life. So strong was his love of eclipses, which he managed to see 17 more, and spread "eclipse fever" among tens of thousands of people more passionately and eloquently than any religious evangelist could have. He had such a rare gift of imparting his love of astronomy right into the hearts of nearly everyone that ever heard him. He was the best! Appropriately, in 1984, Custer Institute arranged to have an asteroid named for him, 2844 Hess.

Many people fondly remember Fred for his "gift of gab" both informally and in formal lectures. It was certainly true that no one could deliver a talk more thunderously or clearly than Fred.,,no one- but this was not what made him great. Few taught as many classes or for as many years as Fred, but this is not what made him great. Few attended as many eclipses as Fred, but this is not what made him great. In 1955, he wrote "Chemistry Made Simple", a terrific review book, but this is not what made him great.

For four years in the late 60s and early 70s, he was Science Editor for WPIX/ Channel 11 TV, but this is not what made him great. What separated him from many others, on top of all of his accomplishments, was his genuine love of people. His family was everything to him. He loved all his students and disciples. He was a genuine, dear, sweet man- who never said a cross word to anyone.

It is for all of these reasons that I considered myself blessed to have known him, to have had him as my teacher, my mentor, my colleague, my idol, my father figure, but most of all... my dear friend.

Editor: Craig Small is a member of the Amateur Observers Society of New York



Image credit: Barbara Lebkuecher

From the right: Fred & Eileen Hess, Mrs. Parnham and Hap Parnham

By Glenn Schneider, PhD

I was deeply saddened to hear, belatedly, of the passing of Fred Hess, both personally and with the realization that the unmistakable voice of one of the greatest communicators of our passion for astronomy would now be forever silenced -- but never forgotten. As a kid back in the Bronx, I am sure it was due to Fred's inspiration that my love for astronomy was kindled and much later became my career. It is hard to grasp how many years have passed, and that he is now gone. His voice still echoes in my head, and I can close my eyes and see him silhouetted against the background of the old Hayden dome holding his audiences in rapture while informing them of the grandeur of the heavens.

It seems like only yesterday that Fred was hobbling his way off a gang plank on a boat on a Siberian lake with a full cast on a broken leg to gaze up at the total solar eclipse to then come, a quarter century ago. Tempus does fugit, but memories and seeds planted do grow. It is a strange thought: Fred was always "down here" looking up, and now he is "up there" and maybe looking down (but probably still looking up too). If so, he will know his inspiration continues those of us who were privileged to know him as we continue in our own ways to carry on his message - but by no means with the eloquence and verve that only Fred could muster. It's a sad day.

Editor: Dr. Schneider is a member of the Amateur Observers Society of New York, an associate Astronomer at the University of Arizona's Steward Observatory and the HST's NICMOS (Near Infrared Camera and Multi-Object Spectrometer) Project instrument scientist at Steward. He has been widely published in the *Astrophysical Journal* and is currently engaged in cutting-edge research using NICMOS, investigating nascent proto-planetary systems, circumstellar dust rings and possible exo-planet formation.

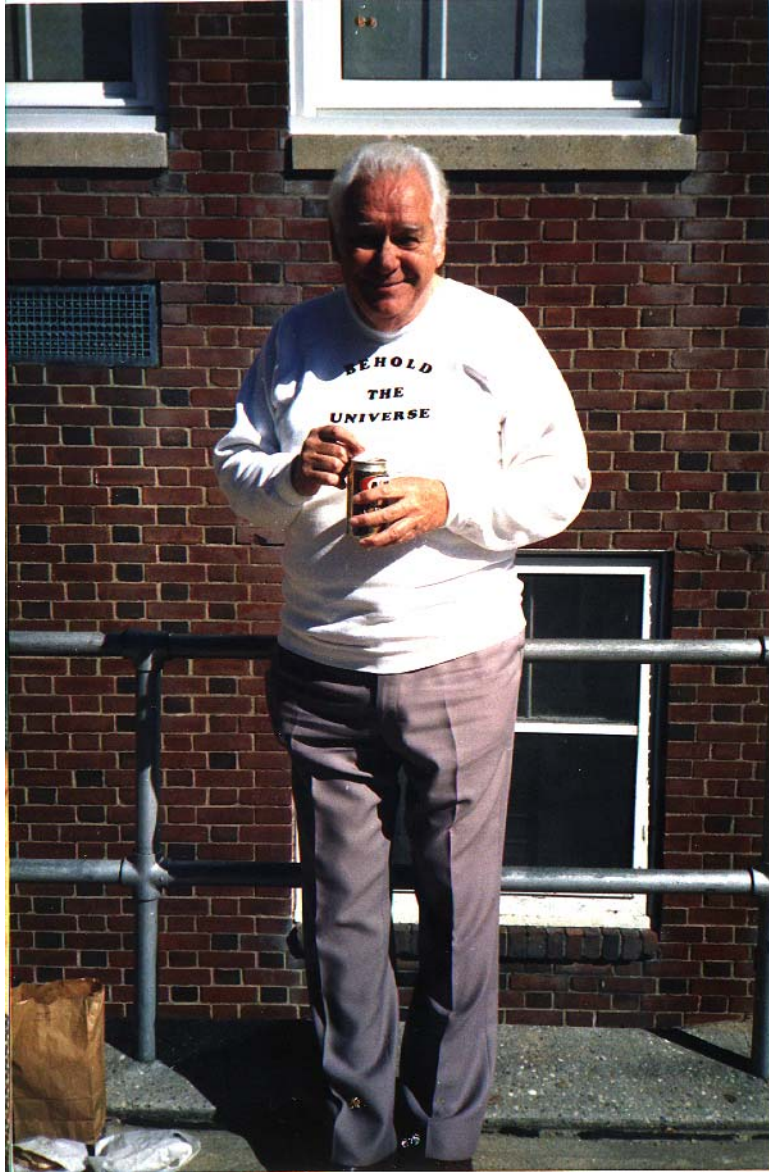


Image credit: Barbara Lebkuecher
Fred relaxing with an A&W

By Larry Gerstman

ASTEROID #2844 has been named in honor of Dr. Fred Hess for his Astronomical achievements. Go to and scroll down to #2844 Hess at: [http://en.wikipedia.org/wiki/Meanings_of_asteroid_names_\(2501-3000\)](http://en.wikipedia.org/wiki/Meanings_of_asteroid_names_(2501-3000)) (Note that the asteroid immediately after, #2845, is named in honor of Dr. Kenneth L. Franklin also of the American Museum Hayden Planetarium - who passed away a few months ago. Both were exceptional astronomers who most certainly deserved this honor.)

Editor: Larry Gerstman is a member of the Amateur Observers Society of New York and an avid Amateur Astronomer who resides in Long Beach, New York.



Image credit: US National Park Service
Fred lecturing at Astronomy Day, 1979

By Phil Harrington

Anyone who has ever heard Fred give a presentation has heard the best. I have long admired his ability to enrapture an audience, whether it was recounting one of his wonderful solar eclipse trips or simply discussing even the most basic subjects. I recall fondly one of his talks at one of Custer's Jamborees years ago. The dealt with celestial coordinates. His talent and ability to turn what is usually a very dry subject into a fascinating dissertation that captured the audience's imagination is truly inspirational. Whenever I give a presentation, whether at an astronomy convention or in a more traditional classroom setting, I remember that talk and try to impart the same level of excitement, though I fear that I fall far short. I have heard very few lectures that attain the same Shakespearean level that Fred's always did. He was certainly one of the nicest people I've ever had the pleasure of knowing through astronomy. Fred was the last "old school" planetarium lecturer from the Hayden's golden era. I can still recall the emotion and passion that filled the Sky Theater whenever he spoke into the microphone. A great guy, a friend to everyone, a wonderful teacher, and a truly magnificent presenter. I fear that we will not see his kind ever again.

Editor: Phil Harrington is a member of Custer Institute, an accomplished author, an instructor at no less than 2 area institutions of higher learning and a life-long amateur astronomer.

By J. Mark Levine

So sorry the hear about Fred "Boomer" Hess. He was one of my childhood idle lecturers at Hayden. Also, in 1979 I lead a group of 30 Long Islanders, including Newsday Science reporter Earl Lane, to the total solar eclipse up in Manitoba. We stayed in Winnipeg, but had planned on viewing the eclipse 75 miles north in Lundar. However, when we heard Lundar, population 699, was expecting over 30,000, we did some exploring and ended up negotiating with a cattle rancher in Clarkleigh, a few miles out of town. We found Fred in Lundar and asked if he wanted to join us in Clarkleigh the next day for the eclipse, and without hesitation, he said count me in. The temperature just before the earth entered the moon's shadow was 37 below Celsius. Fred gave all a meteorology lesson about how cold it really is, in that at 40 below, both Celsius and Fahrenheit are equal. He then went on to "narrate" the entire eclipse just as he would a Hayden sky show. Following the eclipse, the rancher loaned us a few of his snowmobiles for some fun - Fred had a smile from ear to ear and just kept going - and then introduced us

to his private distillery. Both Fred and I savored the ranchers fine "high octane" private batch Canadian Whiskey along with some of the best, and definitely the freshest, prime beef both of us have ever eaten. By the way, it's a good thing we were on the snowmobiles before the drink and had a chartered bus for the trip back to Winnipeg. Fond memories.

Editor: Mark is an Adjunct Professor of Astronomy at Hofstra University and the former Director of the Vanderbilt Planetarium, Centerport

By Steven LJ Russo

The passing of Fred Hess is one of the greatest losses that the planetarium field has ever had. Joe Rao's column describes him as "legendary". That word is an understatement. If you met Dr. Hess, sat through one of his classes, or attended one of his lectures, then you know what I mean. If you didn't have that privilege, then it is your loss.

As a teenager, Fred Hess was one of those folks who helped shape my career. Every Saturday morning, my parents and I would travel to the old Hayden, just to sit through the 11:00 show. It was a live show that lasted almost an hour. Dr. Hess would take that famous green arrow, the wonderful Zeiss sky, and his great lecturing voice, and show you what was there to see. No digital effects, no movies, no seat shaking sound systems, and most of the time, no slides. He didn't need any of that. His booming voice coming through the speakers, was almost like the voice of God himself coming down from the heavens. Forget about today's multi-media planetarium shows narrated by Hollywood movie actors. Fred could blow all of that away with just the sky and the green arrow. And sometimes he didn't even need the arrow.

I remember one time back in 1980, when I was working with Sam Storch at the Hubble Planetarium. Dr. Hess was doing a live lecture about the sky, outdoors at night, at Floyd Bennett Field in Brooklyn. We took some of our students to hear him. For an hour, he stood outside, talked about the sky overhead, and had dozens of people mesmerized. One of the students came up to me after the sky talk and said that it was the most amazing thing that she had ever seen.

Joe Rao mentioned about the little kids and Fred's class; 20 more disciples. I am proud to say, that at the age of 15, I was one of those disciples. Along with the shows and lectures, I took a few of those classes at the Hayden that were taught by Dr. Hess. I remember him telling my parents that one day, I would be behind a planetarium console, lecturing about the night sky, just like him. Well, here it is 37 years later, and I AM behind the console lecturing about the night sky. But like him? Not a chance ! There is no one in the planetarium field, and there will never be anyone in this field, who could lecture like Dr. Hess.

When I get into work today, my schedule will consist of three school shows, and one public show. All of them have a live segment, and one of them is totally live; 45 minutes about the current seasonal sky. I will go into that show, with a heavy heart, but I will give it my "all" to honor a man who taught me so much about the sky, excited me about astronomy, and helped guide me towards a career that I love so dearly.

Thank you Dr. Hess. Your great voice will live on in my mind forever.

Editor: Steven Russo is the Planetarium Manager at the Suits-Bueche Planetarium in Schenectady, NY and a former staff member of the Vanderbilt Planetarium, Centerport.

By Thomas William Hamilton

When I was training students to go into the planetarium field in the mid 1970s, one of the places I arranged to have them visit was a planetarium run by an oddly familiar name. I could not place it, and went with them into the furthest Bronx. The voice was instantly familiar, and took me back to my early childhood, haunting shows at the Hayden. Yes, Fred Hess had influenced and colored my career, like so many others. Somewhere, a star must shine more brightly in his honor--a gentleman, a scholar, and a true inspiration.

Editor: Tom Hamilton is a retired Professor of Astronomy who has spent a lifetime teaching astronomy in a Planetarium setting. He is best known for his pioneering work in writing and promoting Planetarium programs for the deaf, most notable among those, a program about John Goodricke, the 18th Century deaf astronomer who was the first to explain Algol as an eclipsing binary.


By Tom Madigan

Dr Hess was professor of Natural Sciences at SUNY, Fort Schuyler (Bronx) and was famous for his brilliant wit, humor and ability to explain lofty concepts in the simplest of terms. I had the memorable opportunity of speaking with him on several occasions a number of years ago, experiences that I will always recall with a smile. He was truly a diamond of a man, one who could converse with a child in one breath and Einstein in the next. He had a love for people and a passion for astronomy, a combination that made Fred a unique and gifted teacher, one who will be sorely missed.

The famous verse by American poet, Sarah Williams, would help to sum up Fred's life: ***“Though my soul may set in darkness, it will rise in perfect light. I have loved the stars too fondly to be fearful of the night.”*** I was trying find one word that could sum up Fred. While it would be impossible to sum up an entire human life in one word, with Fred it would be that much more difficult. ***Diplomat, emissary*** were two words that crossed my mind, as in "Emissary and diplomat of astronomy". In the end, it just didn't sound right and didn't fit the image of the man I remember.

Editor: Tom is a life-time member of Custer Institute, the editor and producer of this publication, a member of the Amateur Observers Society of New York, a Fellow of the Royal Astronomical Society, an Associate Member of the American Astronomical Society, an Adjunct Professor of Physics and Astronomy at Queensborough Community College, Long Island University, an Adjunct Instructor at Suffolk County Community College and a former staff member and lecturer at the Vanderbilt Planetarium, Centerport.

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