

UNIVERSAL TIMES

October 2002

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NEWS BRIEFS

- SSP is seeking two Associate Academic Directors for next summer. See <u>www.summerscience.</u> <u>org/aad</u>. Also, of course, we will need at least eight teaching assistants! Tell us if you know any good candidates....
- Last month the SSP Board of Trustees added six new members, for a total of 13. See page 5 for the complete list.
- Visit the web site at <u>www.summerscience.</u> <u>org/update to update your</u> email address and CV.
- The annual fundraising drive will begin in November to raise scholarship and operational funds for SSP 2003.

THREE YEARS ... AND GROWING

BY STEVE COTLER '60, CHAIRMAN, SSP, INC.

The Summer Science Program

It's been three remarkable years! When SSP's alumni took over in 1999, it was all about survival. Next we focused on curriculum, operations, and administration. Now, with a stable foundation in place, we have made a commitment to growth with a second campus in New Mexico. Here's some of what's been accomplished in the last year.

Applications exceeded last year's level in spite of jitters about student travel. Enrollment increased to 35 talented, enthusiastic teenagers, who left Ojai telling us that SSP was the experience of a lifetime. We persuaded the Air Force to donate a surplus dome to protect our newly refurbished astrograph. We successfully integrated digital (CCD) observations into the orbital determination project.

SSP's outreach to underrepresented minorities and

women was buoyed by continued targeted mailings and a redesigned website. We expanded the number of Trustees from 7 to 13, bringing wider expertise into our virtual boardroom. And with the generous support of a five-year grant from the

Moore Foundation, we retained former Trustee Richard Bowdon '74 as executive director, another

another *Presenting* move to ensure businesslike controls and good administration. Read more about these accomplishments inside this *Universal Times*.

Our next major challenge will be the expansion to Socorro, which has been supported by many New Mexicans and supported by the scientific and educational community there.

We have been able to accomplish so much because of what SSP is: a program with a proven record of lifting exceptional students into "higher orbit". SSP is



Presenting the SSP Faculty and Class of 2002

unique in its longevity and the accomplishments of its alumni.

Please become connected to SSP. We encourage and gratefully accept questions, comments, suggestions, and advice.

EXPANSION UNDERWAY — SECOND CAMPUS TO OPEN NEXT SUMMER IN SOCORRO, NEW MEXICO

After three years of investigation and planning, SSP will open a second site in 2003 on the campus of New Mexico Tech (<u>www.nmt.</u> <u>edu</u>) in Socorro, a small college town south of Albu-



querque. Dr. Daniel H. López, NMT's president, noted, "New Mexico is renowned for its scientific institutions and community, from Los Alamos and Sandia National Labs, to the

Santa Fe Institute, to the Very Large Array (of radio telescopes). SSP will be a welcome and prestigious addition."

Local academic, govemmental, and scientific institutions strongly support SSP's expansion. Sen. Jeff Bingaman has pledged his enthusiastic assistance. NMT is donating the use of their state-of-the-art facili-

(Continued on page 3)



"We especially enjoyed Reunion Day when we were able to interact with past alums. Like them, we agree that SSP is truly an exceptional program." -Cheng & Fannie Tsai





AN ASTEROID NAMED "SUMMERSCIENCE"

At the suggestion of Trustee Dr. David Pierce (faculty 1974-'86), a main-belt asteroid has been named 6962 Summerscience. It was discovered in 1990 at Palomar,

by Dr. Eleanor Helin. Its orbit is reported to be as stable as SSP's curriculum. and its diameter is roughly the distance from Thacher School to Happy Valley

School.

Dr. Helin (of Caltech and JPL) has been a prolific asteroid and comet researcher for almost 40 years.

CONGRATULATIONS TO THE CLASS OF 2001!

SSP raises students' aspirations and ambitions for college, by giving them confidence that they can succeed anywhere. This is one of its most important benefits.

Once again, recent SSP alumni proved themselves capable of jumping the high hurdles to admission at the world's most selective colleges and universities (see list at right).

If you study or work at one of these institutions, call up these kids and say "hello".



After long delays, Edwards Air Force Base donated a dome, and Happy Valley School built a wall around our astrograph. In early October they were finally joined together, and the wall plastered. But until we get a picture, we'll have to fake one.

THE UNIVERSAL TIMES

Published by Summer Science Program, Inc. Business Office: 108 Whiteberry Dr Cary, NC 27519 Richard D. Bowdon '74, Executive Director Email <u>info@summerscience.org</u> Voicemail 866.728.0999 Website <u>www.summerscience.org</u>

| Purdue Univ. | |
|---|--|
| Oberlin College | |
| Olin College of Engineering | |
| Caltech | |
| Yale Univ. | |
| Stanford Univ. | |
| Cornell Univ. | |
| Cornell Univ. | |
| Univ. of Washington | |
| Cambridge Univ. | |
| MIT | |
| Swarthmore College | |
| Univ. of Chicago | |
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| Williams College | |
| Princeton Univ. | |
| Harvard Univ. | |
| Cornell Univ. | |
| Stanford Univ. | |
| McGill Univ. | |
| Stanford Univ. | |
| Emory Univ. | |
| Rice Univ. | |
| Penn State-Jefferson Pre- med-Med 6-year Prog. | |
| Yale Univ. | |
| Univ. of Connecticut | |
| | |

SOCORRO CAMPUS TO OPEN

(Continued from page 1)

ties, including dorms, classrooms, offices, computers, and an observatory. The two national labs are making grants, and Los Alamos National Bank will host an SSP benefit dinner.

SSP's Board of Trustees views expansion as an opportunity to double the number of students benefiting annually from the "SSP experience". The Board has insisted that expansion must not threaten the financial or operational health of the Ojai campus. All costs associated with the Socorro campus will be covered by new funding raised for that purpose.

Dr. Mark Hammergren, an astronomer at Adler Planetarium in Chicago, will take the helm as Socorro Academic Director after three years as Associate Academic Director in Ojai.



PARENTS SAY

"Ravi loved everything about SSP: the faculty, the demanding curriculum, the observations, the field trips, the guest speakers, the beach trips, the food. But perhaps more than anything else, he enjoyed the company of the wonderful group of kids you assembled there. When he came home he actually thanked us for sending him!"

> —Mukesh Gupta and Candy Miyamura

"I now know Ryan will not only will be ready, but will thrive when he goes away to college."

—Joan Sinnet



Lunch with Leon Lederman

"Dear Mom, Today I sat next to a Nobel-prize-winning physicist."

2002'ERS SAY

"SSP has had an astronomical impact on my life." -Michael Moseley *"For the first time in* so many years, I am motivated and inspired to learn – I was challenged and I enjoyed interacting with such fun, smart people!" -Kerry Eskenas "SSP is like a black hole ... if you get to it you won't let go forever." -Alex Phelps "I never knew learning could be so challenging or so exciting."

-Melissa Latham

STELLAR GUEST SPEAKER LINEUP

A record 15 guest speakers regaled the students and faculty with their research, demonstrations, and insights. Here's the complete list in chronological order:

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|---|---|--|
| Dr. Larry Sverdrup , Senior Staff Scientist, Trex Enterprises | Mad Science | |
| Dr. Leon Lederman , Director Emeritus, FermiLab (Nobel Laureate in physics) | Inner Space and Outer Space | |
| Dr. Tyrone B. Hayes , Assoc. Professor of Integra- tive Biology, UC Berkeley | Hermaphrodites in the Cornfield | |
| Dr. Paul Pottinger , Infectious Diseases Research Fellow, Univ. of Washington | Parasites in the Developing World: Medicine and Society | |
| Dr. Maarten Schmidt , Prof. of Astronomy, Emeritus, Caltech | Quasars and Gamma -Ray Bursts | |
| Dr. Paula Szkody , Prof. of Astronomy, Univ. of Washington | Cataclysmic Variables: the Big- gest Blowouts Around | |
| Dr. Don Brownlee , Prof. of Astronomy, Univ. of Washington | Earth as an Oasis in Space and Time | |
| Dr. Thomas Steiman-Cameron , Ames Associate, NASA Ames Research Center | Probing the Dark Matter in Ga l- axies | |
| Dr. Matthew Geller '64, Managing Director, Sen- ior Biotechnology Analyst, CIBC World Markets | Science on Wall Street | |
| Mr. Mitchell Kapor '66 , Chair, Open Source Applications Fdn.; Founder, Lotus Development Corp. | Software Entrepreneurship: The PC, the Internet, and Beyond | |
| Dr. Tony Irving , Lecturer, Dept. of Earth and Space Sciences, Univ. of Washington | Planetary Meteroites: Mars, Moon, and Maybe More | |
| Dr. Douglas Richstone '66 , Prof. and Chair of Astronomy, Univ. of Michigan | Finding Black Holes in the Cen- ters of Galaxies | |
| Mr. Ray Kurzweil, CEO, Kurzweil Technologies | The Law of Accelerating Returns and the 21st Century | |
| Dr. R. Paul Butler '77 , Staff Scientist, Carnegie Institution of Washington | Extrasolar Planets: First Recon- naissance | |
| Dr. Jerry E. Nelson '60 , Director, Center for Adaptive Optics; Prof. of Astronomy, UCSC | Giant Telescopes (Closing Address) | |





Donation Return Form

| I am enclosing my donation to the only independent science education program managed and funded by its own alumni: \$500 \$250 \$100 \$50 \$50 \$25 \$ please contact me |
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| Credit to (<i>name</i>)YearAlum Parent Faculty Friend |
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| Earmark my donation for: Unrestricted Abell Scholarship |
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Cut out this form and mail it with your check, payable to **Summer Science Program, Inc., c/o Henry Lichstein, 544 Dryad Rd, Santa Monica, CA 90402-1318**. *Please correct your name and address, if necessary, on the back, or do it using the online form at* <u>www.summerscience.org/update</u>.

It's also safe and easy to donate on-line using a credit card. Our partner Network For Good processes credit card donations at no charge to you or SSP. Just go to www.summerscience.org/donate.

ACADEMIC DIRECTOR'S REPORT

(Continued from page 8)

novae.

Students enjoyed field trips to Mt. Wilson Observatory and Jet Propulsion Lab. On Mt. Wilson we were guided by longtime docent Don Nicholson. A highlight of our visit to JPL was the Mars Odyssey simulation yard. Former Academic Director Dr. Stuart Stephens hosted us. Lastly, I led a geological expedition to Wheeler Gorge.

Thanks are due to my colleague Dr. Mark Hamme rgren, and to a terrific team of teaching assistants: Madison Compton, Amy Barr '94, Christian Thomas '96, Andy Friedman, and May Lee '95. We all express our gratitude to the alumni and friends who support SSP, financially and otherwise.

SEVEN HONORED ON REUNION DAY

Interesting conversation, delicious food, and two fascinating guest speakers were on the program in Ojai during Reunion Day. Turnout was excellent: about 80 alumni and guests of all ages attended.



In the annual softball game, alumni came from behind to win yet again, 8-7.

After lunch the Board of Trustees held an open meeting, discussing the state of SSP with the audience. In the keynote address, Mitchell Kapor '66 described his "nonlinear" career, from SSP student, to early PC enthusiast (writing Apple II programs for \$5 an hour), to leader of one of the defining comp anies of the PC age: Lotus Development Corp.

Afterward we recognized unique contributions from key institutions and individuals: **Thacher School**, **Jet Propulsion Laboratory**, **Mt. Wilson Institute**, **Happy Valley School**, former Administrative Director **Roger Klausler**, Observing Equipment Specialist **John Briggs '76**, and former Trustee / Secretary / Treasurer **John Rabold '70**. Each received a custom pewter statuette of the SSP astrograph. Roger Klausler also received a spontaneous standing ovation from the audience.



The pewter astrograph.

2002'ERS **S**AY

"SSP was an absolutely amazing experience." —Greg Chanan

"Never before had I realized you could be brilliant and confused at the same time, but now I know that's the norm."

—Karen Brown

"SSP is the best thing you can do with your summer." —Andrei Munteanu



The Summer Science Program Business Office: 108 Whiteberry Dr Cary, NC 27519

Address Service Requested

2002'ERS **S**AY

"SSP changed my life. It pushed me so far beyond the limits of a high school education and experience that I feel as if I do not need another year of high school. SSP is the turning point in my life." —Evelyn Cheung

ACADEMIC DIRECTOR'S REPORT By Dr. Tracy Furutani '79

At the 44th Summer Science Program, all 12 teams completed the orbital determi nation, generated an ephemeris for their asteroids, made a fourth observation, and compared the predicted and observed positions. For perhaps the first time in the program's history, nine students performed a differential correction on their orbital ekments to increase accuracy.

Fully half of the students had completed their orbital



Some Things Never Change Dept.: TA Amy Barr teaches precise measuring skills. elements programming by the beginning of the sixth week, which is the most I have ever seen. Part of the credit goes to our decision to use the IDL programming language (donated by Research Systems), which is more intuitive syntactically than other languages used in recent years.

Observationally, we used the Meade telescope and SBIG CCD camera as an integral part of the program for the first time. Because of electrical and mechanical problems with the astrograph, only 31 films were measured. The balance of the observations were taken on the Meade. CCD image analysis was simple and effective, thanks to the software combination of The Sky and CCDSoft (donated by Software Bisque). Most teams completed imaging,

location of the asteroid and reference stars, and determination of the asteroid's right ascension and declination, in twenty minutes flat! In addition, students took images of a near-Earth asteroid's nightly movement and several extra-galactic super-

(Continued on page 7)



The SSP Senior Faculty: Drs. Tracy Furutani and Mark Hammergren