

Mission Accomplished: Dr. Sally Ride Takes Crowd of 2,000 Aboard Space Shuttle to Study Planet Earth

"The U.S. space program has actually discovered over the last 20 or 30 years that one of the most important things that we can study from space ... is our own planet."

—Dr. Sally Ride
First American Female Astronaut
To Travel in Space

From an orbit 150 miles above Earth, students and teachers from more than 60 Illinois schools looked into the eye of a hurricane, looked down on an earthquake fault line and viewed other natural phenomena during a "home movie" of Dr. Sally Ride's "earth observing mission" aboard the space shuttle.

Dr. Ride, physics professor at the University of California-San Diego and director of the California Space Institute, presented the fourth annual James R. Thompson Leadership Lecture October 18 at IMSA to an audience of more than 2,000. During the lecture, entitled "The U.S. Space Program: Pioneering the Future," Ride captivated the audience with vivid pictures of Earth taken in space and a videotape of her experience aboard a space shuttle flight.

A View From Space: Lessons Learned About Earth

"Space shuttle astronauts are much much closer to Earth ... we can see a lot of the detail, and a lot of the features of the Earth and study the finer scale," Ride said. For example, from pictures taken 150 miles above Earth, the audience clearly could see oil slicks in the Persian Gulf, water pollution in the Mediterranean Sea, and glaciers in the Gulf of Alaska.

"Ice is a very important indicator for global climate. It's one of the important things that scientists like to study from space," Ride said. "Not only can they monitor the movement of glaciers, but also they can look at ice levels to understand how the climate is being affected."

Ride told the audience that during the last 25 years, scientists have learned about Earth's complexity and the need to study all of its components together, instead of separately in isolation.

"So where as scientists used to study atmospheric physics or atmospheric chemistry or oceanography or geology separately, we now understand that you can't study those disciplines separately," Ride said. "Everything is connected to everything else, including the biosphere and including civilization's impact on the planet."

Despite all that has been learned from exploring Earth from space during the last 25 years, Ride said it will continue to be an important subject for the future. "The more we learn, the more we realize that we don't know," she said. "It's a major part of NASA's program for the next 20 years or so."



DICK H. PHOTOGRAPHS

Dr. Sally Ride

The Shuttle Flight: Weightless in Orbit

At a speed of five miles a second, the space shuttle travelled once around the world in 90 minutes. Therefore, Ride said the space shuttle crew observed one sunrise and one sunset every 90 minutes, or 16 sunrises and 16 sunsets every 24 hours. "This is just a normal site on a space shuttle flight," she said.

On the topic of weightlessness, Ride said that footloops in the shuttle helped to "anchor" astronauts in place and Velcro straps were used to "anchor" food trays.

"Books don't always stay where you thought you put them, pencils don't stay where you thought you put them, and in fact, you don't stay where you thought you put yourself," Ride chuckled.

On the topic of eating in the space shuttle, Ride jokingly said "... there really isn't much of a need for a dining room table or chairs."

During a question and answer session following the lecture, one of the guests

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Editor and Writer
Brenda Buschbacher

From the Executive Director



Dear Members of the IMSA Community,

Once again, we are off to an exciting new year at the Illinois Mathematics and Science Academy!

In August, we ushered in IMSA's ninth school year with a special Convocation ceremony for faculty, staff and students. This year we invited charter class graduate and Rhodes scholar Terri Willard to present the Convocation address. Terri has travelled the world in an effort to educate others about recycling and conservation, and it was a pleasure to have such an outstanding IMSA alumni share her experiences and wisdom with current students.

On October 18, IMSA opened its doors to 2,000 guests to present the fourth annual James R. Thompson Leadership Lecture. Teachers and students from approximately 60 Illinois schools attended the lecture given by former space shuttle astronaut Dr. Sally Ride. The lecture has become a treasured tradition over the years and we were delighted to be able to share Dr. Ride's incredible story with other Illinois students and teachers.

This fall marked the beginning of our year-long mutually supportive partnerships with elementary and secondary schools throughout Illinois; the outcome being the transformation of mathematics and science teaching and learning. IMSA also is seeking applications for this year's IMPACT II mathematics and science adaptor grant awards. All public school mathematics and science teachers in Illinois are eligible to apply.

We also are pleased to announce that the IMSA Fund for Advancement of Education has received a three-year, \$240,000 grant from the Alfred P. Sloan Foundation to support the recruitment and retention of minority students. The Alfred P. Sloan Foundation has been a strong supporter of IMSA's minority recruitment programs in the past and we are very grateful for their partnership and continued commitment to education.

Finally, I would like to extend a special congratulations to IMSA senior Omar Latif who recently received the Chicago Museum of Science and Industry's 1994 Outstanding Young Scientist Award. As a result of winning the award, Omar will fly to Stockholm, Sweden, for the Nobel Prize ceremonies in December. While we are very proud of the awards and achievements of all of our students, we are even more amazed by their dedication, hard work and stewardship.

With your continued support, we look forward to another productive year full of transformation, partnership and service to Illinois. Best wishes for the holiday season.

Stephanie Pace Marshall, Ph.D.
Executive Director

A Matter of Principal

By Edi Shaw, Student Writer

Sunrise. All is relatively quiet on Sullivan Road. A few early-rising suburban commuters flit back and forth in the morning light. The sky has brightened to a hazy shade of pinkish-orange, when a lone figure appears in the distance — perched atop a Harley-Davidson motorcycle. His eyes squinted against the dusty wind, he is the latest addition to the IMSA administration — he is principal Dr. Gregg Sinner, on his morning ride to school.

A part-time sailor, biker, and laid-back philosopher, Sinner decided Florida was just a little too sunny and pleasant for his taste. Since his arrival at IMSA in July, he has definitely been making himself noticed.

“Dynamic, caring, inquisitive, joyful, serious-minded, and playful” — this is Sinner’s synopsis of the IMSA student body. In the brief time he has spent here, Sinner has been creating a history with the school, learning the ins and outs of working with fellow administrators, and acquiring a feel for the personality of the student body.

During Spirit Week, he provoked the interest of students by donning a goofy

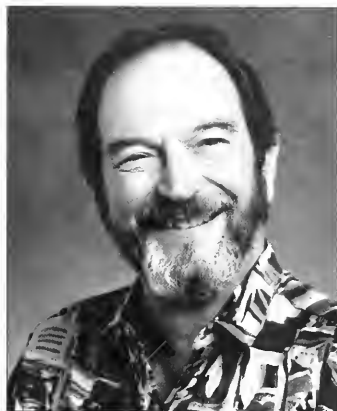
wizard’s hat. His 8th hour hallway discussions (pictured) have provided students the opportunity to voice their opinions about school policy. Sinner feels that the free discussions are useful and productive.

“The discussions provide an open forum for me to respond one-on-one to student issues in a timely manner,” Sinner said. “They also provide me with valuable student feedback.”

So where does this motorcycle man come from?

“I grew up in your typical, American 1950’s family,” Sinner said. “My parents stayed married, my dad was a pharmacist and my mother took care of us.” After serving in the U.S. Navy, Sinner went on to receive his B.S. degree in pharmacy from the University of Minnesota, a Ph.D. in molecular biology and, later, an M.Ed. in education supervision and administration from Antioch College.

Following his doctorate, he worked for several years on a penicillin fermentation project at Bristol Laboratories. He then made the career change to teaching, rather than practicing, science. During the past 23 years in education, he has taught both



Dr. Gregg Sinner

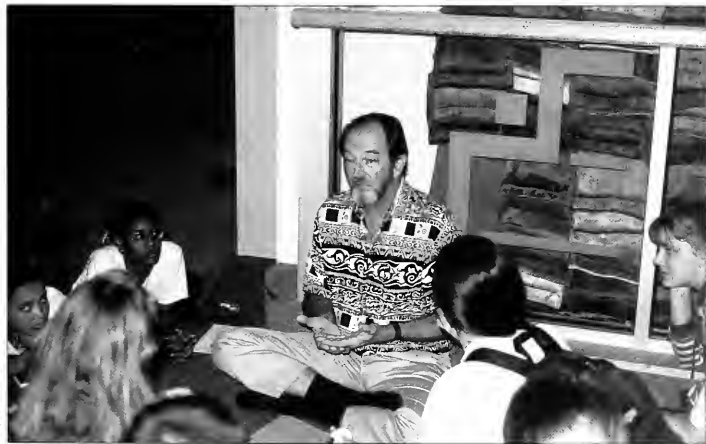
mathematics and science, with chemistry being his favorite. This was supported by his tie *du jour*, which displayed the periodic table. In addition to teaching, Sinner also has served as a school administrator in several locations in New England and most recently, Florida.

While serving as principal at the New Challenge School in Florida (an alternative school designed to combat the rising high school dropout rate), Sinner read an advertisement in an education journal about the position at IMSA. “Sounds like a job I’d like to have,” he thought. What went through his mind when he found out that the position was his? “My first reaction was ‘Wow!’ Then I thought, ‘but they have winter up there.’”

Looking ahead to the rest of his first school year at IMSA, Sinner said there are a few plans he would like to work on.

“We are looking for greater options in teaching and learning ... creating an atmosphere which is supportive of change,” Sinner said. “This is my year to learn things.”

Edi Shaw, a junior from Dixon, is a work service student in the IMSA Office of Institutional Advancement.



Dr. Gregg Sinner discusses various school issues with IMSA students.

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Alfred P. Sloan Foundation Awards \$240,000 Grant to IMSA

The Illinois Mathematics and Science Academy Fund for Advancement of Education received a three-year \$240,000 grant from the Alfred P. Sloan Foundation to support recruitment and retention programs at the Academy for underrepresented minority students.

"The issue of minority recruitment and retention is a high priority for IMSA and the continued generous support from the Alfred P. Sloan Foundation will help us address this important issue with a number of new initiatives," said Ted Parge, director of institutional advancement.

Minority recruitment and retention initiatives for the 1994-95 school year include:

- **Exploration Weekends** - This initiative would bring 25 eighth grade minority students each from six different regions in Illinois (Carbondale, Chicago, Chicago suburbs, Champaign/Bloomington, Decatur/Springfield and Rockford/DeKalb) to IMSA for a two-day learning experience.
- **Early Involvement Program** - Currently in its sixth year, ninth grade minority students from Chicago, Aurora, Elgin and Joliet developed their research, decision-making and

self-motivation skills during 12 Saturday morning sessions. Plans for the future would expand the program to sites in Springfield and Rockford.

- **Project School Visit** - Currently, this program brings students from six Chicago elementary schools to IMSA for a one day field trip experience. Plans for the future would expand the program from six Chicago schools to 15 Chicago area schools over the next three years.
- **Special VIP Day** - Designed for prospective minority students and their parents, this event would provide them an opportunity to participate in academic and residential life activities, parent-to-parent and student-to-student discussion groups and workshops on the admissions process.
- **EXCELL Program** - Designed to help ease the transition to Academy life, this program provides students with enrichment opportunities during a two-week summer residential experience prior to their sophomore year and other sessions throughout their time at IMSA. Session topics such as communication skills, study skills, and cultural and social issues are addressed.

Dr. Sally Ride (continued)

asked Ride how uncontained liquids reacted in space. "If you take a carton of orange juice and you open it up and get the liquid out ... it will turn into a spherical ball and it will just float in the middle of the cabin ... you can actually stick a straw into it and drink it!"

Students from elementary and secondary schools throughout Illinois said they enjoyed the event for a number of reasons. Elizabeth Poole, a sophomore from Normal Community High School, said that she was surprised to learn how important it is for scientists to study our own planet.

"I thought they would be more concerned about things they don't know about other planets than they would about Earth."

Jessica Miller, an 8th grader from Cooper Junior High School in Buffalo Grove, said she thought that inviting Illinois schools to IMSA was a good idea. "It's good ... how everybody got together and how everything was organized," she said. "I'm amazed by how many people showed up."

During her afternoon at IMSA, Dr. Ride also held a book signing and attended a reception honoring IMSA educational partners, friends and donors to the IMSA Fund for Advancement of Education. (see photos on page 5)

IMSA student writer *Edi Shaw* contributed to this story.

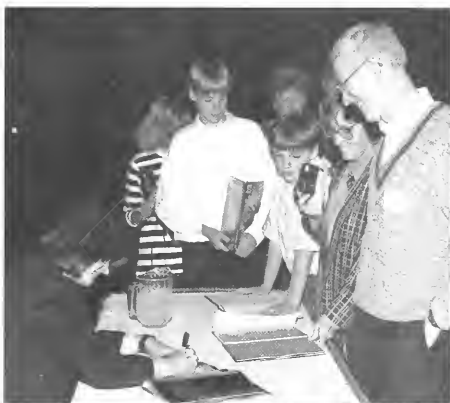


*Dear Dr. Ride
 Thank you for coming to
 our school
 It was a very interesting
 trip & we had a lot of fun.
 - having you
 here & that
 you made it here
 was a great day*

*Dr. Sally Ride visits with
 IMSA guests at a special
 reception following her
 lecture.*



*IMSA students Jason Jedlinski and Anita Prasad have an
 opportunity to meet Dr. Ride and discuss her lecture.*



*At a special book sign-
 ing before the lecture,
 Dr. Ride signs copies of
 her books for Illinois
 students and teachers.*

*Platform Party
 Members: (left to right)
 Michael Birk, president
 and chief executive
 officer of Tellabs, Inc.;
 Dr. Sally Ride; Jessica
 Droste, IMSA student
 council president;
 Executive Director
 Dr. Stephanie Pace
 Marshall; and Ted
 Parge, director of insti-
 tutional advancement.*



IMSA Seeks Applicants for Statewide Programs

The Illinois Mathematics and Science Academy is accepting student applications for its 1995 Summer 'AD' Ventures in Mathematics, Science and Technology program and applications for IMPACT II mathematics and science teaching awards.

The Summer 'AD' Ventures program consists of two sessions. The first, for 160 students entering grades 7-8 in 1995, will be held at IMSA July 5-15. The second, for 120 students entering grades 9-10 in 1995, will be held at Eastern Illinois University July 19-29.

Informational brochures for both sessions were mailed to all Illinois school counselors (grades 6-9). Interested

students can receive an application by returning a request form contained in the informational brochure or by calling 1-800-500-4672. The deadline for completed applications is January 14, 1995.

IMSA also is seeking applications for this year's IMPACT II mathematics and science adaptor awards. All public school mathematics and science teachers in Illinois are eligible to apply.

The purpose of IMPACT II is to promote excellence in elementary and secondary education by networking teachers and their innovative ideas. Nearly 1000 Illinois teachers are members of the IMPACT II network which IMSA administers.

Disseminator awards enable teachers to share their successful programs with colleagues through annual catalogs, workshops, conferences and interschool visits. Adaptor awards enable other teachers to use these programs in their classrooms.

The deadline for completed IMPACT II adaptor applications is February 10, 1995. Applications are included in the 1994 IMPACT II catalog of teaching ideas, which was mailed to all Illinois public schools and Educational Service Centers. Teachers also may call 708-907-5950 for further information.

Calculus-based Physics Exploratory Study: Female Students' Performance Improves

Last year, in an effort to learn more about how student-teacher, student-student, and student-content interaction influence learning, the Illinois Mathematics and Science Academy conducted a *Calculus-based Physics Exploratory Study*. This included three coed and one all-girls section of the course for the first semester. All sections were coed for the second semester.

Among the major findings, released in November, were:

- More females enrolled in and successfully completed *Calculus-based*

Physics: Mechanics (first semester) and *Calculus-based Physics: Electricity/Magnetism* (second semester) than ever before.

- Females in the single-gender section demonstrated significantly higher gains in self-confidence than did females in the coed sections.
- The classroom ethos (distinguishing character/climate) of the all-female section was unique, characterized by a profound sense of responsibility for learning, a spirit of co-learning, and strong student influence on

classroom dynamics.

- The teacher of the all-female section increasingly reexamined and modified his behavior, enabling students to acquire experiences that are fundamental to a deeper understanding of advanced physics.

The Academy believes that girls and boys in coed classrooms would benefit by a classroom ethos and changes in teacher behavior similar to those seen in the all-girls section.

To obtain a copy of the summary report, contact Cathy Veal at 708-907-5034.

1994-95 Admissions Information

To help prospective students and parents learn more about the Academy's admissions, academic and residential life programs, the following activities are scheduled this fall and winter:

- **Statewide Informational Meetings** (50). Sites include Bolingbrook, Carlinville, Carterville, Chicago (7), Collinsville, Country Club Hills, Crystal Lake, Danville, Decatur, DeKalb, Dixon, East St. Louis,

Effingham, Elgin, Elmhurst, Evanston, Flora, Freeport, Galesburg, Grayslake, Harvey, Hazel Crest, Hoffman Estates, Jacksonville, Joliet, Kankakee, Macomb, Mattoon, Maywood, Moline, Mt. Vernon, Normal, Northbrook, Oglesby, Palos Heights, Paris, Peoria, Pontiac, Quincy, Rockford, Springfield, Urbana, Vernon Hills and West Chicago.

- **Visitor Information Program Days** (2). These will be held at IMSA at 1:00 p.m. on January 28 and February 19.
- **Application Deadline.** The deadline

for application to IMSA's tenth sophomore class—the Class of 1998—is March 1, 1995.

IMSA's Office of Admissions also premiered their new recruitment video entitled *Find Yourself at IMSA*, featuring current and former IMSA students. Music for the video was provided by IMSA Class of 1993 graduate Dominic Armato.

For more information about the admissions process, statewide informational meetings or VIP Days, call (708) 907-5027 or in Illinois 1-800-500-IMSA.

State, National and World Leadership

Executive Director **Dr. Stephanie Pace Marshall** presented *Understanding the Vision, Meaning and Language of Educational Transformation: An Educational Pioneer's Odyssey into the World of Chaos and Complexity Theory* at the Fourth Annual Chaos Network Conference Sept. 29 in Denver, CO.

Mathematics teacher **Sue Eddins** presented a weekly two-hour workshop entitled *Alternative Assessment in High School Math* to teachers in three Illinois Educational Service Center regions during October and November. Through IMSA's distance learning classroom, Eddins taught 12 math teachers from five school districts during the fall semester. The teachers received credit for the class through Aurora University.

Presentations by mathematics teachers at the annual meeting in Springfield of the Illinois Council of Teachers of Mathematics October 21-22 included **Ruth Dover**, *Introducing Activities in Trigonometry*; **Dr. Stan Hartzler**, *Origami and Four Applications*; **Diane Martling**, *Looking for Mathematics*; **Vern Strong**, *Assembly Language Programming in the High School*; and **Ron Vavrinek**, *Teaching Recursion to Gifted Students*.

Biology teachers **Norman Merczak** and **Dr. Susan Styer** presented *Cell Surfaces Explored with Lectins* at the 27th Annual Convention of the Illinois Science Teachers Association Nov. 4-5 in St. Charles, IL.

Biology teacher **John Thompson** presented *Wolf Ecology: An Integrated Approach* at the Midwest Environmental Education Conference Oct. 26-29 in Galena, IL.

Social science teachers **Dr. Jim Victory** and **Bernie Hollister** presented *Our Town: Using Community History in Illinois and National History* at the Illinois Council for the Social Studies 1994 State Conference Oct. 14-15 in Springfield, IL.

Julia Husen, Russian teacher, presented *Stop! Look! Listen!*, a continuing workshop on student-centered activities and instruction, at the Illinois Conference of Teachers of Foreign Languages Oct. 21 in Rockford, IL.

German teacher **John Stark** was the coordinator and faculty member for a weekend German immersion experience Sept. 16-18 in Bloomington, IL, for 27 German teachers from elementary schools, high schools and colleges throughout the state.

Reference librarian **Chris Jocius** and physics teacher **Dr. David Workman** presented *Information Resources for Realistic Integrated Science Projects* at the annual conference of the Illinois School Library Media Association November 4 in Lincolnshire, IL. Librarian **Marti Guarin** co-authored "School Library Snapshots: A Brief Survey of Illinois School Library Collections in Three Areas of Science." The study appeared in several publications including the *Illinois School Library Media Association Journal* and the *Illinois School Research and Development Journal*.

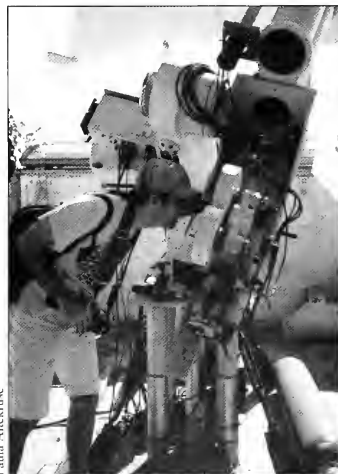
Mentorship coordinator **Dr. Peggy Connolly** was one of 20 educators nationwide representing the National Consortium for Specialized Secondary Schools of Mathematics, Science and Technology (NCSSSMST) invited to tour the Naval Research Laboratory Sept. 19-22 in Washington, D.C. The event was designed to familiarize participants with the "cutting-edge" scientific research conducted by the Navy's scientists.

Student and Staff Achievements

Senior **Omar Latif** of Glendale Heights won the Museum of Science and Industry's 1994 Outstanding Young Scientist Award. For his achievement, he received a trip to the Nobel Prize ceremonies in Sweden in December.

On Aug. 29, the *Aurora Beacon-News* reported that members of IMSA's Class of 1994 led the nation with an average American College Test exam score of 31.0.

A total of 101 IMSA seniors (58% of the class) qualified as semifinalists or received letters of commendation in this year's National Merit Scholarship Corporation competition. In addition, four seniors qualified as semifinalists in the National Achievement Scholarship Program for Outstanding Negro Students.



Paula Alckrense

IMSA student **Zachary Miller** looks at sunspots during a visit to the California Institute of Technology in Pasadena, CA. He was among five IMSA students selected to attend the Seventh Annual Student Conference of the National Consortium for Specialized Secondary Schools of Mathematics, Science and Technology (NCSSSMST) held October 19-23 in Carson, CA.

"Kid Talk" Films at IMSA

Cathy Forbes, host of "Kid Talk," listens to a panel of IMSA students during a taping of the talk show in the Toyota Video Production Laboratory at IMSA. The show aired November 12 and 19 on WPWR - Channel 50 in Chicago. In addition to appearing on the show, IMSA students also were highly involved in the show's production (ran camera, lights, and audio).



Irene Norton



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ILLINOIS MATHEMATICS AND SCIENCE ACADEMY

IMSA *A Pioneering Educational Community*

Volume 9 No. 2 • Winter 1995

IMSA Breaks the Mold for Teacher Supervision, Evaluation and Development

In a time of increasing calls for greater performance and accountability in the teaching profession, teachers at the Illinois Mathematics and Science Academy (IMSA) are leading the way with a promising new system for professional accountability and development.

Developed over 16 months by a team of nine teachers and three administrators, and approved unanimously by the board of trustees last spring,

CADRE ("Career Development Reinforcing Excellence") challenges the educational status quo:

- Gone is classroom isolation and lack of peer scrutiny. Instead, teachers work together, reviewing, challenging and assessing each other's work.
- Gone is the notion of three separate groups with unrelated accountabilities. Instead, teachers, administrators and board members must support each other to achieve results for which they all are responsible.
- Gone are implicit expectations for performance. Instead, explicit standards are in.
- Gone is what many view as tenure's "guarantee of unconditional lifetime employment." Instead, access to job stability depends on continuing high performance.

Increased Accountability

The new system integrates research on the supervision and evaluation of teachers,

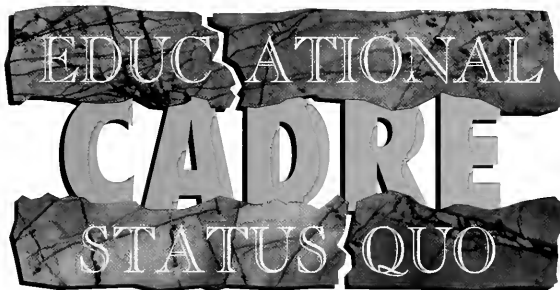
knowledge about student learning, and the public's legitimate interest in educational accountability. Grounded in mutual accountability and professional trust, CADRE holds teachers accountable for improving student learning and professional practice, and for developing products and services for external sharing. It holds teachers and administrators accountable for facilitating professional development

are: **ongoing dialogue** (focused on constructivist learning theory, curriculum content and design, current research and literature, and teaching behaviors); **action research** (classroom-based investigation of one's practice); and **authentic assessment** (evidence of increased understanding of teaching and learning, improvement of instructional practice, and collaborative inquiry that results in students' abilities to integrate information).

Blocks of time, in which all teachers are freed from other duties, are provided every sixth school day for teachers to engage in ongoing dialogue.

Under CADRE, IMSA teachers progress through a series of three contracts (initial two-year, then a three-year, then an ongoing collaborative accountability contract), all of which involve teams of teachers and staff in monitoring,

(continued on page 8)



and educational experimentation.

At the heart of CADRE are the teachers' "plans for authentic inquiry" which add to their classroom teacher role the roles of learner, researcher, creator of new knowledge, and teacher of teachers. In collaboration with their peers, teachers determine what they plan to do to improve student learning, what methods they will use, how they will measure their success, how they will share what they learn with others, and how they will obtain input and feedback from IMSA colleagues, students and external contacts.

Dialogue, Research, Assessment

The primary components of CADRE

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Editor and Writer
Brenda Buschbacher

From the Executive Director



Dear Members of the IMSA Community,

I am pleased to report a productive and exciting beginning to 1995 at the Illinois Mathematics and Science Academy, and we look forward to upcoming events and challenges. Let me cite a few highlights at this time.

Educators from 40 elementary and secondary schools throughout Illinois continue meeting with IMSA faculty and staff as part of our year-long mutually supportive partnerships to transform mathematics and science teaching and learning.

In December, we hosted the first organizational meeting of the IMSA Alumni Association which was attended by 62 IMSA graduates. During the meeting, alumni ratified a constitution and selected a steering committee to direct further organization.

I am delighted to inform you that we have been selected as the site for the 1995 Mathematical Olympiad Summer Program. We also are extremely pleased that Titu Andreescu, mathematics teacher, was selected to be the director of the program. We look forward to hosting 24 of America's most talented mathematics students and hope to make this year's program one of the most successful to date!

We are pleased that Dr. Michael Palmisano, director for research and design, will serve as chair on the Illinois Academic Standards Project, an initiative of the Illinois State Board of Education designed to enhance student and school performance. We are excited about having a leadership role in such an important issue to Illinois education.

The IMSA community also is looking forward to several special events. I am pleased to announce that former Chicago Bear Mike Singletary will be the speaker at the fourth annual Richard L. Horwitz Lecture on Ethics this spring. At the same time, we are already anticipating IMSA's spring of 1996 benefit performance of the Broadway hit "Show Boat." For ticket information, call 708-907-5040.

As we continue to implement the strategic initiatives that move the Academy forward, we thank you for your continued support of our evolving journey.

Sincerely,

Stephanie Pace Marshall, Ph.D.
Executive Director

Earth 2000 Brings AIDS Quilt to IMSA

By Edi Shaw, Student Writer

Corsets, clothing, and cowboy boots. These are among the myriad of items used as mediums through which people affected by the tragedy of AIDS have expressed their sorrow. They also are a few of the materials which make up The NAMES Project AIDS Memorial Quilt, an 18-acre, 37-ton construction of panels commemorating the lives of hundreds of victims of this lethal plague. A segment of the Quilt visited IMSA on January 27 via the efforts of Earth 2000, a student environmental and social justice organization.

"We hope to raise awareness around campus and to enable people to learn more about HIV/AIDS," said IMSA junior Lisa McElroy, co-founder of Earth 2000. McElroy had seen the Quilt on display previously, and worked to bring it to the Academy as a part of IMSA's HIV/AIDS Awareness Week activities. During the week, information regarding the disease was distributed throughout the IMSA community and movies and discussions also were held. In addition to IMSA students, 11 area high schools were invited to partake of the experience of the AIDS Quilt.

"I welcome the opportunity to be reminded of our common humanity," said Dr. Gregg Sinner, IMSA's principal. "Unlike most other fatal diseases, HIV/AIDS seems to carry moral opprobrium that isolates those so afflicted from others and vice versa," Sinner said. "I continue to believe that all of humankind is in this, as well as everything else, together."

Sinner's sentiments were echoed by the IMSA community. "It's hard not to cry," said Joanna Jenne, an IMSA sophomore. "It really makes you think about how much AIDS affects people." IMSA social science professor Dr. Christian Nokkentved added, "I think the point that [The NAMES Project] is trying to get across here is that ... we need to think of it not just in terms of the individuals who

16 football fields, the Quilt represents 29 different countries, all 50 states and Puerto Rico. In short, it is huge.

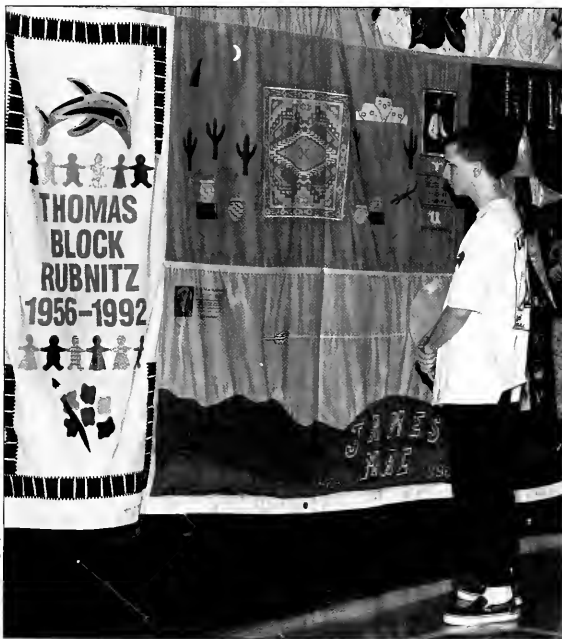
From its conception in San Francisco in 1987, the NAMES Project Foundation has sent pieces of the Quilt to the far corners of the world, spreading awareness of AIDS and HIV prevention efforts to people in schools, hospitals, prisons, malls, corporate offices, and places of worship. There are famous people on the Quilt and people who will never be known for anything; there are old people and people who had just begun to live; there are lonely people and there are families.

Everywhere it goes, the moving memorial incites a desire to act. A recent survey of a national display showed that 70% of people who saw the Quilt felt compelled to contribute to the cause in some way, by donating time, money, or simple support. "It's personalized the disease," said Willard Duncan of the NAMES Project Foundation. "When the entire thing is laid out, it has a dramatic impact on those who see it."

The message is clear: everyone can get AIDS, so everyone has to know about AIDS.

The NAMES Project AIDS Memorial Quilt is a first step, and it is an important one. It brushes aside the prejudice and hatred which hinders progress in search of a solution to a pandemic which will inevitably touch your life, if it hasn't already. As Sinner so aptly put it, "we need to protect ourselves from the virus, not from the people who have it."

Edi Shaw, a junior from Dixon, is a work service student in the IMSA Office of Institutional Advancement.



DIC-11 Photographs

struggle with the disease themselves, but also in terms of their friends and families."

The Quilt itself consists of 27,730 panels, each measuring three feet by six feet. The panels were donated by families and friends of AIDS victims, and their combined contributions have raised \$1,434,071 since 1987 for direct services to people with AIDS. Stretching across

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IMSA Fund Update:

Caterpillar Foundation Award Supports Faculty and Student Innovations

Using visualization software to analyze real-time weather data and bioacoustical software to analyze vocalization patterns of penguins are just two examples of innovative teaching methods being supported by the Caterpillar Faculty Excellence Fund at IMSA.

The Fund was established at IMSA in February of 1993 to support unique professional development opportunities for IMSA teachers—opportunities to help them develop innovative approaches to teaching and learning for use at IMSA and in other Illinois schools.

In presenting the three-year \$75,000 grant to IMSA two years ago, Caterpillar Director of Public Affairs Terry Thorstenson said, "Today's teaching will produce tomorrow's corporate leaders, so it's important that IMSA's dedication to excellence be supported."

Examples of faculty projects demonstrating IMSA's "dedication to excellence" include:

- **Time and Space Data Collection** – Six teachers from IMSA and Bensenville, IL., created a unit which allowed students to gather and manipulate pertinent local historical data through the use of special software. They integrated charts, graphs, maps and photos into an audio and video interactive "text-book" for classrooms and libraries.
- **Integrated Biology** – Students and teachers studied the vocalizations of Rockhopper penguins at the Shedd Aquarium in Chicago to find distinguishable patterns in pictorial and statistical representations. Using computers and bioacoustical software, they were able to collect and analyze data scientifically for study.

- **Dr. Edward Teller Interactive Video Project** – An IMSA teacher, in collaboration with six Illinois physics teachers, developed interactive instructional lessons on CD-ROM based on raw video footage taken of world-renowned physicist Dr. Edward Teller, during his visit to IMSA in November of 1992.
- **"Real Science" CD-ROM Magazine** – Under the guidance of an IMSA teacher, three Academy students are developing a CD-ROM interactive science theme magazine with news, feature stories and projects for students in grades 3-5. The project will be piloted with students at McCleery Accelerated School in Aurora, IL.



Brenda Bassbacher

Social science teacher Dr. Jim Victory (seated) demonstrates how specialized computer software can enhance student learning during a visit in January by Emmy Wright, communications manager for Caterpillar, Inc. in Aurora.

Illinois Schools Join Forces with IMSA to Advance Problem-Based Learning

PROBLEM: A power plant is asking for variances to dump more chemicals into a pristine river in Vermilion County. Can this be allowed while still maintaining nature's delicate balance?

Students in Nancy Baird's class at Franklin Middle School in Champaign are tackling this problem and more as a result of her school district's partnership with the Illinois Mathematics and Science Academy's Center for Problem-Based Learning.

IMSA's Center, a number of Illinois schools, school districts and a college are working together to advance the study and practice of problem-based learning, a unique educational approach that helps students develop their critical thinking, problem solving and collaborative research skills.

Problem-based learning partnerships are one of several year-long partnerships initiated by IMSA in 1994-95 to transform mathematics and science teaching and learning. As part of their training, the teams meet at IMSA every month for one-day workshops with Academy faculty and staff. In addition to partnership teams, IMSA also is providing staff development in problem-based learning to recipients of Illinois State Board of Education service learning grants (see box on page 8).

Baird, an educator for 23 years, became intrigued with problem-based learning (PBL) after attending IMSA's first Neison and Bette Harris Institutes on Problem-Based Learning in the summer of 1993.

"Problem-based learning looked like something very exciting to me and one teaching method that was very logical and made sense," she said.

In PBL, students gather and apply knowledge from multiple disciplines in their quest for solutions to "messy" real-world problems. Guided by teachers trained as cognitive coaches, students identify problems, formulate hypotheses, conduct data searches, perform

experiments, formulate solutions and determine the best "fit" of solutions to the conditions of the problem.

The Middle Fork River Project

Baird decided she wanted to try PBL with her students and returned to the second Harris Institutes in the summer of 1994 where she began to write her own problem-based learning unit, "The Middle Fork River Project."

Now, students in her 6th, 7th and 8th grade classes are learning about many things in their search to find solutions to their problem.

"Students used chemistry while testing for chemicals in the river, biology while studying the effects on aquatic life, social science while watching how the EPA's Pollution Control Board works and economics while seeing the potential effects on local jobs," Baird said.

Baird said that because of PBL's success, Champaign Unit School District #4 now provides an incentive to teachers who help to disseminate it throughout the district.

"The school board has decided that it was a teaching strategy that needed to be disseminated and will give school board credit to teachers who attend professional

development programs on problem-based learning," Baird said.

Wicket Goes To School

Yvonne Hollingsworth, a teacher at Hermes Accelerated School in Aurora and member of a PBL partnership team, says one reason problem-based learning is so effective is because it incorporates many different teaching styles and can be used at many different grade levels.

Hollingsworth introduced PBL to her elementary school students by having them solve one of her own real life "problems."

"My son, Christopher, was going back to college to live in his own apartment and trying to decide if he should take his dog, Wicket, with him to school," Hollingsworth said. "He needed to make a decision soon and I wanted my students to help him in making that decision, keeping the best interest of the dog in mind."

As a result, students had to write her son a letter at school, telling him their decision and the reasons why they came to that conclusion. "Because it was something I was facing in my personal life, it made the problem real to them and they became more involved," Hollingsworth said.

(continued on page 8)



Brenda Buschbacher

Science teacher Dr. David Workman discusses problem-based learning with teachers who received Illinois State Board of Education service learning grants during a workshop at IMSA in December.

IMSA Minority Recruitment Program Serves Talented Chicagoland Students

A total of 59 Chicagoland ninth graders learned how to design, build and maintain a city using computer simulation software as one activity of IMSA's 1994-95 Early Involvement Program (EIP).

In its sixth year, EIP is designed primarily to help increase the number and competitiveness of black, Hispanic and economically disadvantaged students who apply to IMSA. The program is supported by grants from the Albert Pick Jr. Fund and Polk Brothers Foundation.

Held at Loyola University-Water Tower Campus and IMSA, the Saturday sessions (October - February) included "hands-on" and group problem-solving activities as well as some preparation for the Scholastic Assessment Tests (SAT I and II). Students developed research, decision-making and self-motivation skills while studying geometry, algebra, calculus, trigonometry, wellness, physics, chemistry and English literature. In addition to the Saturday sessions, students attended an all-day retreat at IMSA December 10.

"Students report to us that the cooperative work groups help them respect other's views while becoming more responsible for their learning."

The EIP sessions were led by IMSA teachers and staff Vern Strong, mathematics; Soon-Heng Lim, English; Branson Lawrence, chemistry; Ed Moyer, physics; Kim Wilson, humanities and Barbara Baber, wellness; and public school teachers Ed Caster (Dunn Elementary School-Chicago), Bethenia Salinas (Gompers Junior High School-Joliet), and Ira Lathan (West Aurora High School).

IMSA EIP is one of several programs designed to encourage minority students who are interested in mathematics and science. IMSA Director of Admissions Dr. LuAnn Smith said that the lessons students learn in EIP are far-reaching and long-lasting.

"Students report to us that the cooperative work groups help them respect other's views while becoming more responsible for their learning," Smith said. "We believe these qualities transcend basic skills and will help our students throughout their personal, educational and professional lives."

IMSA To Host 1995 Mathematical Olympiad Summer Program; Teacher Appointed Director

This summer, 24 of America's brightest young mathematical minds will converge on IMSA's campus for a month of "mental stretches" as part of the 1995 Mathematical Olympiad Summer Program (MOSP).

IMSA mathematics teacher Titu Andreescu was appointed director of the MOSP and lead coach of the 1995 U.S.A. Mathematical Olympiad (USAMO) team. Previously, Andreescu worked as a staff member at the 1993 and 1994 summer training sessions.

"I am very excited about directing the program and opening IMSA's doors this summer to other talented mathematics students throughout the nation," Andreescu said. "Our students are excited as well."

Of the 24 students participating in the MOSP (June 13-July 12), six will go on to compete in the International Mathematical Olympiad (IMO) July 13-25 in Toronto, Ontario, Canada. Professor Paul Zeitz of the University of San Francisco will serve as Andreescu's deputy coach.

Previously, training for the IMO was held at the United States Military Academy in West Point, New York, and the U.S. Naval Academy in Annapolis, Maryland. The 1995 MOSP is being sponsored by the Office of Naval

Research and Matilda Wilson Foundation, and is an official program of the Mathematical Association of America.

During their month-long stay at IMSA, students will have lectures and tests in areas such as combinatorics, number theory, advanced geometry and algebra. Lecturers for the program include Andreescu and Professors Zeitz and Elgin Johnston of Iowa State University. Former IMO gold medalists and Harvard students Stephen Wang (IMSA '94), Lenny Ng and Kiran Kedlaya will serve as "student assistants" during the program.

Although one of the outcomes for the summer program is to provide training for the IMO, Dr. Walter Mientka, executive director of American Mathematics Competitions, said the nature of the program was modified last year to de-emphasize competition.

"The main reason for the program is to provide a mathematical experience for all students," Mientka said. "This provides a much more harmonious atmosphere and students compliment each other."

Mientka said competition to a certain point is healthy, but added that it can hinder academic growth. "In the spirit of mathematics, modesty with results is what counts!"

State, National and World Leadership

Executive Director **Dr. Stephanie Pace Marshall** was invited to serve as the Chairman of the Rhodes Scholarship Committee for the Great Lakes nine-state region. The committee met on December 9 and 10, 1994, in Chicago.

Science teacher **Margaret Park** presented *The Grainger Workshop and Integration* during a regional meeting of Physics West hosted by Park at IMSA on December 8, 1994. The meeting was attended by physics educators and professionals from Chicago's western suburbs.

Mathematics teacher **Sue Eddins** presented *Assessing Assessment* at a regional meeting of the Metropolitan Mathematics Club of Chicago February 4 at Niles North High School.

Social science teacher **Bernie Hollister** wrote *The Study of History as Analogies* for the January, 1995, issue of *Ideas, Notes, and News About History*, a publication of the National Council for History Education, Inc.

Dr. Raymond Dagenais, curriculum/action research specialist, served as a manuscript reviewer in 1994 for the National Staff Development Council. The most appropriate manuscripts were selected for publication in the *Journal of Staff Development*.

German teacher **John Stark** and Spanish teacher **Elia Lopez** presented *Learner-Centered Vocabulary Instruction* at a statewide meeting for teachers of foreign languages January 17 in Charleston, S.C. They were invited to present by the American Council on the Teaching of Foreign Languages (ACTFL).

Biology teacher **John Thompson** presented an overview of problem-based learning (PBL) and a PBL unit *Wolf Ecology* during a faculty development day at the College of Lake County January 18 in Grayslake, IL.

Student and Staff Achievements

Seven students were named to this year's all-state band, orchestra and chorus by the Illinois Music Educators Association.

A team of 16 students finished first in Illinois in the Knowledge Master Open competition held in December. The team also placed third in the nation out of 1,433 schools.

IMSA senior **Earl Zaromb** of Hinsdale was named one of 300 semifinalists in the prestigious Westinghouse Science Talent Search Competition. His research project is *Theoretical Determination of the Geometries of Ammonia Clusters*.

IMSA sophomore **Jason Spanel** of Eldorado was named one of 10 winners nationwide of the President's Environmental Youth Award sponsored by the U.S. Environmental Protection Agency. He also received the Gaylord Donnelley-Nature of Illinois Foundation Award (see photo).

IMSA junior Meredith Shaw of Dixon wrote a poem that was published in the Nov. 4 issue of *READ* magazine entitled "About the Way We Run."

IMSA Alumni Serve Illinois and the World

Although it has only been several years since IMSA graduates left Aurora, Il., to pursue their college and career goals, they already are "making their mark" by serving others around the world.

Some examples include:

Erin Roche, '89, is training teachers while serving in the Peace Corps in Honduras.

Andrew Harrison, '89, is volunteering as a group counseling co-facilitator in Manhattan, N.Y., for people with HIV/AIDS.

Jordan Martin, '90, is teaching 7th grade science and social studies in her hometown of Danville, IL.

Glenn Donnelly, '92, will travel to Togo, West Africa, this summer as part of a medical missionary team.

Gretchen Green, '92, will participate in a cross-country cycling trip this summer from San Francisco to New York City with Cyclists Ending Hunger (CEH).

Chelsy Hopper, '92, tutors students in junior high mathematics.

Michael Ombrello, '93, planned service trips to Appalachia and Tijuana as his fraternity's community service chairman.



Photo courtesy of the U.S. EPA

IMSA sophomore Jason Spanel is congratulated by Vice President Al Gore and Carol Browner, administrator of the U.S. Environmental Protection Agency for the 1994 President's Environmental Youth Award.

Breaking the Mold

(continued from page 1)

assessing and supporting each individual teacher. Mechanisms to address performance concerns are included in each contract.

A majority of IMSA teachers, 39 of the 63, have a collaborative accountability contract which provides access to ongoing employment as long as exemplary performance is sustained.

To learn more about CADRE, contact Cathy Veal at 708-907-5034, or cveal@imsa.edu (Internet).

What They Are Saying About CADRE...

"Most important, students should benefit because it focuses on their learning and performance which is and should be our bottomline."

Chuck Hamberg,
mathematics teacher

"Pioneers are supposed to go where others have not been, and I could not be prouder of our teachers for their vision and leadership."

Dr. Stephanie Pace Marshall,
executive director

"I have been waiting for this for 31 years."

Bernie Hollister,
social science teacher

"It is a model of higher expectation. One of the ways to get outstanding work is to expect it!"

Michael Casey,
English teacher

"In order for something like CADRE to work, teachers must have the time to work together on an ongoing basis, not just in an occasional teacher institute day."

Branson Lawrence,
chemistry teacher
President,
IMSA Faculty Forum

Partnership Focus

(continued from page 5)

Although Hollingsworth is quick to point out that it takes a lot of time and planning to create a successful problem-based learning unit, she said it is time well spent.

"Problem-based learning lasts over a longer period of time. It makes a long-reaching connection," she said.

IMSA's Center for Problem-Based Learning engages in PBL research, information exchange, teacher training and curriculum development for K-16 educational settings. For more information, call (708) 907-5956.

IMSA Problem-Based Learning Partnership Teams

Aurora East Public School District #131

Arlington Heights School District #25

Barrington Community Unit
School District #220

Burr Ridge Middle School

Champaign Unit School District #4

Community Consolidated School
District #21, Wheeling

John Hersey High School, Arlington Heights

Proviso West High School, Hillside

North Central College, Naperville

Illinois State Board of Education Grantee Learning Grantees

Batavia Middle School

Carl Sandburg School District #145, Freeport
Chicago Vocational

Gavin Elementary School, Chicago Heights

McCleery Accelerated Middle School, Aurora

Smyser Elementary School, Chicago

Steinmetz Academic High School, Chicago

Thurgood Marshall Middle School, Chicago

Washington Middle School, Springfield



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ILLINOIS MATHEMATICS AND SCIENCE ACADEMY

IMSA A Pioneering Educational Community

Volume 9 No. 3 • Spring 1995

IMSA Students Held "Under the Microscope" Students Present Scholarly Research

For the first time, many IMSA students felt what it was like to be "under the microscope," while their scholarly research was analyzed and scrutinized during the Seventh Annual IMSA Presentation Day April 26.

More than 100 students (60 females and 49 males) presented their research findings in fields including Immunology, Oncology, Ethnobotany, Cardiology, Computer Science, Chemical Engineering, Ophthalmology, Molecular Modeling, Genetics, Sociology/Public Policy, Medicinal Pharmacognosy and Anthropology. Topics included research

into risk factors in stroke patients, indicators for brain tumor recurrence and the

formulation of a 3-D interactive database of Potawatomi Indian artifacts.

Students conducted their research in IMSA's Mentorship Program, an optional program which pairs students on site once a week with master scholars and scientists in educational institutions, corporations and laboratories. Mentorship Coordinator Dr. Peggy Connolly said IMSA's Presentation Day is an important part of the mentorship experience and is designed to model real-world professional scholarly conferences.

"There is an inherent risk in making your work public," Connolly said. "However, despite the risk, to become credible researchers students need to offer their work for critical examination. Presentation Day is one way students can showcase their work and gain new insights into their research," she said.

Connolly encourages students to prepare for publication and presentation from the beginning of their research experience. "The accuracy, completeness, and quality of a student's presentation will depend upon the accuracy, completeness and quality of a student's work and records," she said.

Examples of Student Presentations

- ▶ Blink Conditioning in Aging Mice: Modeling Alzheimer's Cognitive Deficits
- ▶ Developing Multifunctional Robotic Grippers
- ▶ Investigating the Effects of Gun-Related Injuries on Health Care Costs
- ▶ Epstein-Barr Virus: The Role of CD 45 in Lymphoma Development
- ▶ Classification of Galaxies by Computer Analysis of CCD Imaging Data
- ▶ Programming Symbolic Algebra for a Scientific Visualization Package

Presentation Day sessions were attended by students, staff and mentors. Students could present their findings alone, with another student or with their mentor. Presenters had 15 minutes to discuss their work and five minutes to answer questions from the audience.



DIG IT Photographs

IMSA senior Tiy Martin portrays Dr. Jewel Plummer Cobb during Presentation Day.

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Editor and Writer
Brenda Buschbacher

From the Executive Director



Dear Members of the IMSA Community,

As we prepare to complete the Academy's ninth academic year, let me share several spring highlights and preview the summer.

Professional development remains an important initiative at IMSA, and we are encouraged by the response of educators, legislators, business leaders and others to the Academy's new system for professional accountability and development for teachers (see cover article, Winter 1995 NOVA). We also are working with State Superintendent Dr. Joseph Spagnolo, Dr. Richard Wagner, executive director of the Illinois Board of Higher Education, Lourdes Montegudo, executive director of the Teachers Academy of Mathematics and Science, and others to help advance a system for professional development in Illinois.

As part of our work to develop a comprehensive system of student assessment, the Academy is reexamining the use of the Carnegie Unit to certify student achievement. The Carnegie Unit (4 credits in mathematics, 3 credits in science, 4 credits in English, etc.) remains the most widely used "measure" of student achievement. Dr. Ernest Boyer, president of The Carnegie Commission, has said it is time to develop a more meaningful system of student assessment and we are working with him and others toward such an end.

In March, we hosted a delegation of French educators led by Nobel Laureate Professor Georges Charpak, and IMSA's annual Award of Excellence ceremony in which our students honor home school teachers from throughout Illinois. In April, we hosted a three-day visit by *The Wall Street Journal*.

At this time, we are looking forward to the Commencement of the Class of 1995 and are delighted that Dr. Larry Smarr, director of the National Center for Supercomputing Applications, will be the speaker.

The Academy also is looking forward to our 1995 Partners in Learning Conference (August) in which IMSA's partner schools will showcase their work to transform teaching and learning in mathematics and science. This and other activities, including our first Alumni Open House on June 17, will make this summer a busy and memorable one!

Sincerely,

Stephanie Pace Marshall, Ph.D.
Executive Director

Former Chicago Bear Mike Singletary Presents Horwitz Lecture

Reflecting back on his life and lessons learned, former Chicago Bear Mike Singletary spoke about the importance of having vision, values and the perseverance to succeed in life during the fourth annual Richard L. Horwitz Lecture on Ethics April 19 at IMSA.

His lecture, *Whatever Happened to Conviction?*, drew a crowd of nearly 400 including IMSA faculty, staff, seniors, alumni, friends and family of Richard Horwitz, and the public.

"You've got to know for yourself that what you're doing burns in your heart, and it burns in your mind and it's what you get excited about."

— Mike Singletary

Singletary told IMSA seniors to listen to their hearts when making lifelong career choices while in college. "It [your career choice] can't be because of the money that you might make, it can't be because of the status, it can't be for anything else, other than *you love it!*," he said.

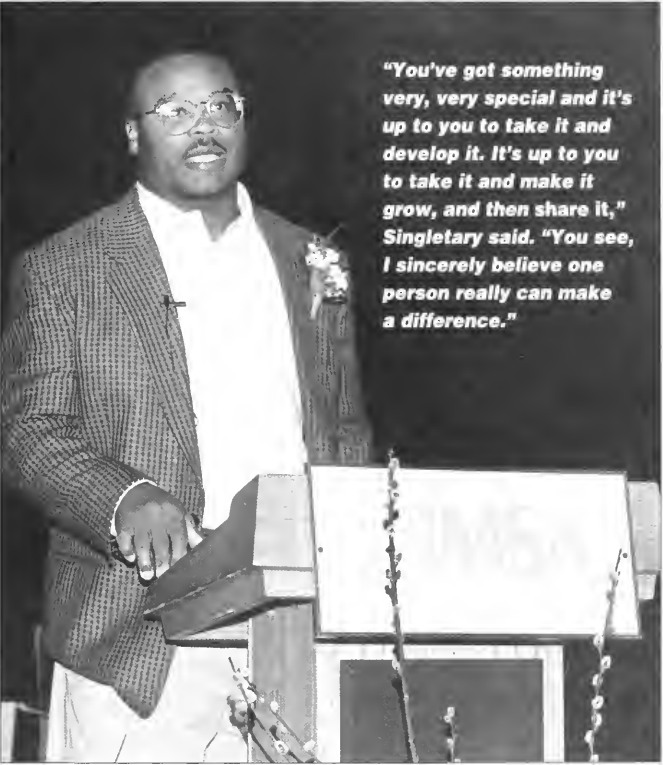
Singletary, who served as Chicago Bears team captain for 10 years, led the Bears to a Super Bowl XX victory and received numerous honors including NFL Defensive Player of the Year, the NFL Man of the Year and the Bart Starr Award for leading a life that models high moral character.

A businessman and motivational speaker, Singletary sets aside much of his time for volunteer charity work. He is a spokesperson for Take Time for Youth, the Illinois Park District campaign, and has been a spokesperson for Child Abuse Prevention Services, Just For Youth, The Mill (a rehabilitation program for

troubled youth) and the Lawndale Community Center for Underprivileged Kids. In addition, he participates in numerous NFL-sponsored charity events and anti-drug education programs.

Near the end of his lecture, Singletary told IMSA students how important it was for them to share their experiences and talent with others who, in turn, may benefit from them.

"You've got something very, very special and it's up to you to take it and develop it. It's up to you to take it



"You've got something very, very special and it's up to you to take it and develop it. It's up to you to take it and make it grow, and then share it," Singletary said. "You see, I sincerely believe one person really can make a difference."

and make it grow, and then *share it!*" Singletary said. "You see, I sincerely believe one person really can make a difference."

The lecture series is held in memory of Auroran Richard Horwitz, IMSA's first legal counsel, who died in August 1990. Lectures are presented by prominent leaders in education, government and the private sector and are supported by the Horwitz family and friends through the IMSA Fund for Advancement of Education.

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IMSA Fund Elects New Officers and Board Members

The board of directors of the Illinois Mathematics and Science Academy Fund for Advancement of Education recently elected new officers and several members to its board during its annual meeting May 10 in Chicago.

Michael J. Birck (pictured), founder, president and chief executive officer of Tellabs, Inc., in Lisle, was named president. Former Illinois governor James R. Thompson who served as president of the IMSA Fund Board from 1990-1995, will continue serving on the Board in the newly created position of chairman.

Thompson congratulated Birck, predicting he will provide the leadership for the next chapter in IMSA's history.

"Since he became an IMSA Fund board member in 1990, Mike Birck has dedicated himself to playing a leadership role in supporting IMSA students and its academic programs," Thompson said. "He has those leadership qualities and that entrepreneurial spirit that is needed to inspire IMSA as it continues to climb to new heights."

In addition to a new president, IMSA Fund board members William White, president, chairman and chief executive officer of Bell & Howell Company, and Robert Malott, chairman of the executive



Photo Courtesy of Tellabs, Inc.

committee of FMC Corporation, both have been named to the position of vice president. Fund board member Sue Schanlaber, president of The Landmark Group, Inc., has been named secretary/treasurer.

New board members include: Thomas Castino, president and chief executive officer of Underwriters Laboratories in Northbrook; Joanne Hansen, president of Furnas Foundation in Batavia; Alan Kember, vice president of the Central Region of Northern Telecom, Inc. in Schaumburg; and Richard Lumpkin, chairman and chief executive officer of Consolidated Communications, Inc. in Mattoon.

IMSA Community to Board "SHOW BOAT" in Spring 1996

"SHOW BOAT," the Jerome Kern and Oscar Hammerstein II landmark musical saga, will be docking in Chicago in late March 1996, and the Illinois Mathematics and Science Academy has been selected by Chicago's Auditorium Theatre to enjoy a special benefit performance. Tickets are available for the performance to be held during the first month of the Chicago run.



"SHOW BOAT," which opened in New York last fall, set a new Broadway record for the biggest advance box office gross ever earned by a re-creation/revival production.

(Continued on page 8)

DIG-IT Photographs



Mike Singletary takes time to sign autographs for IMSA students during a special reception following his lecture.

DIG-IT Photographs



Brenda Buschbacher



State Superintendent Dr. Joseph Spagnolo visits with IMSA students following their demonstration of an integrative technology project.

(left to right) Horwitz Lecture Platform Party Members: Executive Director Dr. Stephanie Pace Marshall, Mike Singletary and Francis Kim, senior class member ('95).



IMSA Receives Record Number of Applicants; Invites 10th Sophomore Class

A total of 241 students from throughout Illinois have been invited to enroll this fall as members of the Illinois Mathematics and Science Academy's (IMSA) tenth sophomore class. Chosen from a record 948 applicants from 420 schools, the invited Class of 1998 represents 164 schools and 134 communities throughout the state.

Director of Admissions Dr. LuAnn Smith said she is overwhelmed with the response from students across Illinois. "Talented and motivated students live in every type of community in the state—rural, urban and suburban. Our efforts to recruit qualified students from all areas, with special emphasis on underrepresented areas, continue to enhance the diversity of the IMSA student body."

Students offered admissions include 116 girls and 125 boys. The ethnic distribution of the invited class is white 52%, Asian 27%, African American 11%, Latino/Latina 7%, and non-reporting 3%.

The average SAT mathematics and verbal scores for the invited class are 651 and 534 respectively. This compares to the national average for college-bound seniors of 478 and 424.

1990 IMSA Graduates Make Their Mark as Leaders

IMSA's Class of 1990 graduated from college with an extensive record of academic achievement, community service, political involvement and scholarship awards, with 62% having engaged in independent research as part of their undergraduate experience (see related story on page 8).

Other results of the Class of 1990 Longitudinal Study Report, released this spring, include:

- A significantly higher percentage of IMSA graduates majored in mathematics and science than the national norm.
- 50% of IMSA graduates earned degrees in science compared to the national norm of 21%.
- 44% of IMSA female graduates earned degrees in science compared to the national norm of 16%.
- IMSA graduates showed a strong inclination toward social service and philanthropic organizations, citing volunteer activities as a source of pride and growth in leadership qualities.
- 62% of graduates said IMSA improved their critical thinking ability "a lot" while only 15% of the comparison students said their high school improved their critical thinking to the same degree.
- IMSA graduates rate the quality of their IMSA instructors and instruction much higher than comparison students rate their instructors and instruction.
- A significant number of IMSA students graduated with degrees in multidisciplinary or cross-disciplinary fields such as psychobiology and biophysics.

For more information on the longitudinal study of IMSA graduates, contact Jay Thomas at (708) 907-5991.



DIG-IT Photographs

IMSA student Brad Friedman tests the strength of his basswood bridge he built in the Grainger Inventors' Workshop at IMSA. The bridge was constructed for the Illinois Institute of Technology's 21st Annual Bridge-Building Competition.

State, National and International Leadership

Executive Director **Dr. Stephanie Pace Marshall**, has been invited to serve as Administrator Column Editor for a new journal published by the National Consortium for Specialized Secondary Schools of Mathematics, Science & Technology. Established in 1988, IMSA is a founding member of the consortium.

Linda Torp, curriculum and action research specialist, **Dr. Marcelline Barron**, director for integrative teaching and learning initiatives, and **Dr. Michael Palmisano**, director for research and design, presented *Developing Standards of Significant Learning* at the 50th Annual Conference of the Association for Supervision and Curriculum Development March 24-28 in San Francisco, CA.

Rick Bryant, coordinator of college counseling and career development, authored the chapter *The Changing Roles of Cognitive and Non-Cognitive Indicators in the College Admission Process in The Admission Practitioner: A Guide for College and University Admission Professionals*, a publication of the National Association of College Admission Counselors.

Dr. Sue Styer, biology teacher, presented *Designer Genes* at a recent Expanding Your Horizons in Science and Mathematics conference. The workshop was presented to middle school girls at the College of DuPage March 11 in Glen Ellyn, IL.

German teacher **John Stark** and French teacher **Willa Shultz** presented *Alternative Assessment in Foreign Language* at the International Conference on Standards and Assessment March 30-April 2 in Chapel Hill, NC. Stark also has been named to the editorial advisory board of *Unterrichtspraxis*, a journal of applied linguistics of the American Association of Teachers of German.

Dr. Raymond Dagenais, curriculum and action research specialist, wrote *All Aboard*, an article on IMSA's Summer 'AD' Ventures professional development initiative, in the Winter 1995 edition of *Mentoring Resource*, the newsletter of the Mentoring Leadership and Resource Network of the Association for Supervision and Curriculum Development.

Presentations by mathematics teachers at the annual meeting in Boston, MA, of the National Council of Teachers of Mathematics April 6-9 included **Charles Hamberg**, *Mathematics Begins Beyond the Answer*; **George Milauskas**, *Geometric Modeling of Algebra Can Enhance Learning through Interconnections*; **Sue Eddins**, *Changing Assessment: Putting the New Standards into Practice in the Classroom*; and **Dr. Stan Hartzler**, *Origami and Four Applications*.

Social worker **Cheryl McGuirk** presented *Depression and the Gifted Adolescent* at the eighth annual professional conference of the National Consortium for Specialized Secondary Schools of Mathematics, Science & Technology March 16-18 in Lynchburg, VA. **Dr. Connie Hatcher**, director of personnel and planning, presented *Career Development Reinforcing Excellence: A New Paradigm for Collaborative Accountability*.

Student and Staff Achievements

Five students- **Benjamin Chelf** of Streamwood, **Brad Friedman** of Deerfield, **Allen Lee** and **David Shih** of Naperville, and **Jason Wang** of St. Charles were among the 141 nationally who qualified to take the USA Mathematical Olympiad (USAMO) exam which determines who will be chosen for the U.S. team for international competition.

Biology teacher **John Thompson** received a 1995 Department of Energy Teacher Research Associate award to participate in energy-related research at Argonne National Laboratory in Argonne, IL.

Dr. Marcelline Barron, director of integrative teaching and learning initiatives, received the 1995 Agent of Change award from the American Association of University Women (AAUW) for her efforts as chairperson of the AAUW Illinois Task Force project, *Educational Equity for Women and Girls*.

ISMA students **Keith Amonlirdviman** of Chicago and **Blair Sutton** of Glen Ellyn took first and second place respectively in the south suburbs high school division of the Illinois Institute of Technology's 21st Annual Bridge-Building Competition held March 3 in Chicago. **Amonlirdviman** then captured first place in IIT's international competition held May 6. (see photo page 6)

English teacher **Patrick McWilliams** was awarded a fellowship from the University of St. Andrews in St. Andrews, Scotland to study creative imagination during the fall of 1995. He also will teach undergraduate literature courses and conduct tutorials during the semester.

English teacher **Soon-Heng Lim** was awarded a fellowship from the National Endowment for the Humanities (NEH) to attend *Indian Buddhist Literature*, a five-week NEH Summer Seminar at the University of Chicago.

A team of five students took first place in the "under 1600" division of the U.S. Chess Federation National High School Chess Championships April 7-9 in Rosemont, IL. The team competed against approximately 50 other U.S. high schools.

“SHOW BOAT”

(Continued from page 4)

IMSA's benefit performance will be held at 3:00 p.m. on April 14, 1996. The ticket price of \$175 includes a pre-curtain champagne brunch in the Palmer House Hilton, the performance with prime orchestra seating and a tax deductible contribution of \$65 to the IMSA Fund for Advancement of Education. **To reserve tickets for the 1996 IMSA Fund Gala, contact Christina Morkin at (708) 907-5040.**

Friends of IMSA and the IMSA Fund have enjoyed two other benefit performances. "Phantom of the Opera" in 1990 and "Miss Saigon" in 1992.

IMSA Alumni Conduct Cutting-Edge Research

Many IMSA alumni can be found in university research laboratories across the country; some are continuing the work they began in IMSA's Mentorship Program (*see related cover story*).

Examples of their collegiate research work include:

Brian Butler, '89, is working on a series of papers on applying some Internet technologies to support classroom education.

Jennifer Schwartz, '89, is conducting research in early language acquisition in addition to speed of information processing and its relation to intelligence.

Jennifer McCarthy, '90, is conducting research on Type II Diabetes.

Punita Gupta, '92, is conducting research on biosonar and communication systems in bats.

Laura Nickerson, '92, conducted research in subnuclear physics as a research assistant.

Jennifer Ellis, '93, co-authored DNA Methods for HLA Typing as a result of research conducted on DNA typing and bone marrow transplants.

David Knol, '93, conducted research in computer-aided design (CAD) funded by the National Research Foundation.



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ILLINOIS MATHEMATICS AND SCIENCE ACADEMY

IMSA A Pioneering Educational Community

Volume 9 No. 4 • Summer 1995

Summer Service Initiatives Sizzle at IMSA

If you think the Illinois Mathematics and Science Academy is only a school, serving students and teachers only during the school year . . . think again.

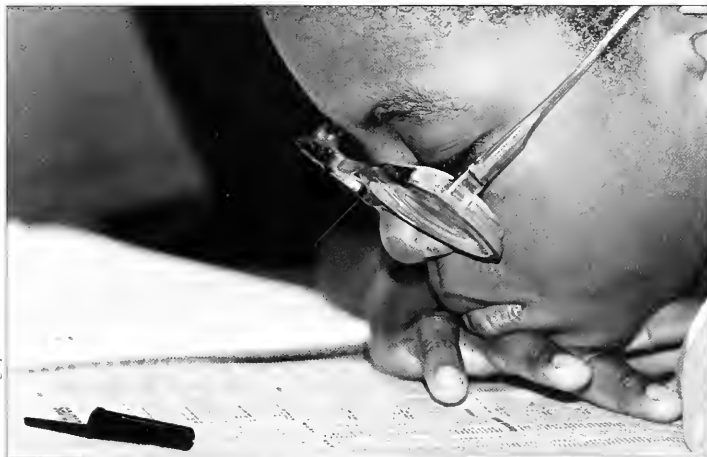
IMSA students may go home for the summer, but as soon as they leave, the hallways and classrooms are abuzz with the voices of hundreds of students and teachers from throughout Illinois—eagerly ready to learn more about problem-based learning, integrative mathematics, or innovative technology applications, just to name a few.

Teachers Energize Teachers

Larry Schnorr, a science and mathematics instructor at Byron High School in Byron, has taught IMSA's Summer 'AD' Ventures in Mathematics, Science and Technology program for the past seven years. What keeps him coming back?

"It energizes me," Schnorr said. "All the teachers involved with the program are very enthusiastic about what we do and it really energizes us for the coming school year."

A total of 280 Illinois students in grades 7-10 and 24 Illinois teachers participated in the 1995 Summer 'AD' Ventures



DGC: IT Photographs

Demetrius Campbell, a junior high student from Chicago's South Loop Elementary School, reads the fine print of the market report during IMSA's technology workshop held July 10-14. During the workshop, students learned about economics, mathematics and social science while conducting mock trading.

program, which focused on discovery-based and interdisciplinary laboratory activities in mathematics and science.

Schnorr said he applies what he learns in Summer 'AD' Ventures in his home school. "Byron High School allows us to experiment with interdisciplinary units combining our social science and geometry classes," Schnorr said. "Traditional school schedules are often boundaries to interdisciplinary learning," he added. "That's why Summer 'AD' Ventures is so great!"

Students Like the Way They Learn

The 160 students in grades 7-8 who participated in Summer 'AD' Ventures I at IMSA July 5-15 performed water quality testing, astronomy experiments and other "hands-on" activities while learning about the connections within and among

math, science and technology.

"I really liked the sun dial experiment," said Carrie Underwood of Shepherd Junior High School in Ottawa. "I now know that a day is *almost* 24 hours," she said. "I am going to try it at home every solar day for a week, just to see my results."

Kerri Kuzmickas of St. Patricia's Junior High School in Palos Hills said the water quality testing experiment was her favorite. "I learned a lot, enjoyed the experience and am now aware of the problems facing my community," she said.

Asked whether or not the summer program met his expectations, Ryan Knuffman of Woodland Junior High School in Streator said "Actually, it topped them! .. We did really neat things. I liked the way we learned."

(Continued on page 8)

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NOVA is published quarterly by the
IMSA Institutional Advancement Office.

Editor and Writer
Brenda Buschbacher

From the Executive Director



Dear Members of the IMSA Community,

This summer, the Illinois Mathematics and Science Academy hosted hundreds of teachers and students from throughout Illinois for a number of statewide service initiatives. As in past years, we again held the Summer 'AD' Ventures in Mathematics, Science and Technology program for Illinois students in grades 7-10. In addition, for the first time we held a C++ (computer programming language) Workshop, a Mathematical Investigations Workshop for Illinois mathematics teachers, and a South Loop Elementary School Technology Workshop for Chicago junior high minority students and their teachers.

IMSA also hosted Illinois educators including staff from Illinois State University as part of the ITEAMS initiative, a professional development program partnering IMSA and ISU. We are excited about this promising new program and look forward to working with the ITEAMS teachers in the 1995-96 academic year.

In July, the Center for Problem-Based Learning held the Harris I Introduction to Problem-Based Learning Institute in Chicago and the Harris II Advancement of Problem-Based Learning Institute at IMSA. More than 100 Illinois educators representing K-16 schools participated in PBL partnerships with IMSA this past year. We look forward to their continuing work with IMSA as research partners as we strive to understand the effects of PBL on student learning.

As we look forward to the start of another academic year, we are pleased to announce that former NASA astronaut Captain Jim Lovell will be IMSA's featured speaker for the fifth annual James R. Thompson Leadership Lecture on October 16. Captain Lovell's voyage aboard the ill-fated Apollo 13 is the subject of the blockbuster major motion picture starring Tom Hanks.

We welcome the challenges and opportunities that lie ahead and look forward to serving IMSA students and educators from Illinois and other states in 1995-96.

Sincerely,

Stephanie Pace Marshall, Ph.D.
Executive Director

Class of 1995 Celebrates Commencement

Before receiving their diplomas and medallions, IMSA's Class of 1995 heeded yet one more piece of advice from their principal.

"Transformation of self precedes transformation of the world," said Dr. Gregg Sinner. "Each of us must change and grow if we are to engage others in transformation."

On June 3, the 171-member Class of 1995 celebrated their commencement with proud parents, relatives and friends at Aurora's Paramount Arts Centre. Dr. Larry Smarr, director of the National Center for Supercomputing Applications at the University of Illinois at Urbana-Champaign, gave the commencement address.

"The multidisciplinary, integrated thinking that is taught here at IMSA is what the future is about."

Dr. Larry Smarr
Commencement Speaker

Smarr reminded students that they live in the Information Age, a unique period in history when the younger generation has a great advantage. "It's a very strange time because in this odd period, the younger you are, the more competent you are in this new world," he said.

Smarr also told graduates he believes IMSA prepared them well for the future. "The multidisciplinary, integrated thinking that is taught here at IMSA is what

the future is about," he said. In addition, Smarr said that leadership, which IMSA emphasizes, is a rare and desperately needed skill for the future.

"Leadership and pioneering is taught here from the very beginning," he said.

Reflecting on the Class of 1995's three years at IMSA, Executive Director Dr. Stephanie Pace Marshall noted some of the special opportunities the students enjoyed. "The senior class benefited greatly from new and expanded resources and programs made possible by increased state and private sector support—resources such as the Digital Authoring and Training Laboratory, the Integrated Science Laboratory, the Foreign Language Laboratory, and the Grainger Inventors' Workshop," she said.

Francis Kim of Naperville and Tiy Martin of Country Club Hills were the student speakers. Martin encouraged fellow classmates to be leaders and active participants in the problem-solving process. "When we see injustice, racism, sexism, classism, hunger ... let us not turn our heads," Martin said. "IMSA has taught us that they are only problems to be solved."



DIG-IT Photographs

Following certification by Dr. Sinner that members of the Class of 1995 had met graduation requirements, students received diplomas from IMSA Board of Trustees President James Pearson and commencement medallions from Dr. Marshall.

IMSA Students Chosen for Chicago Holiday Performance

Ring in the holidays with the sounds of the IMSA Strolling Strings and Chamber Choir. IMSA's students have been chosen to be guest performers for the Holiday Program at the Drake Hotel in Chicago on Saturday, December 16.

"We are very excited about showcasing IMSA's fine musicians and singers and are honored to have been chosen among other talented young performers from the Chicago area," said IMSA Choral Director Dalia Bach.

IMSA students will perform various holiday selections.



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Toyota USA Foundation Awards \$100,000 Grant to IMSA for IMPACT II

The Illinois Mathematics and Science Academy Fund for Advancement of Education has received a \$100,000 challenge grant from the Toyota USA Foundation to support the IMPACT II award program for Illinois mathematics and science teachers.

"Improving mathematics and science teaching and learning throughout the state is an integral part of IMSA's mission, and the generosity of the Toyota USA Foundation will enable us to continue to support creative and innovative Illinois public school teachers through the IMPACT II program."

said Ted Parge, director of institutional advancement.

IMPACT II, a national program, began in 1979 and now operates in more than 26 sites throughout the country. Its purpose is to promote excellence in elementary and secondary education by networking teachers and their innovative ideas. Illinois' program, administered by IMSA, is the only program in the nation to focus on improving mathematics and science teaching. More than 1,000 Illinois teachers have received awards through the IMPACT II program.

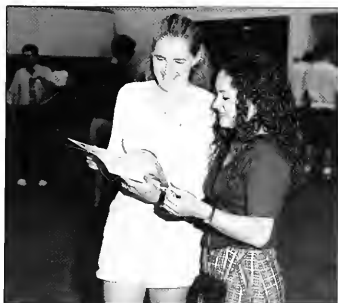
Among other IMSA Fund-related highlights in 1994-95, Ted Parge, director of institutional advancement, cited the following:

- A three-year \$240,000 grant from the *Alfred P. Sloan Foundation* to support recruitment and retention programs at the Academy for underrepresented minority students.
- A \$10,000 grant from *Abbott Laboratories* to support IMPACT II mathematics and science adaptor awards for Illinois public school teachers.
- IMSA Alumni Open House attended by 210 alumni and guests from the Classes of 1989-1995. The same evening, IMSA's Class of 1990 held its five-year Reunion at the Holiday Inn in Naperville attended by 90 graduates and their guests.
- Dr. Sally Ride, the first American female astronaut to travel in space, presented the fourth annual James R. Thompson Leadership Lecture. The lecture was attended by more than 2,000 people including students and teachers from 60 Illinois schools.
- IMSA was selected by Chicago's Auditorium Theatre to enjoy a special benefit performance of "SHOW BOAT," the Jerome Kern and Oscar Hammerstein II landmark musical saga. Tickets are still available for IMSA's benefit performance to be held at 3:00 p.m. on April 14, 1996. **To reserve tickets for the 1996 IMSA Fund Gala, contact Christina Morkin at (708) 907-5040.**

Alumni Open House



IMSA Principal Dr. Gregg Simer, Priya Sekar ('92), Deborah Shepard ('91), IMSA Dean of Student Services Deb Guffy, and Monica Jain ('93) pose for a photo.



Jennifer Clough ('93) and Rosa Valencia ('94) read the latest edition of NOVA and brief themselves on the "news" at IMSA.



John Feldberg ('90), Raychell Roddey ('91), Cleto Kingsbury ('90) and a future "IMSA Alum!" reminisce during the first Alumni Open House held June 17 at IMSA.



Lynette Galloway ('94) and her mom, Shirley (left), enjoy hearing about the latest accomplishments of IMSA graduates as April Martin ('94) reads the latest edition of IMSAAlum.

IMSA Partners Showcase Initiatives to Transform Mathematics and Science Teaching and Learning

By Catherine C. Veal

A year ago, the Illinois Mathematics and Science Academy and 50 Illinois schools, working in mutually supportive partnerships, embarked on a bold journey to transform teaching and learning in mathematics and science.

On August 12, 1995, the initial results of these collaborations were shared at IMSA's Illinois Partners in Learning Conference. Some 200 educators from throughout Illinois presented the products of their partnership experiences with IMSA in 1994-95. Examples included:

Yorkville: Science/English Wolf Unit

Three teachers from Yorkville High School, Patti Hoffert (science), Michelle Morkert (English) and Sheila Thompson (English), described how *Never Cry Wolf*, a novel by Farley Mowat, anchored their efforts to integrate instruction in science and English. They and a fourth colleague, Lisa Morris (science), worked together on a unit about wolves and their habitats, predator-prey relationships, data collection and analysis, the scientific method, lab reports, journaling, personification, characterization and skit-writing.

They relied on their own expertise and others, including John Thompson, IMSA biology teacher and "wolf expert", and Jeff Schafermeyer, director of the Kendall County Outdoor Education Center.

Admitting they were "less than enthusiastic" about this collaboration at first, by the end of the unit all three characterized it as a great success, for both students and teachers. The experience "opened our eyes," Morkert said, adding that she now is interested in similar collaborations with other teachers in her school.

Sheila Thompson reported that students "got more involved in this unit than in anything else we did all year," noting that students who usually earn low grades excelled and that students who usually earn "As" discovered how to focus on learning rather than "getting an A."

A major focus of the unit was authentic assessment which included the teachers' use of sports orienteering, a multifaceted activity in which the students had to use what they learned to navigate unfamiliar park land effectively (much like author Farley Mowat had to do to track the wolves).

Barb Sloan, assistant superintendent, saluted the teachers' willingness to break through traditional disciplinary boundaries. "They went out on a limb within their own peer groups and school," she said, adding that support from Frank Babich, the school's principal, also was critical to the unit's success.

Wheeling: Staff Development and Problem-Based Learning

Rather than "waiting for everyone to be the light and get on board," Community Consolidated School District #21 in Wheeling is taking a different approach to staff development, said Bill Myers, assistant superintendent. "We're sending out scouts to lead the way and supporting those who are ready to go," he said.

Five years ago, the district began working with IMSA, Motorola and others to build a strong team to lead change efforts. The district then decided to invite teams of teachers to engage in similar "reflective learning," with significant support (release time, for example). "Some resisted, but the board decided to take the heat, proceed and support those teachers who wanted to move," Myers said.

Clearly, some were ready—what started as three teams of 13 teachers is now 33 teams of 120 teachers.

Mary Biddle, a teacher with Champaign Unit #4 School District, presents her district's work on problem-based learning during the conference.

One strand for professional development centers on problem-based learning, the theme of Wheeling's partnership with IMSA. Several district educators were trained in PBL at IMSA's summer Harris Institutes, and now the district offers its own training institute. Teachers are seeing how "rewarding and relevant" PBL is, Myers said, and how it enables them to engage students in learning more effectively.

Charleston: Embracing Technology

Charleston Junior High School is on the fast track. In a relatively short period of time, teachers who had "zero to minimal expertise with computers, especially Macs," are fast becoming skilled in the use of technology to enable student learning.

Working in partnership with IMSA, the school first developed a group of hypercard stacks for use in introducing new students to its program. "This was the seed, and it will continue to grow," said teacher Tim McCollum.

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State, National and International Leadership

Executive Director **Dr. Stephanie Pace Marshall** was invited by the Education Commission of the States to write an article for the monograph commemorating its 30th anniversary. The article is entitled *Embracing the Challenges, Opportunities, and Spirit of Leadership for the 21st Century*.

Mathematics teacher **Ron Vavrinek** was one of only 22 teachers from the U.S. and Canada to receive the 1995 Edyth May Sliffe Award for Distinguished High School Mathematics Teaching. Mathematics teacher **Titu Andreescu** received the award last year.

Music teacher **Mark Running** presented *Teaching Music through the Performance Ensemble and Authentic Assessment* at the meeting, Music Education at Illinois: The Next 100 Years, June 29 and 30 at the University of Illinois at Urbana-Champaign.

Dr. Raymond Dagenais, curriculum and action research specialist, wrote a manuscript entitled *Step Outside for Experience Teaches: A Teacher's Journey through the School Year 1995-96*. It is a publication of Kappa Delta Pi, an international honor society in education.

Social science teacher **Bernie Hollister** was invited by The Library of Congress to attend the National Digital Library Educators' Forum July 26-28 in Washington, D.C. During the forum, he helped determine what social science resources should be part of the NDL collection on the Internet.

IMSA senior Rebecca Willett is congratulated by U.S. Senators Carol Moseley-Braun and Paul Simon for being one of two students chosen to represent Illinois at Girls Nation in Washington, D.C.

Student and Staff Achievements

French teacher **Brenda Crosby** received a grant from the National Endowment for the Humanities to attend the seminar *The Paris of Balzac, Baudelaire and Flaubert* July 10-Aug. 11 in Paris, France. The seminar is a literary and historical geography of Paris in the 19th Century.

IMSA senior **Rebecca Willett** of Plainfield was one of only two students chosen to represent Illinois at Girls Nation in Washington, D.C. July 15-22 (see photo below). She was chosen from among 584 leaders participating in Girls State, an organization sponsored by the American Legion Auxiliary which promotes education about city, county and state government.

A team of five students captured third place in the computer category of the 11th Annual National History Day competition for their project *Three Strikes and You're (Walking) Out: A Study of Unionization in the Street Industry*.

Seniors **Julia Sibley** of Prophetstown and **Gaurav Upadhyay** of Libertyville presented at the Second Annual Student Research Symposium of the National Consortium for Specialized Secondary Schools of Mathematics, Science and Technology. The symposium was held June 8-11 at Washington University in St. Louis, MO.

Three IMSA interpretive materials—NOVA, the annual report and the admissions recruitment video—captured awards in this year's National School Public Relations Association annual publications contest. Project coordinators were **Brenda Buschbacher**, coordinator of public information, and **Dr. LuAnn Smith**, director of admissions.



Summer Service Initiatives

(Continued from page 1)

Examples of other IMSA summer service initiatives included:

- **Illinois Partners in Learning Conference** (see article on page 6.)
- **ITEAMS (Interdisciplinary Teams Educating for Advancement in Math & Science)**, an IMSA-Illinois State University professional development program serving teachers from ISU and schools throughout central Illinois. Held in conjunction with the Summer 'AD' Ventures I program, teachers learned how to design problem-based learning experiences and how to develop an integrative curriculum in mathematics and science. The partnership continues in 1995-96 with visits to the classrooms of the ITEAMS teachers and continuing curriculum development for a 1996 summer program at ISU.
- **Harris I Introduction to Problem-Based Learning Institute** - Held July 17-21, teachers from Illinois and other states attended this workshop which provided them with instruction, guided practice, mentoring opportunities for dialogue in designing PBL curriculum and developing implementation strategies.
- **Harris II Advancement of Problem-Based Learning Institute** - Held July 11-15, Illinois teachers who were involved with IMSA's Center for Problem-Based

Learning in 1994-95 attended this workshop for training in working as staff developers in PBL or becoming master PBL teachers in their own classrooms.

- **Chicago's South Loop Elementary School Technology Workshop** - Held July 10-14, Chicago junior high minority students in grades 7-8 and their teachers attended this interdisciplinary workshop. Students learned about economics, mathematics and social science while conducting mock trading and using computer graphics to make predictions about the commodities and stock markets.

- **Mathematical Investigations Workshop** - Held June 19-23, Illinois high school mathematics teachers attended this workshop which provided them with innovative teaching techniques using integrative mathematics. Teachers will continue their work during four follow-up sessions at IMSA in 1995-96.

- **C++ Workshops** - Held June 26-30, Illinois computer science teachers of advanced placement computer courses attended this workshop which provided "hands-on" technology training for teachers who need to transfer their skills from Pascal to the new C++ computer programming language. Teachers could receive 3 semester hours of graduate credit through Aurora University.

IMSA Partners

(Continued from page 6)

Indeed, The school already is expanding its network services significantly, including Internet access, and it now has a home page on the World Wide Web. Teachers post materials for others to access, and they use the vast resources of the Internet in their classrooms, enabling students to take "virtual field trips" in their course of their research. In 1995-96, teachers plan to engage students in the creation of their own hypercard stacks.

Key to the teachers' fast-track learning according to McCollum, has been the district's support. After each training session at IMSA, for example, teachers were provided release time the next day to share, practice and plan, enabling timely reinforcement and application of their new learning. Also key was the "technical assistance, advice and patience" of IMSA staff, particularly Bill Gramley, Mark Horrell, Ed Moyer, and Jim Victory, he said.

Michele Micetich, IMSA's director for statewide collaborative partnerships, called the conference and the 1994-95 partnerships a "tremendous success...all of us are rediscovering the joy of learning, recognizing the rewards of collaboration, and renewing our sense of purpose," she said.



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