Volume 92 Number 1 May 2006

New Mexico Academy of Science

Celebrating the Franklin Tricentennial Year

2006: A Year of Science-related Anniversaries

100th Anniversary
San Francisco Earthquake
and the beginning of
modern seismology.
1906

200th Anniversary
Completion of
Lewis and Clark's
Expedition
and discoveries in America's natural history
1803-1806

300th Anniversary
Birth of Benjamin Franklin,
printer, author, publisher, statesman, civil servant,
environmentalist, inventor,
and American scientist.
Born in Boston, MA
January 17, 1706

This year
NMAS celebrates
Franklin's Tricentennial

DID YOU KNOW?

While serving as Postmaster General in 1775, Franklin decided to analyze the best routes for delivering the mail. He invented a simple odometer to help measure the mileage of the routes that he attached to his carriage. Using this and other scientific methods, he improved efficiency in mail delivery so that a letter sent from Philadelphia to New York City would be delivered in one day.

THANK YOU INTEL

Intel Foundation has contributed funds in the amount of $7,000 for the New Mexico Junior Academy of Science. These funds helped NMAS send this year's winner to the national meeting

See Page 6 for more information on the meeting.

NMAS Names Outstanding New Mexico Teachers for 2005

At the NMAS Annual Banquet in November 2005, these teachers were honored as NMAS Outstanding Teacher Awardees.

Steven Brügge
Eisenhower Middle School
Albuquerque, NM
Outstanding Middle School Teacher
2005

Joe Matteson
Pojoaque Valley High School
Espanola, NM
Outstanding Secondary Teacher
2005

See Page 5 for more information on these outstanding teachers!

NMAS Membership Renewal for 2006

It's that time again....Fill in the membership form on page 7 and send it in with your membership dues. THANK YOU.

New Mexico Academy of Science Board Members

NMAS Newsletter
Volume 92, no. 1
May, 2006

Newsletter Editor:
Jayne C. Aubele
jaubele@nmmnh.state.nm.us

Mailing address:
New Mexico Academy of Science
c/o NM Museum of Natural History
And Science
1801 Mountain Rd. NW
Albuquerque, NM 87104
FAX: (505) 841-2866

NEW MEXICO ACADEMY OF SCIENCE

Founded in 1902 to foster scientific research and scientific cooperation, increase public awareness of the role of science in human progress and human welfare, and promote science education in New Mexico.

The Academy has been in continuous existence since 1915, and became formally associated with the New Mexico Museum of Natural History and Science in 1995.

Affiliated with the American Association for the Advancement of Science (AAAS)

Member of the National Association of the Academies of Science (NAAS)

Recent gifts to the NMAS.....

In the category "Under $100"
Malva Knoll
Beverly Graham
Pleddie Baker
Robert Amai
Mona and Harry Pomeroy

We thank
University of New Mexico,
Department of Physics
and Sandia National Labs
for financial contribution to the special
2005 NMAS public performance
"Einstein: A Stage Portrait"

2nd Anniversary (in Earth Years) 1st Anniversary (in Mars Years) *Mars Exploration Rover Mission*

Report by NMAS member and rover mission team scientist, Dr. Larry Crumpler

The rovers Spirit and Opportunity are still exploring Mars, more than two (Earth) years after landing on the planet. Both rovers are currently stationary in "winter camp" in order to conserve solar energy during Mars winter. Each rover has now traveled over 6 km. Spirit climbed up and over the Columbia Hills, and discovered white, soft layered rock and soil that appear to be sedimentary in nature and show evidence of alteration by water. Opportunity has explored several impact craters, found a meteorite, and discovered layered rock outcrops, with hematite concretions, that appear to have been deposited by water.

DID YOU KNOW?

Lewis and Clark's three-year journey of discovery traveled an amazing 3,700 miles through lands that later became 11 states. Most of their route followed the Missouri and Columbia Rivers. Modern day hikers can follow in their footprints and see the White Cliffs in Montana or look over the rolling plains at Spirit Mound in South Dakota, just as L&C did 200 years ago, by following the NPS Lewis & Clark National Historic Trail.

President's Message - May 2006
Dave Thomas

It's been a busy year for the New Mexico Academy of Science, and 2006 is looking to be exciting as well. I'd like to give a special thanks to Jayne Aubele for her splendid service to NMAS as past president. She, along with the NMAS board, did several things to advance the cause of science in these troubled times. The highlights of NMAS activities in 2005/2006 included:

• Defending local public television station KNME in the wake of KNME's refusal to air a creationist infomercial, titled "Unlocking the Mystery of Life.

• Taking the Rio Rancho School Board to task for enacting a science policy that changes the very definition of science. Our commentary, which appeared in the Rio Rancho Observer within a few days of the policy's enactment, pointed out that "*Saying that 'reasonable people may disagree about the meaning and interpretation of data" obscures the fact that, in science, all ideas and observations are not created equal. Alternative ideas are tested in science every day – but if they fail, they are discarded for better explanations and conclusions. ...If scientists simply agreed to disagree about 'the meaning and interpretation of data,' scientific progress would cease. Science is about testing ideas and claims, not pretending that all "interpretations" are equally valid*." It's possible the the Rio Rancho Board will reconsider this ill-conceived policy in April, and NMAS will be watching and reporting.

• Co-sponsoring a very-well attended event featuring an afternoon with "Albert Einstein" (actually local actor Tom Schuch) at the Albuquerque Academy, followed by a splendid presentation on Einstein by UNM professor Tim Moy at NMAS's annual banquet.

• Maintaining NMAS's outreach programs, including the Junior Academy of Science (Lynn Brandvold), the Visiting Scientist Program (Maureen Romine), the Outstanding Teacher Awards (Harry Pomeroy), National Youth Science Camp (Richard Nygren), attendance at national AAAS meetings (David His, Glenn Kuswa), and more.

• Co-hosting Kansas attorney Pedro Irigonegaray (who single-handedly defended science during the Kansas Board of Education's 2005 "hearings" on alternatives to evolution) at the February 2006 "Darwin Day" event, held at the UNM Anthropology Lecture Hall.

This year looks to be exciting as well. Thanks to Kurt Anderson, the New Mexico Journal of Science is back, with a major compendium of articles on border science issues in the works. Preparation for the Annual Meeting in November is well under way. Mel Eisenstadt and David Duggan are looking into establishing an endowment, whereby NMAS members could leave gifts to NMAS in their wills. President-elect Glenn Kuswa is busily preparing a policy document to assess the potential of various scientifically viable energy sources, for input to the Mayor's Town Hall/Climate Control Initiative. Thanks are due also to those board members who keep the wheels of NMAS turning – Mona Pomeroy (meeting minutes), Marilyn Savitt-Kring (treasury), Marvin Moss (publicity), and Marshall Berman (Education Issues). We are also happy welcome to our newest board member, Gary Morgan, Curator of Palentology at the New Mexico Museum of Natural History and Science, and our new Vice President.

This is a critical year for science in New Mexico and America as a whole. The drumbeats of creationism are beating in South Carolina, Ohio, Oklahoma, Kansas, and several other states, and also here in New Mexico (Rio Rancho). NASA has had to rebuff "politically correct" efforts of administration officials who tried to limit what government scientists were saying about global warming, and even the Big Bang. Scientific issues involving birth control, or vaccinations to prevent cervical cancers from agents like Human Papilloma virus, are increasingly becoming politicized.

The Academy can help with these issues, but only with your help. One of our most urgent needs is growing the membership. If every one of you could persuade just one new person to join the Academy, our numbers would double. Do you know a student, young professional, or work colleague who is passionate about science? Ask them to join NMAS! We need them, just as we need your continued support. With your help, 2006 can be the best year yet for the Academy (and that's a tall order!).

NMAS Celebrates the 44th Year of the Visiting Scientist Program

by Dr. Maureen Romine
Director, Visiting Scientist Program

The NMAS Visiting Scientist Program provides presentations and/or demonstrations by some of the most distinguished scientists and mathematicians in New Mexico to all secondary schools throughout the state, at no expense to the schools. The 2004-2005 Academic year VSP included distinguished scientists and mathematicians from throughout New Mexico, and served 1102 students in over 50 school visits statewide.

The VSP is looking for additional scientists, mathematicians and engineers who would be interested in participating in this program. If you are interested in being listed with the VSP program, please contact Dr. Maureen Romine, Director, 505-454-3264, romine_m@nmhu.edu or Rosalie Torres-Martinez, Program Secretary, 505-454-3557...or

http://www.nmhu.edu/visitingscientist

National Science Youth Camp: Summer Opportunity for Two New Mexico Seniors

by Dr. Richard E. Nygren
Director, NM-NYSC

Each year in the summer following their graduation, two New Mexico high schools seniors interested in science attend an intense month-long camp for young scientists, with all expenses paid, including air fare. The National Science Youth Camp is held in wilderness areas of the Monongahela National Forest in the eastern mountains of West Virginia. Students from around the country are challenged academically in exciting lectures and hands-on studies and have opportunities to increase their appreciation for the great outdoors and establish friendships that last a lifetime.

The 2005 New Mexico delegates were:

Richard Kitzmiller
Las Cruces High School (Las Cruces)
Ronadel Ronquillo
Rio Rancho High School (Rio Rancho)

The 2006 New Mexico delegates will be:

Ahmad Shakir Manshad
Las Cruces High School (Las Cruces)
Jessica J. Stringfield
Rio Rancho High School (Rio Rancho)
Alternate 1. **Meredith Anne Emery**
Rio Rancho High School (Rio Rancho)
Alternate 2. **William Sean Logan**
Del Norte High School (Albuquerque)
An alternate would attend were a delegate not able to do so.

The New Mexico Academy of Science administers this program in New Mexico. This is a wonderful program and a unique opportunity for two students from New Mexico. ***Please help us to spread the word about this program.***

AAAS comes out Swinging against "Intelligent Design," "Critical Analysis of Evolution"

The American Association for the Advancement of Science, meeting in St. Louis, Missouri, issued this statement on February 16, 2006 : "Evolution is one of the most robust and widely accepted principles of modern science. It is the foundation for research in a wide array of scientific fields and, accordingly, a core element in science education. The AAAS Board of Directors is deeply concerned, therefore, about legislation and policies recently introduced in a number of states and localities that would undermine the teaching of evolution and deprive students of the education they need to be informed and productive citizens in an increasingly technological, global community. Although their language and strategy differ, all of these proposals, if passed, would weaken science education. The AAAS Board of Directors strongly opposes these attacks on the integrity of science and science education. They threaten not just the teaching of evolution, but students' understanding of the biological, physical, and geological sciences. Some bills seek to discredit evolution by emphasizing so-called 'flaws' in the theory of evolution or 'disagreements' within the scientific community. Others insist that teachers have absolute freedom within their classrooms and cannot be disciplined for teaching non-scientific 'alternatives' to evolution. A number of bills require that students be taught to 'critically analyze' evolution or to understand 'the controversy.' But there is no significant controversy within the scientific community about the validity of the theory of evolution. The current controversy surrounding the teaching of evolution is not a scientific one. ..."

Source:
http://www.aaas.org/news/releases/2006/pdf/0219boardstatement.pdf

DID YOU KNOW?

Benjamin Franklin invented many modern concepts and products that we take for granted today, such as subscription public libraries, volunteer fire departments, bifocals, the lightning rod, the "Franklin stove," and paper currency with special features to defeat forgers. The Library of Congress will celebrate the tricentennial of Benjamin Franklin's birth with a display of approximately 75 items related to his amazing inventiveness.

The 2005 NMAS Outstanding Science Teacher Awards

by Harry F. Pomeroy, Jr.
Awards Chairman, NMAS

Steven Brügge

It is a great honor to receive this award from the New Mexico Academy of Science. I've been at Eisenhower Middle School in Albuquerque for the last 16 years. I did my student teaching with high-school seniors and envisioned working with them as my career. When it was time, however, to get a job, I found myself working with very young adolescents—6th and 8th graders at Eisenhower. It's wonderful!

Middle school is the perfect place to excite students about the wonders of science. I've been most fortunate to have the strong support of both parents and administration. I also have amazing students. I do have to admit that I could do without some of the meetings after school and most of the non-academic paperwork. When that bell rings, however, the rest of my world vanishes and I have the privilege of teaching science.

I do not use a textbook. My students and I spend at least 80% of our time collecting data, analyzing that data and writing up our results. The nature of science is to ask questions, experiment, and communicate the results with others. This is a process that middle-school students love. What's more fun than wrapping wire around a bolt, hooking that up to a battery and finding out the relationship between the strength of the electromagnet and the number of coils? Or looking through a spectroscope at a host of light sources to find out the 'signature' of each source? This is fabulous stuff, and I'm like the Pied Piper with all the cool toys.

While I have a solid set of State Standards to guide me, my real hope is that students will leave my classroom with a firm understanding of how science approaches the physical world. Finding the exact boiling point of water in Albuquerque may be forgotten, but I hope students remember how many trials it took with various thermometers. I also hope that my teaching causes students to go home and mention to mom or dad some wacky thing I said or some cool experiment they performed. If I can make a 14-year-old girl talk to her dad about science at the diner table, then I've done my job.

Steve Brügge
Science Teacher & Webmaster,
Eisenhower Middle School
http://www.aps.edu/aps/eisenhower/brugge/brugge.html

Joe Matteson

Raised in northwestern Oregon, I attended K-12 in a small rural school district and graduated in a class of 38. Through a turbulent adolescence I found support in family, and among my teachers; all throughout school my teachers encouraged me and pointed out my potential. My high school science teacher, Jill Sisson, from whom I took Chemistry, Physics and Advanced Biology, was particularly instrumental in showing me a path that led me first back into the academics of high school science (I was failing most of my classes, including Biology), then on to college, and eventually to a career as a high school life science teacher. I will be forever grateful for her guidance and optimism, as well as for her example and encouragement. She inspired me to pursue the career I am now enjoying so much.

After graduating from Portland State University with my BS, I changed direction from medical research toward secondary education by enrolling in and finishing PSU's Graduate Teacher Education Program in 1995. I taught two years at Lake Oswego High School in Lake Oswego, Oregon, then was curiously unemployed for two years as I searched for my next teaching position. The Lord then led my wife Jan and I to sell our home and make the move to Northern New Mexico where I was hired, over the phone, to teach in my current position at Pojoaque Valley High School, 20 miles north of Santa Fe.

Jan and I have been together for over 17 years, and were married in 1993. My wife is a big encourager of mine, and has also recently begun working within the school district as a teacher's aide; she is experiencing firsthand the value of investing our time into children. Together we manage a small organic farm south of Espanola where we raise sheep, chickens and two llamas who contribute eggs, wool and fiber, respectively. We sell our eggs and produce at local farmer's markets during the summer.

Teaching is unquestionably what I am supposed to be doing at this point in my life, and I understand exactly what people who have been quoted as saying 'teaching isn't just a job, it's a calling' mean. I take my duties very seriously, while at the same time creating a classroom atmosphere of safety, respect and humor. I make every effort to hold my students to a high academic standard, and to meet each student where they are and help them to improve. I now call New Mexico home, have many friends here, and do my best to make a positive impact and to be a worthy role model to the 130 or so students entrusted to me each year.

Joe Matteson
Professional Educator & Inspirer of Young People
Pojoaque Valley High School

.

DID YOU KNOW?

The 1906 San Francisco Earthquake remains the most devasting natural disaster this nation has known. At least 3000 people were killed, and in San Francisco alone, 225,000 (over one-half of the city's population at the time) were left homeless. The quake is credited with the birth of modern earthquake science in the U.S., and, in 2006, we celebrate a century of progress in understanding earthquakes and their effects.

Two New Mexico Students Attend the AAJS/AAAS National Meeting

Two high school students from New Mexico attended the meeting of the American Junior Academy of Science (AJAS) February 15-19 in St. Louis. The meeting is sponsored by the National Association of the Academies of Science (NAAS) and is held annually in conjunction with the meeting of the American Association for the Advance of Science (AAAS). The AJAS meeting includes tours to Boeing, Emerson, Monsanto, UMSL Optics/Physics/Math Departments, St. Louis University Medical Center and Anatomy Labs, and WU Human Genome Sequencing Lab, a Breakfast with Scientists, and the opportunity to attend sessions of the AAAS meeting. The students presented their award winning papers both orally and in poster format to their peers from around the U.S. Keely Goodgame of San Jon High School won first place at the NM state scientific paper competition and her attendance is sponsored by the NMJAS and Intel Foundation. The title of Keely's paper is "The Effect of 670 nm LED Photobiomodulation on the Growth of Mitochondrial Mutant Saccharonyces cerevisiae". Ahmad Manshad of Las Cruces High School placed in the state competition, but funds weren't available to send more than one student to AJAS. So Ahmad applied for a travel award to The Council of Academic Programs in Communication Sciences and Disorders on the basis of his paper entitled "Advancing the Power of Distance Learning" and won the award and so is also attending the meeting.

Lynn Brandvold, Director of the New Mexico Junior Academy attended as a chaperone and NMAS representative to NAAS and AAAS.

A Special New Mexico Journal of Science for 2006

Although the NMAS stopped regular publication of the New Mexico Journal of Science due to increasing printing costs, an opportunity arose last year to publish a series of manuscripts related to scientific research in the US-Mexico border and Paso del Norte area. Then NMAS President Jayne Aubele met with representatives from the Border Research Group and laid out an initial plan for publication of a special thematic journal that would highlight current applied research along the border between the U.S. and Mexico by research scientists from both sides of the border.

Prof. Kurt Anderson of NMSU, and a member of the NMAS Board, agreed to be the NMAS Editor for this special volume and has been working with Erin Martin Ward and Edgar Barrantes from NMSU's Southwest Consortium for Environmental Research and Policy for the past 6 months.

We are pleased to report that the 2006 Special Topic volume of the New Mexico Academy of Science's New Mexico Journal of Science is now in preparation. The target date for publication is mid-June and members of the Academy should receive their issues shortly thereafter. The central theme of this issue will be "Science on the Border" and the volume will contain about a dozen scientific papers dealing with border issues such as water resources and treatment, medicine and health, chemistry, agriculture, geography, geology, and wildlife and ecology. The papers in the 2006 Journal will have been peer reviewed by an international group of referees prior to acceptance and publication. Funding for publication, printing, and distribution will be provided by the Southwest Consortium for Environmental Research and Policy (SCERP) at NMSU.

NSTA Urges Scientists to Help Deliver Good Science to Students

The National Science Teachers Association (NSTA) President-Elect, Linda Froschauer, spoke at the recent AAAS annual meeting. She urged scientists to help educators, particularly in the teaching of evolution. She advocates the following practices for scientists:

- Talk to their local K-12 teachers
- Offer to go into their classrooms
- Inform the community of their support for science education
- Support professional development for teachers
- Serve as a role model

Membership Form
New Mexico Academy of Science

New Membership [ ] Renewal [ ] Membership Year 2006 [ ] other [ ] Additional Donation [ ]

Date _____ Name _____

Employer/Firm/Affiliation _____ Title _____

Primary Interest (geology, biology, chemistry, physics, science education, etc.)_____

Mailing Address: _____

_____

Phone _____ FAX _____ email _____

Check if your address is different from that on the mailing label of this newsletter [ ]

NMAS PUBLICATIONS

New Mexico Journal of Science Set of all available pre-1992 back issues	$10 _____
From Sundaggers to Space Exploration (NMAS/Sigma Xi, 1986)	$4 _____
Dinosaurs of New Mexico (NMAS Journal v. 32, 1992)	$10 _____
The Importance of Agricultural Science in New Mexico's Economy (NMAS Journal v. 34, 1994	$10 _____
Astronomy in New Mexico: Past, Present and Future (NMAS Journal v. 35, 1995)	$10 _____
New Mexico's Natural Heritage: Biological Diversity in the Land of Enchantment (NMAS Journal v. 36, 1996)	$10 _____
Environmental Management: Current and Future Needs (NMAS Journal v. 37, 1997)	$10 _____
Water Resource Issues in New Mexico (NMAS Journal v. 38, 1998)	$10 _____
Ensuring Sustainable Development of Arid Lands Through Time (NMAS Journal v. 39, 1999)	$10 _____
NMAS Journal v. 40, 2000	$10 _____
NMAS Journal v. 41, 2001	$10 _____
NMAS Journal v. 42, 2002 (Centennial CD)	$10 _____
NMAS Journal v. 43, 2003	
Subtotal:	$ _____
+ Handling:	$ 2.00
TOTAL:	$ _____

Membership Class (check one)

[ ] Member	$20/year
[ ] Student	$15/year
[ ] Subscription (Libraries only)	$30/year
Publication subtotal:	$ _____
Total:	$ _____

Membership includes 3 newsletters. and occasional special Journal of Science volumes (sent to life members and members who have paid their annual dues during the volume's year of publication).

Send check for membership and/or additional publications, payable to NMAS, to:

New Mexico Academy of Science
NM Museum of Natural History and Science
1801 Mountain Rd. NW
Albuquerque, NM 87104

Or use the enclosed addressed envelope!

ALSO...consider making a donation to the NMAS to help further its science education programs!

NMAS Newsletter
Volume 92 no. 1
May, 2006

Please Renew your NMAS Membership for 2006

It's that time again....Fill in the membership form on page 7 and send it with your membership dues. THANK YOU

NEW MEXICO ACADEMY OF SCIENCE
Newsletter

1801 Mountain Rd NW
Albuquerque, NM 87104