PURDUE Aero & Astro GRAM

A newsletter for alumni & friends of the School of Aeronautics & Astronautics • Summer 1998

Farris Named AAE Head

Professor Thomas N. Farris has been named Head of the School of Aeronautics & Astronautics and will replace Professor John Sullivan, who returns to full time teaching and research. Professor Farris received his bachelor's degree in Mechanical Engineering in 1982 from Rice University and his master's and doctorate degrees from Northwestern University in Theoretical and Applied Mechanics in 1984 and 1986 respectively.

He began his career at Purdue in 1986 in the School of Aeronautics & Astronautics teaching courses in the structures and materials area. Professor Farris's research interests are in tribology, manufacturing processes, and fatigue and fracture including present efforts in fretting fatigue as part of the Air Force High Cycle Fatigue program. He won a National Science Foundation Presidential Young Investigator Award in 1990 and the Burt L. Newkirk Award of ASME in 1992.

By interacting with other engineering disciplines in order to achieve an interdisciplinary research initiative, he was an important early contributor to the Schools of Engineering Center for Intelligent Manufacturing Systems.

Professor Thomas Farris is the new head of the School of Aeronautics & Astronautics

"I would like to thank the Search Committee and Dean Schwartz for their confidence in me. I would also like to thank Professor John Sullivan whose leadership during the past five years kept the School in a nationally-ranked position and significantly expanded and improved our computing and laboratory facilities. John also laid a solid foundation for increased industrial interaction through the establishment of our Industrial Advisory Council," stated Farris.

"It is a privilege to be part of Purdue which has the resources necessary to be effective at both undergraduate and graduate education and with the expertise of our faculty, I am confident we will continue our national and international reputation in aeronautical and astronautical engineering," Farris said.

"I look forward to the opportunities offered by the exciting field of aerospace engineering including the growth of commercial utilization of space and improved safety requirements for continuously expanding commercial air travel," Professor Farris stated.

AAE Briefing

In May 1993, I began my role as Head of the School of Aeronautics and Astronautics. The past five years have been exceptionally rewarding for me and I am grateful for having had the opportunity to serve you as Head of your School. While I have immensely enjoyed this role, I believe it is time for me to return full time to my teaching and research interests.

Professor Tom Farris, a colleague and friend, has accepted the responsibility of leading the School into the next millennium. Professor Farris is a respected teacher and researcher. He will do an outstanding job and I wish him well.

In these past five years, many people have provided their assistance. In particular, the support and insight of the faculty has been exceptional.

Additionally, our support, technical, and professional staff members, assistance has been immeasurable. Their calm, behind-the-scenes attention to de-

continued on next page

AAE Briefing • continued

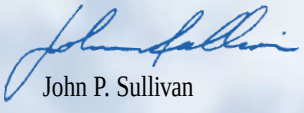
tail helps the School run smoothly and efficiently.

While impossible to list everyone, I do want to make special note of our staff—Terri Moore, my Administrative Assistant; Lisa Crain, Marilyn Engel, Linda Flack, Myra Fuqua, Paula Kerkhove, Diane Schafer, and Sharon Wise; those individuals in the business office include Michelle McGuire, Lisa Metzinger and Kris Wesson. Additionally, I appreciate all the assistance given to me by the technical and professional staff—Don Bower, Madeline Chadwell, Ivan Ellis, Curtis Smith, Dave Reagan, Nan Ross, Robin Snodgrass, and James Younts.

I also thank our alumni who have been instrumental in securing funding for our students, educational initiatives, and research projects. Your championship of the School within your own corporation is critical to our success.

Thank you for your help and please stop by when you are on campus. I plan to be in the halls of Grissom for a long time!

Many thanks,



John P. Sullivan
Professor and Head

Making Droplets, Smoke, and Fire

To understand complex processes, scientists often focus on minute details such as the intricate flows that accompany liquid propellants used in propulsion applications. The engineer, however, must create a working device without having the luxury of waiting for the scientists' solutions for fundamental processes. The current propulsion research underway at the School seeks to satisfy both scientific and engineering research needs with a program that includes both experimental and computational elements.

Professor Stephen Heister is the principal investigator of a atomization modeling effort, which is sponsored by the Air Force Office of Scientific Research. The work, now underway for the last seven years, has as its primary goal to determine atomization contributions to combustion instabilities in liquid rocket engines (LRE). Large LRE create some of the most intense combustion fields of any man-made device.

"You really get a perspective on the energy output of a large LRE when you consider that a device about the size of a trash can produce power equivalent to dozens of locomotives," stated Professor Heister.

The modeling efforts utilize boundary elements in which nodes are placed only on the gas/liquid boundary.

"Using this approach, we have much less mesh distortion than some traditional schemes; this provides us with high resolution of the surface of the jet, up to and beyond droplet pinching events," Heister notes.

The techniques provide a general unsteady capability such that transient behavior (such as that present during an instability) can be addressed. Recent simulations have been investigating various injector designs that were tested during development of the F-1 engine. At 1.5 million pounds of thrust, the F-1 served as the first stage of the Saturn V moon rocket. Development of the F-1 injector required over 2000 full-scale tests due to massive instability problems.

Professor Stephen Heister in lab

Simulations performed at the School indicate that the unstable injector orifice designs tend to distort large amounts under excitation from chamber gases. "While the combustion instability phenomenon is very complex, we feel that we may have some explanation for the behavior which could lead to instability," notes Heister.

"While I enjoy working detailed modeling problems, such as atomization, I think all propulsion people enjoy getting involved with test firings. At Purdue, we are fortunate to have facilities at the Thermal Sciences and Propulsion Center which are ideally suited for rocket propulsion testing," remarked Heister.

Propulsion researchers have taken advantage of these facilities and have built a test stand capable of handling 1000lbf thrust forces. They have used this capability to test hybrid rockets that utilize high concentration hydrogen peroxide as a liquid oxidizer with polyethylene as a solid fuel. Hybrid propulsion systems have distinct safety and cost advantages over traditional liquid or solid propulsion systems for some missions.

In addition, there is substantial interest in using hydrogen peroxide and either alcohol or kerosene-based fuels instead of the commonly used toxic propellants, nitrogen tetroxide and hydrazine. Heister's group will soon begin testing nontoxic fuels developed at China Lake, with peroxide under an SBIR contract from the Ballistic Missile Defense Office.

"Use of toxic propellants really grew out of early systems developed in the 1950's for ballistic missiles. The modern nontoxic propellants that are in development are comparable in performance, but are much safer and less costly. There is a great interest in replacing toxic systems with these nontoxic propellants within both DOD and NASA. Given this state of affairs, we are delighted to have Dr. John Rusek (see story on page 6), an acknowledged leader in this field, join our faculty at the School," Professor Heister said.

"The propulsion group at the School will continue to contribute leading-edge research to the rocket community. We tend to live by the motto: In Thrust, we Trust," stated Heister.

Engineering Giving Clubs

Giving to the School of Aeronautics and Astronautics, or to the Schools of Engineering, will qualify you for the following engineering giving club membership:

Engineer's Club	$250-499 annually
Dean's Club	$500-999 annually
Dean's Club Sponsor	$1,000-2,499 annually
Dean's Club Benefactor	$2,500-24,999 annually
Dean's Club Lifetime Membership	$25,000 one time gift

Gifts *anywhere* to the University totaling $1,000 or more annually qualify you for membership in the President's Council. So please be sure to specify when you you want your contribution to go directly to the School of Aeronautics and Astronautics. In all giving clubs, matching gifts by your employer do count towards membership.

Industrial Affiliates Program

The financial investment of our industry partners is an investment in their future employees. We thank our corporate supporters for their financial gifts which allow us to fund such things as design competitions, new classroom initiatives, the new design/build/test laboratory, outreach programs, and computer hardware and software.

Our 1997-98 IAP Participants were: AlliedSignal, The Boeing Company, Hughes Space and Communication Systems, Northrop Grumman Corporation, and Thiokol Corporation.

Thank you for your continued support!

Corporate Giving

*AlliedSignal Aerospace
Applied Design Incorporated
Aviamet Inc.
Balboa Marine Yacht Sales
*Boeing Company
Cummins Engine Company Incorporated
Folkstone Research Associates Inc.
*Hughes Space and Communications Company
Intel Corporation
Koerner Estate
*Northrop Grumman Corporation
Pratt & Whitney
Scott Services Corporation
TechnoSoft Incorporated
*Thiokol Foundation
Zimmerman Apartments

*Industrial Affiliates Program Members

Donor Honor Roll

Our annual Donor Honor Roll lists our alumni and friends who have given generously of their financial resources to support the School of Aeronautics and Astronautics during the last fiscal year. Many thanks for your investment in us!

The University receives less than 50% of its operating budget from the state and student fees. The need for individual financial support of our School is great. Your contributions do make a difference to us and help us in achieving our mission of teaching, research, and service.

More than 780 individuals donated to our School, which totaled more than $114,500 in gift money with an additional $27,000 in matching funds. Listed below are those alumni and friends who donated to the School during the period from July 1, 1997 through May 31, 1998. Again, many thanks!

$2500 - $24,999
Charles & Donna Bright
Richard & Lana Couch
Winthrop & Sarah Gustafson
Marguerite Hobbie
Vlado & Mary Lenoch
John Rich
Robert & Mary Strickler
Robert & Totsye Winslow

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Thomas & Judith Downs
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Ronald & Carol Elkins
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George & Charline Hawk
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Kenneth Hines
David Howe
Kenneth & Betty Johnson
Raymond & Elsie Kelly
H. Irving & Annette Kerr
Andrew King
Barbara Lee
Harvey & Barbara Lee
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Richard & Joandra Petersen
Charles Plafcan
J. Edward Pope
Jane Quirk
Nan Ross
Tomasz Seibert
Craig Simcox
Harold & Bernice Smallen
Howard Snyder
Paul & Barbara Stainback
Charles & Lucile Taylor
Richard & Roberta Thomas
Lloyd Townley
William Troha

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John & Frances Wiley
Richard Winkler
Charles Yarber
Min-Jho & Shi-Day Young

$100 - $249

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Mark & Lorri Amaya
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Jonathan Borkowski
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J. Robert & Janice Bullock
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Jeffrey Burgess
Harry Burgos
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M. Joseph & Jo Cork
Martin Corless
Raymond Cosner
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William Cowdin
Gregg Davis
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Rhett Dennerline
H. Rudolph Dettwyler
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Willard & Joan Dunbar
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Gregory Evans
John & Elsie Everett
W. Keith Everly
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F. Brice Faller
Richard & Molly Farris
William Faulkner
Lee Favour
Marty Ferman
Mark Feuerstein
Matthew & Zonda Feulner
Brian Foist
Kenneth Foley
Edwin Forster
Dudley Foster
William Frick
Douglas & Kelly Frietchen
Brian & Amy Fultz
Shawn & Angela Gabert
John & Judith Gallman
Donald & Elizabeth Gardner
Guy Gardner
Sanjay Garg
John Gavin
James Gaynor
Samuel Gilkey
Robert Gilson

IAC Begins Third Year

Our Industrial Advisory Council kicked-off its third year with the May 1998 meeting. The IAC offers advice to the Head of the School in matters relating to the strategic plan, student involvement, and industry needs. Our council is comprised of:

Nancy L.B. Anderson, BS ’61, MS ’62 ---------- Hughes Space and Communications Company
Brad Belcher, BS ’82 ---------- Allison Advanced Development Company
Dr. Paul Bevilaqua, MS ’68, PhD ’73 ---------- Lockheed Martin Skunk Works
Tom Bruce, BS ’72 ---------- AlliedSignal Aerospace Incorporated
Joe Gernand, BS ’80 ---------- Boeing North American, Space Systems Division
Dr. Donald Lamberson, BSChE ’53 ---------- Technical Advisor and Consultant, (USAF Retired)
Jerry Lockenour, BS ’67 ---------- Northrop Grumman Corporation
Hank Queen, BS ’74 ---------- Boeing Commercial Airplane Group
Scott Stein, BS IDE ’76, MSCE ’77 ---------- Thiokol Aerospace & Industrial Technologies
Dr. Robert Strickler, BS ’60, MS ’62, PhD (ME) ’68 ------ TRW Environmental Safety Systems, Inc.
David Swain, BS ’64 ---------- Boeing Airplane Company

We extend our gratitude to each of the members and their corporations for their time spent helping make us better at what we do.

Faculty Roster

Professors

M. J. Corless
J. F. Doyle
T. N. Farris, Head
A. E. Frazho
A. F. Grandt
K. C. Howell
J. M. Longuski
J. P. Sullivan
C. T. Sun
T. A. Weisshaar
M. H. Williams, Associate Head

Associate Professors

D. Andrisani
G. A. Blaisdell
S. H. Collicott
H. D. Espinosa
S. D. Heister
A. S. Lyrintzis
M. A. Rotea
S. P. Schneider

Assistant Professors

W. A. Crossley
J. J. Rusek

Design Build Test

Thanks to the generosity of alumni, friends, the Boeing Company, and the Intel Corporation, the new Design/Build/Test Laboratory was installed this past spring. The Laboratory will prepare students for the integrated teams that industry uses for better design and reduced cycle time.

According to Professor John Sullivan, “Currently, we have two Graphic Servers and 10 Desktop Pro machines which are networked to our Structures and Materials Laboratories and the Aerospace Sciences Laboratory, where additional computers and rapid prototyping machines will be located.”

“The state-of-the-art software used in our program specialty areas, allows the students to design a component of an aerospace vehicle, a complete airplane or wind tunnel model. The results from ACAD, Pro-Engineer, IDEAS, in CAD/CAM containing detailed design, are then sent to the laboratory to be manufactured,” Sullivan stated.

Major impediments in design courses have been the time required for students to build the models. The addition of the DBT Laboratory will facilitate the reduction of build time and give AAE students a complete design and manufacturing experience.

Thanks to each of you for helping make this laboratory for our students a reality!

Faculty UPDATE

NASA Dryden

Professor Dominick Andrisani was Dean of the NASA Academy in Aeronautics last summer at NASA Dryden. University Students, called research associates, include from left to right, Jessica Gonzalez, Heath Roettig, Laura Thackray, Joseph Mueller, Kyle Sndyer and Professor Andrisani. The associates were paired for 10 weeks with Dryden engineers. This was the first NASA academy to feature aeronautics. Students represented the states of Idaho, Indiana, Minnesota, Virginia, and Puerto Rico .

Retirement Party For Gus

More than 130 people joined in the fun to wish Gus a happy retirement. At his retirement dinner, it was announced that the W. A. Gustafson Teaching Award was established to honor his 38 years of teaching.

Professors Gustafson and Sullivan

Carl Gran
Arnold Grot
Leland Gustafson
Scott & Annette Gustafson
William Habelt
Barbara Hackman
John & Margaret Haher
William Halal
Robert Hall
An-Dong & Hsiao-Lee Han
O. Mark Hanner
Jay Hardin
Douglas Harlan
Willis Harpster
Thomas & Rhonda Harries
James Harry
Michael Helton
Floyd Hemmig
Robert Herderhorst
Joseph & Lisa Hess
Steven Hiss
John Hoffschwelle
William & Ruthanne Holder
Tracey Homburg
John Horvath
Martin Houghton
Kennth & Dorothy Hummel
Michael Hyer
Martin Ingwersen
David Johnson & Amy Cooprider
Jack Johnston
Lyle & Diane Jones
William Jones
Douglas & Joan Joyce
James Kaufman
Czeslaw Kentzer
Mark & Linda Kenworthy
Jeffry King
James Knapp
John & Stephanie Koke
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Steven & Susan Krein
David & Mary Kriebel
Leonard Kruczynski
James & Mary Kucaba
Subir Lahiri
George Lang
James & Marisa Leach
Attila Lengyel
Stanley Lewiecki
Eric Liese
Benjamin & Jennifer Linder
Richard Link
Richard & Nancy Little
Tianshu Liu
Herbert Lyon
Kenneth Malecha
Brent Marriott
Harold & Faye Marshall
John & Annette Marstiller
Richard Mathias
Carolyn Mattick
Michael Mattox
Harvey McComb
David & Darlene McGrath
Timothy & Linda McLaughlin
Edward McNally
Carolyn Meiss
Stephen Melonides
James Meyer
Raymond Milberg
William & Jennie Miller
William Miller
Leo & Linda Millstein
Eric Monroe
Jeffrey Moore
Daryl Morrical
Scott Morris
Charles & Margaret Muhl
Harlan & Joanne Nelson
Stephen Northcraft
David Oakeson
David Ochiltree
John Olsavsky

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Michael & Susan Ondas
Charles & Teresa Orkiszewski
Joseph Ortiz
Robert Ottaway
Robert Overdeer
Derek Paige
Ryan & Christine Paige
Craig Parry
Clarence Perisho
George & Patricia Peters
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David Ringler
Donald Rizzetta
Philip & Jonell Roberts
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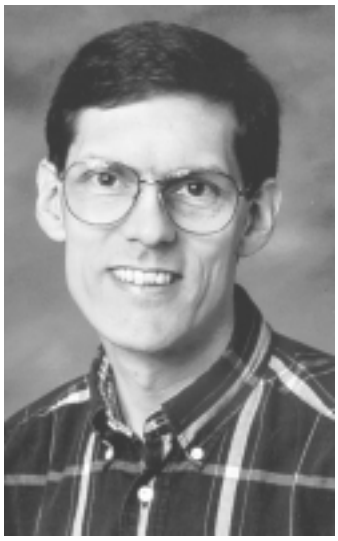
Robert Roth
Henry Rumple
Burghard & Kay Ruterbories
John Saalwaechter
Stanley Safranski
Alfred & Martha Schmitt
Bill Schneider
Wilfred Scull
John Seymour
Fredrick Shaffer
Ramachandra Shastri
James & Malynna Silverthorn
David Skinner
David & Vivian Slosson
Lee Smith
Marlon Sorge
Stephen Soukup
Gerald Spade
Tom Sprandel
Andrew Steinbeck
William Stokman
Raymond Stone
Paul Stover
Kenneth Strack
Arthur & Jane Strathman
Stephen & JoAnn Stukel
Dan Sturdevant
Daniel & Kim Suffoletta
Mark Swaby
Norman Tangedal
Lloyd & Nancy Taylor
Norval Taylor
John Thelander
John & Lois Thomas
Bradley Till
Marshall & Sandra Tobias
Ronald Tolbert
James Trask
Andrew & Marilyn Trenka
Wayne Tygert
Paul Ullrey
James & Nancy Valrance
James VandenBrook
Daniel & Jennifer Vonderwell
Janice Voss
David & Sue Wagie
Philip Wagner
Charles & Susan Walker
Neil & Debra Walker
Joseph & Mary Walters
Cong Wang & Yan Zhang
Richard Warns
Thomas & Marilyn Weakley
James Weil
William Werthman
Roland West
Gary Wheeler
Jon Whitworth
George Wiemer
James Willen
Richard Williams



Professor Gregory Blaisdell

Blaisdell Receives Award

Associate Professor Gregory Blaisdell is the first recipient of the W.A. Gustafson Teaching Award. The new teaching award, established to honor Professor Gustafson's 38 years of service to the School, is administered by the School of Aeronautics and Astronautics and is given to honor exceptional teaching. All undergraduate AAE students are eligible to submit nominations.

Professor Blaisdell was also the School's nominee for the Schools of Engineering Murphy Outstanding Undergraduate Teaching Award.

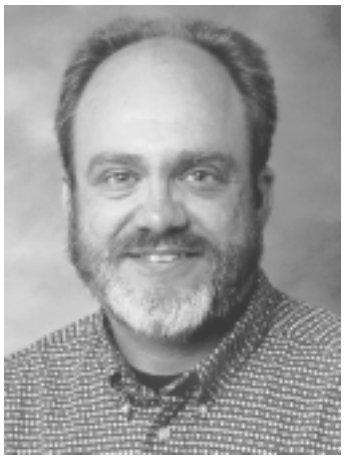
Professor Blaisdell, who has been on the faculty since 1991, has research interests in computational fluid mechanics and transition and turbulence.

Rusek Joins Propulsion Group

Dr. John J. Rusek has accepted the propulsion faculty opening in the School. Since 1995, he was the Chief Engineer of the Energetic Materials Division for the United States Navy at the Naval Air Warfare Center in China Lake, California.

Dr. Rusek was responsible for monopropellant, bi-propellant and solid propellant propulsion research as well as advanced combined-cycle propulsion concepts. He served as a consultant within the department as well as in other Department of Defense agencies.

Prior to this position, he served as research chemical engineer for



Professor John J. Rusek

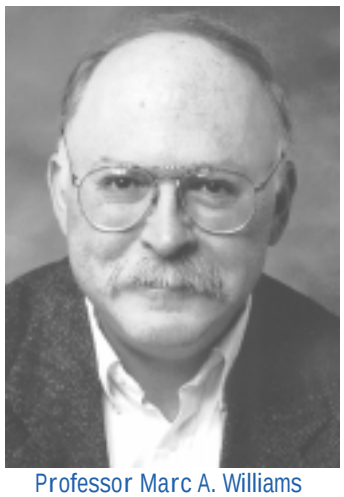
the United States Air Force. During his time with both the USAF and the USN, he was an adjunct professor in the School of Engineering for Antelope Valley College in Lancaster, California. Dr. Rusek holds a bachelor, master, and doctorate degree in chemical engineering from Case Western Reserve University.

Welcome to the school Dr. Rusek!

Williams Named Associate Head

Professor Marc H. Williams began his official duties as Associate Head of the School of Aeronautics and Astronautics on July 1, 1998. Professor Williams assumed the duties of Professor Gustafson who retired from the School after 38 years of service. Professor Williams will be responsible for the areas of undergraduate counseling, co-op coordination, and scheduling.

Williams, who has been with the School since 1981, earned his bachelor degree from the University of Pittsburgh in Aeronautical Engineering in 1969, his master's and doctorate degrees from Princeton University in 1971 and 1975 re-



Professor Marc A. Williams

spectively. His areas of interests over the years have been aerodynamics and computational fluid mechanics.

ON BOARD
AAE in the News

The Mach 6 Wind Tunnel, Mars Pathfinder, aging aircraft, MIR's repair needs, and the outreach program Fall Space Day, were a few of the stories that piqued the local, state, and national media's interest during the 1997-98 academic year.

AAE faculty and students were featured in the print, radio, and television media, as the media sought expert advice on issues relating to the safety of MIR, the significance of the Mars Pathfinder mission, and the importance of aging aircraft research. AAE appeared in the news more than 40 times—and, that's only counting the times when we knew the story was going to run!

Our alumni and faculty's lifework affects the world, and each encounter with the press brings this to bear.

Speaking of your contributions to industry, we are in the process of gathering noteworthy information about our alumni. If you (or if you know a fellow AAE alumnus/a) have been an innovator in the aerospace industry (e.g. patents, designer of a new airplane/spacecraft/rocket, and other significant contributions), please forward the information to us. We would like to compile this information for School records as well as publicize our alumni accomplishments in various internal and external publications. Our e-mail address is: *aae-alumni@ecn.purdue.edu*.

In other School news, 787 of our alumni made the decision to support the School this year, and dollars from our alumni totaled more than $114,500. Many of you chose to give via our annual Phone-a-thon and some through the direct mail pieces you receive throughout the year.

To each of you who invested financially in the School this year, we thank you! We are encouraged that you value your education and believe that it has made a difference in your work. The students, faculty, and staff benefit from your generosity and we are quite thankful for it. Have a wonderful fall season!

Nan Claire Ross, Director,
Communications & Development

Faculty Highlights

Promotions

• James Longuski from Associate Professor to Professor of Aeronautical and Astronautical Engineering

Other news:

• Professor Steven Collicott spent the spring semester on sabbatical at Lockheed Martin, California.

• Professor Horacio Espinosa is the new editor of *the Journal of American Academy of Mechanics*.

• Professor Arthur Frazho has co-authored the book, *Constrained Interpolation, Commutant Lifting and Systems*.

• Professor Kathleen Howell took sabbatical during the spring semester and worked with the Jet Propulsion Laboratory, California, and with NASA Goddard.

• Professor C.T. Sun completed his book titled, *Mechanics of Aircraft Structures*.

Bruce Willis
Craig Wolfson
Bernard Wontorek
Troy Wright
David & Carol Yates
David Young
William Yutmeyer
Charles Ziemer
Arthur Zimmerman

UNDER $100

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Herbert deBruyn
Timothy Alcenius
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Noel Ashbaugh
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Thomas Bander
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Frank & Saada Barfod
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Denison Bassett
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Bradley & Jane Belcher
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Dale & Maureen Berry
Paul Bevilaqua
John Biermann
James & Camille Bigham
Paul Blatt
Joseph Bloom
Joseph & Martha Blum
David Bokash
William Bolles
Bradley Bolster
Mark Booher
Charles Botos
John & Marjorie Bowman
Walter Brauer
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Charles Brown
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Garrett & Paula Brucker
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Blaine & Ann Butler
Steven Buzon
Richard Byam
Robert & Dolores Byrne
Phillip & Miriam Callner
Robert Campbell
Vincent Capasso
James & Martha Cappellari
Mark Carmel
Timothy Carnahan
Darrell Carney
Nelson Carter
Jack Cearing
Ronald Cenfetelli
Robert & Michelle Chambers
Wen-Sheng & Yaung-Hwa Chan
Chih-Tsai & Herng-Jen Chen
Glen & Dolores Childress
Palmer Chiu
Carl Christensen
Thomas Clark
William Clingenpeel
Nicholas Clones
Heather Cohea
Henry & Amy Conard
Jerald Connan
Melvin Corbett
Michael & Sandra Corso
Scott & Lois Courtney

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James Crane
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Thomas DeMuesy
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Mark Director
Richard Dolson
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Gregory Edwards
William Edwards
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Frank Elliott
Ronald & Rebecca Estes
William Ferrell
John & Barbara Findley
Abraham Flatau
William & Evelyn Fleming
Evard & Barbara Flinn
Ping Fong
Robert Forbes
Dale Ford
Anthony & Lorene Fortini
John & Grace Foster
William Fouts
Robert & Elizabeth Frederick
Shervin Freed
Donald & Karen Frye
Thomas & T. Dawna Gailey
Kurt & Virginia Galle
Joseph Garrahan
Matthew Gates
Robert Gatineau
Lyle & Malvin Genens
Bruce Gessley
Mark & Margaret Gibb
Curtis & Dollaretta Gordon
John Graber
Larry & Helen Gruber
Rolf Guenther
Carl Guernsey
James Gyolai
James Haas
John Harrington
Allyn Harrison
Walter Harrison
James Hatfield & Kathy Crain
William Haverly
Norman & Susan Haynes
Timothy Heitmann
Karl Hellman
Theodore Hellstein
Theron Henry
Marshall Henshaw
Amy Hess
Richard Hiernaux
Richard & Rita Hildebrand
James & Helen Hildebrandt
Rikard & Brenda Hill
John & Isabel Hindmarch
Douglas Hodges
Jerry Holman
Robert Holt

CLASS NOTES

Listed below in our *Class Notes* section are updates about your fellow alumni and friends. If space permits, we will try our best to publish almost any short update you send to us. (However, we will not include engagements and divorces and possibly other miscellaneous tidbits.) To submit information for the Winter 1999 edition of **Aero**GRAM, please complete a *Class Notes* information update form, located on page 12, and send it to the school address, attention **Aero**GRAM or e-mail to: aae-alumni@ecn.purdue.edu.

1950's

Paul W. Schneider, BS '55 — Retired Compressor Aero Design Engineer, General Electric Aircraft Engine Group.

1960's

Bob Yarnell, BS '67 — Principle Engineer, Boeing 777, Thermal/Acoustic Insulation Blankets, Everett, WA.

Donald C. Washburn, MS '69 — Recently appointed Executive Vice-President and Chairman of the Board for Northwest Cargo.

1970's

Richard D. Anderson, BS '70, MS '72 — Recently appointed Executive Vice-President of Technical Operations, Flight Operations and Airport Affairs for Northwest Airlines.

1980's

Joseph P. Hess, BS '80, MS '81 — Vice President of Research and Development for the Bentley Harris Group of Exton, Pennsylvania.

Sam W. Thurman, BS '83 — Appointed Flight Operations Manager for NASA's Mars Surveyor '98 Mission. Will be responsible for Lander Operations (launch January '99) and cruise phase of orbiter operations (launch December '98) at Jet Propulsion Laboratory, Pasadena, California.

Jimmy Krozel, BS '85, MS '88, PhD '92 — Recently selected for the Editorial Board of the *International Journal of Applied Intelligence*.

James Renna, BS '86 — Chief of Rotors Design for Sikorsky Aircraft, Stratford, CT.

Ross Mohr, BS '86, MS '87 — Earned his MBA in '93 from the University of Southern California and is General Manager at Kubota Tractor Corporation.

James S. Thomas, Jr., MS '87 — Congratulations upon his appointment as Commanding Officer of the U.S. Coast Guard Aircraft Repair and Supply Center in Elizabeth City, North Carolina.

Terrence Lung, BS '88 — Project Engineer for Beckman Coulter in Palo Alto, CA, reports he engineered the MLA-130 ultracentrifuge rotor, which is the world's first 1,000,000 + g centrifuge rotor.

1990's

Michael A. Neussl, MS'91 — Commanding Officer of the United States Coast Guard Air Station San Francisco.

Bert Hodge, BS '93 — Commissioned in the US Navy after graduation and became a surface warfare office (ship driver). First stationed in Norfolk, VA on the USS Caron (DD-970) where served as a damage control assistant and Tomahawk cruise missile officer. Mr. Hodge also served as Tomahawk officer for Commander Middle East Forces which required a move to Manama, Bahrain. In December 1997, Mr. Hodge and his wife, Rebecca, returned to the states and his present assignment is as a student in the Operations Analysis curriculum at the Navy's postgraduate school in Monterey, CA.

Keith Coste, MS '94 — Currently employed at Hughes Space & Communications in El Segundo, CA.

Steve Tragesser, MS '94, PhD '97 — Presently working at Draper Laboratory in Cambridge on guidance systems for the next generation of reusable launch vehicles.

Kevin Parsons, BS'96 — Received a M.S. in 1997 from MIT ans is a Spacecraft Systems Engineer at TRW in Redondo Beach, CA.

Kate Pilcher, BS '97- works at NASA Johnson Space Center in the Spaceflight Training, Shuttle Data Processing Systems and Navigation department. She will be working on STS-95.

Scott Schoenherr, MS '98 — Begin working at NASA Johnson Space Center on June 15th, 1998. Presently working in the EVA Projects Office with space suits.

Polansky Ready for Spaceflight

Mark Lewis Polansky, BS '78, MS '78, successfully completed his astronaut-training program in April. This makes him the 21st alumnus from the University who has held the title of astronaut. Fourteen of the 21 are graduates from the School of Aeronautics and Astronautics.

All 44-astronaut candidates in Polansky's class successfully completed the 19-month program.

"This class was the largest ever to go through training. The previous largest class was the very first selection of astronauts during the shuttle era, which had 35. The exact size of each group selected is based upon the need of NASA," stated Polansky. "Right now, we're very close to launching the first component of the International Space Station, so there's going to be a lot of work for astronauts in the future, as well as in the present."

Polansky said that there were two main activities in which he was involved. The first was training which incorporated the knowledge he gained from the detailed lectures on the space shuttle and its subsystems.

"The simulators enable me to practice both the routine as well as off nominal procedures where sometimes it seems like everything's going wrong. The simulators are both the most challenging and the most rewarding." said Polansky.

The second activity was in the astronaut office. "All astronauts not assigned to missions are assigned different jobs that support current and future spaceflight activities, " said Polansky.

"My job is currently that of an astronaut support person. There are five of us in this job. Our primary responsibility is to support all launch and landing activities," Polansky stated. "This means

Mark Polansky (in cap) experiences weightlessness aboard the KC-135.

weekly travel to the Kennedy Space Center where we represent the crew on various issues regarding their vehicle. We conduct all the tests on their vehicle. We conduct all the tests on hardware prior to

continued on page 10

Benish An Outstanding Senior

Kerrie Benish was awarded the Engineering Alumni Association Board's Outstanding Senior Award for the School of Aeronautics and Astronautics.

The Purdue Student Engineering Foundation and the Purdue Engineering Student Council also sponsor the award. Kerrie is shown here with Professor Gustafson.

Since the Winter 1998 issue of *AeroGram*, the following alumni of the School of Aeronautics and Astronautics have been reported as deceased. The faculty and staff of the School extend our sympathy to all family members and friends.

Wayne P. Cox ..... BS '65
Gary E. Halt ..... BS '75
Ronald P. Johnson ..... BS '55
Robert P. Lackey ..... BS '68
Richard Lemaster ..... BS '47
Kenneth L. Mantz ..... BS '59
Alexander McDermott, ... BS '48, MS '50
Rufus W. Roberts ..... BS '57
Edwin M. Roof ..... BS '52
Robert E. Sawyer ..... BS '47
Theodore W. Sedvert ..... BS '51

Contact Us!

As an alumna or alumnus of our School, you are our best ambassador. If you know of someone interested in earning an undergraduate or graduate degree in aeronautical and astronautical engineering, we want to know!

Please encourage them to contact us at:
Counseling Office, School of Aeronautics & Astronautics
Purdue University, 1282 Grissom Hall
West Lafayette, IN 47907-1282 (765) 494-5152.

And the Winner is...

Congratulations to the following students who earned top honors this year.

Elmer F. Bruhn Undergraduate Research Assistantships:	Abigail Dobbins, Philip Schneider
Department of Defense Graduate Fellowship:	Daniel J. Bodony
Ivan Kincheloe Scholarship:	Daniel Javorsek, Michael McKenzie, Jamie Schultz, Sean Waninger.
William Koerner Scholarships:	Lisa Brilliant, Kevin Dressel, Dan Javorsek, Nicole Key, Casey Kirchner, Tyson Strutzenberg
Magoon Teaching Assistant Award:	Daniel Bodony, Jason Bowman, Eric Campbell, Evangelos Koutsavdis, Belinda Marchand
Herbert F. Rogers Scholarship:	Kerrie Benish
Sigma Gamma Tau, Purdue Chapter, Outstanding Senior Award:	Kerrie Benish
Sigma Gamma Tau Chapter Outstanding Senior Award:	Kerrie Benish
Society of Women in Engineering Merit Award:	Kerrie Benish, Lisa Brilliant, Theresa Debban, Nicole Key, Casey Kirchner, Elizabeth Leistner, Alfredo Ramirez, Lisa Schneider.

David & Nancy Hook
Richard Hooper
Jon Hoops
Richard House
Clayton Huben
John Hudson
Paul Hughes
John & Julie Huie
James & Lynn Hunsicker
Stephen & Jennifer Hurst
Joe Huss
Samuel Hutchinson
George Irving
Joseph & Portia Jaap
Robert & Cynthia James
Roman Jamrogiewicz
Lowell John
Duane & Sandra Johnson
Kenneth Jonaitis
Patrick Jones
Ross & Ana Jones
Anthony & Susan Joseph
Thomas Kaemming
James Kaminsky
Donald Kamis
Hans & Jo Karrenberg
Raymond Kartasuk
Rama Katari
Harry Kay
David & Debbie Keever
Larry Kellogg
Norman Kennedy
Robert Kielb
Herman Kietzman
Brian Kinsey
Keith Kinsey
Melvyn Kitagawa & Sarah Morris-Kitagawa
William Klint
Robert & Judith Knapp
Raymond Knight
Eldon Knuth
Severino Koh
Daniel Koharko
Kevin Kokal
Douglas Kooker
James & Amy Krafcik
John Krehbiel
Jeffrey & Christine Kress
Russell Kurtz
Jerry Lake
Charles & Julia Lamb
Edwin Lamb
Jeffrey Landin
John & Shirley Larrison
A. Georgene Laub
Stephen & Catherine Lawrence
William & Brenda LaManna
Frank Leban
Alan & Georgetta Ledger
Marshall Lee
Ralph Lehman
Michael Lena
C. Richard Lenglade
Alethe Lescinsky
David & Caroline Lewis
Jack & Mary Lewis
Mark Lilley
Basil Long
James & Diane Long
Michael Longmeyer
Richard Longwell
Amy Lucas
Gerald & Kathryn Lukavich
James MacBain
Mark Mangelsdorf
Ty Marien
Frederick Marshall
Clyde Matthews
James & Stacey McCarthy
Terrence McClure
William McColgin
William McNulty
David Meek

continued on next page

Walter & Myrtle Melloncamp
Scott Meyer
Dwane & Joan Mikelson
Christopher Miller
Kenneth & Ann Miller
Marvin & Ardath Miller
Merlin & Carlotta Miller
Dennis Mishler
Richard & Margaret Mitchell
Richard Moll
William Moses
Calvin Moy
Charles Muller
James & Reta Murphy
Kenneth Murphy
Kenneth & Shirley Naab
Gary & Deborah Naville
Donald Nefske & Shung Sung
Donald Nellis
Wallace Nelson
Robert & Anna Newill
Roger Nichols
David Nus
Nicholas Nylec
William & Rita Oates
Gordon Odell
Robert & Maureen Oeding
Frederick Olafson
Chadwick & Angela Oldenburg
David & Audrey Olson
Mark Orr
Jon Owens
Linda Palomar
Edward Parker
William Patton
Gary Payton
Robert Pendley
Henry & Becky Pernicka
Frank & Maria Perry
William Peters
David Petri
Ross & Julie Phillips
Stanley & Patricia Pinkowski
Torino Pitts
Leonard & Diane Pohlar
John Pouder
Ronald & Kay Preucil
Michael Pritchett
Jerry & Karen Queen
Joseph & Lois Ramsey
Daniel Raymer
Carl & Nancy Reiber
Robert & Helene Reid
James & Carol Renna
Richard Richardson
Arthur & Agnes Richter
J. Freeman Rittenhouse
Steven Rogers
Brian Roland
Lee Ross
Brent Roth
Richard Rupert
Mark Rutz
Karl Saal
Donald Sandercock
David & Janet Schroeder
Jeffery & Donna Schroeder
Marc & Deborah Schuldt
Carl Schulenburg
Steven Schultz
William Schultz
Douglas Schumann
Michael & Elizebeth Schura
Ray Scott
C. Thomas Seeley
David Semanik
Mark Sensmeier
Rodney & Linda Seto
Joseph Shaffer
H. Rex Shama
J. Dugan Shelby
John Shuter
Laverne Simonin
Earl Simpkins
Jon & Gwendolyn Sims
Leonard Singer

KC-135

For the second year in a row, Professor Collicott's AAE 490 directed study course was successful in securing a spot on NASA's famous KC-135, Vomit Comet airplane. Professor Collicott's class studied the re-orientation, positioning, and oscillation of fluids in low G environments.

Pictured here with the chemical engineering team are front row, left to right: Daniel Radocaj, Jen Rafston, Cassandra Forthofer, Chris Heidelberger. Back row, left to right: Trisha Beautien, Brad Ecker, Professor Collicott, Jamie Schultz, Hilary Grinstead, Nicholas Saadah, Scott Schoenherr, and Chemical Engineering Professor Laudenbach.

Polansky continued

and just before flight, and one of us is part of the closeout crew team that straps the crew into the shuttle. On STS-90, I had the honor of strapping the crew in, and I was the last one out of the vehicle before the hatch was closed. It's a great job!"

When Astronaut Polansky does fly, it will be as a pilot. During his training for spaceflight, he flew the T-38 jet aircraft. According to Polansky, "This is a two person supersonic aircraft used by the Air Force to train its pilots to fly. Astronauts chosen as pilots fly in the front seat as well as those mission specialist's astronauts who happen to be active duty military jet pilots. The other mission specialist astronauts fly in the back seat. For many of them, this is the first time that they've flown anything larger than a Cessna 172. The T-38 teaches people how to handle themselves in fast-paced, time compressed environment, and it also teaches people to work together as a crew."

What does Astronaut Polansky have to say about this once-in-a-lifetime experience?

"Overall, I have to say that this entire experience is a dream come true. I still can't believe that I got here, and it's hard to comprehend that somewhere out there is a shuttle mission with my name on it," stated Polansky.

"NASA has some of the most dedicated women and men who work countless hours to make sure that we in the astronaut office get to do our jobs safely. We always get the attention, but I want to make sure that everyone knows that there are many who work behind the spotlights, and who we couldn't get along without," Polansky said.

Design Competition

A new design course—taught by Professor Grandt and Aviation Technology Professor Watkins—provides cross-disciplinary teamwork experience to students in the AAE School and the Department of Aviation Technology. The teamwork experience is provided in the context of an industrial setting where multi-disciplinary teams are created to accomplish a specific task. The design competition involves cross-disciplinary projects that expose the student groups to different aspects of structural design and manufacturing.

This year's winning team consisted of AAE students Bart Sharp and Sean Waninger and AT student Kevin Alcozar. Thanks to Boeing North American who sponsored the competition.

Hayhurst and Bridges Honored

John B. Hayhurst, BS '69, and General (Ret.) Roy D. Bridges, MS '66, were honored this spring for their distinguished careers.

John Hayhurst, Vice President—The Americas for the Boeing Company, was awarded an honorary doctorate degree by the University at the May 17th commencement. Hayhurst, who also holds a master's degree in business administration from the University of Washington, is responsible for the sale of Boeing airplanes and Boeing's business relationships with customers in North and Latin America.

John B. Hayhurst BS'69

During his 28-year career at Boeing, Mr. Hayhurst has risen from the position of customer support engineer in 1969, to an executive position responsible for more than $20 billion of aircraft sales. He once led the Boeing Commercial Airplane Group's marketing division, which is known as the largest and most respected market analysis group in the field today. Mr. Hayhurst's team was responsible for the planning, design, development, and manufacturing of the Boeing 747-600, and the 747-700.

Roy D. Bridges MS'66

Hayhurst was awarded the Distinguished Engineer Alumni Award by the Schools of Engineering in 1989 and in 1994 was the Albert Plesman Memorial Lecturer at Delft University of Technology, the Netherlands.

Roy Bridges, the Director of the John Fitzgerald Kennedy Space Center, was honored with the Schools of Engineering Distinguished Engineering Alumnus Award during ceremonies on April 24, 1998.

In his position, Mr. Bridges leads the largest and most prestigious spacecraft launch facility in the world. His role in the Kennedy Space Center continues to have a major impact in the aerospace field. He has distinguished himself in the field of aeronautical engineering through his management of flight test centers in the Air Force, his involvement as a pilot on STS 51-F, and his distinguished career as a veteran pilot in Vietnam.

He is the recipient of more than a dozen awards and honors including the USAF Distinguished Service Medal, Air Medal, with 14 oak leaf clusters, and the NASA Flight Medal.

HOMECOMING 1 • 9 • 9 • 8

October 24th, 1998

Come join the AAE Professors for an informal breakfast in Grissom Hall, room 390, between 9:00 a.m. and 10:30 a.m. Before going to the Purdue vs. Illinois football game, head over to the Schools of Engineering Chili Party at the Purdue Foundation, in front of the MSEE Atrium. Chili party begins 1 1/2 hours before game time.

Other Activities

October 30th — Fall Industrial Advisory Council Meeting
President's Council Annual Weekend
Dean's Club Luncheon
November 14th — Third Annual Fall Space Day
December 20th — Graduation Reception for New AAE Alumni, Grissom Hall 390

Charles Skira
Louis & Mary Slimak
Donald Slone
David & Dianne Smith
Douglas & Marcia Smith
Michael Smith
Virgil & Patricia Smith
James Smoak
Carl & Angela Soderland
Abram & Elizabeth Sowarby
Michael & Norma Spak
William Spargur
C. Anton & Candise Sprangers
George & Ellen Staab
George Stalk
Richard Stammerjohn
Laura Stanjevich
Jay Stanwood
Guy Steeves
Richard Steffey
Mark Stephenson
Mark Stevens
Virgil Sticka
Todd Stine
Albert Streicher
Xuming Su
James Sunkes
Mark Sutherlin
Darryl Sutton
Andrew Swanson
Daniel Swanson
Thomas Szabo
Edward Szwabowski
Jeremy Tack
Xuefeng Tao & Yi Xu
Ralph Tate
Randall Tatman
Mark & Donna Thomas
Robert Thomas
Thomas Thompson
Sam & Lisa Thurman
Stuart & Marilyn Treon
Frank & Donna Tse
Joseph Tyler
Kenneth Uffelman
James Vadeboncoeur
James Vail
Kirk Valanis
John VanderHoven
Joseph VanAtta
James & Lizabeth Vardaman
Daniel & Clarice Vasicek
John & Marcia Vian
Michael & Karen Visich
Jeffrey Waggoner
Larry Walter
John Wang
Donald Ward
Gerald & Beatrice Warner
Thomas Webb
Jack Weber
Craig & Marika Weeks
Richard Wetzel
John Wheeler
John Whitcraft
Byron Whiteman
Robert Whitlock
Arthur & Arden Wiggins
Richard Williams
Thomas Williams
Clinton & Lisa Wininger
David Wirkkala
Robert & Gabriele Wirt
Stephen & Barbara Wise
William Woebkenberg
Gregory Wood
Peter Yost
Richard Young
Melvin & Eleanor Youngblood
George Younger
Steven Zakem
Donald Zenor
Michael & Carol Zoeller
John Zydell

Class Notes Information Update Form

Your friends and former classmates want to know what is happening in your life! Please jot down personal news that you want to appear in the next edition of **Aero**GRAM and forward it to: School of Aeronautics and Astronautics, 1282 Grissom Hall, West Lafayette, IN 47907-1282, or send us e-mail at: *http://www.aae-alumni@ecn.purdue.edu*.

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Thanks for Remembering!

Last year the School received more than $27,000 in matching gift funds—because you remembered to turn in your matching gift form! On an accumulative basis, your matching gifts can determine whether the School purchases additional computer hardware and software, provides further support to student organizations, or purchases equipment for our faculty and their research. Thank you so much for turning in your forms!

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(âr′ə gram′),
n. an airmail letter.

A newsletter published twice a year for the alumni and friends of the School of Aeronautics & Astronautics. Please send inquiries to Nan Ross at:

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