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A newsletter for graduates of the West Virginia University Aerospace Engineering Department prepared by the members of Sigma Gamma Tau, Aeronautical Engineering Honorary. The purpose of this letter is to keep Alumni of the Department informed of the Department's development and of the news of their classmates.

Dear Aero Alumni:

This is my first opportunity to meet you via the "Mountaineer Missile" since I accepted the duties as Chairman of the Aerospace Department. I feel this column will afford me in latter issues of the Mountaineer Missile, the chance to tell you of the progress of the department and of our future plans as they develop.

I must congratulate my predecessor, Professor Seltzer, as well as Professor Ulrich, for their great job of planning of the physical facilities at the new campus location. Planning of this nature can only come from personal conviction and sacrifice, and I hope I am worthy of the fine facilities that have been placed in my hands.

I take this opportunity also to extend to you an invitation to visit with the department whenever your travels take you to Morgantown. Since I know very few graduates from the department personally, I am looking forward to meeting you. I believe that discussions with former graduates is a good way of assessing the effectiveness of the aerospace curriculum and I welcome any comments you may have based on your experiences after leaving the campus.

Sincerely,

Jerome B. Fanucci

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NEW DEPARTMENT CHAIRMAN

Dr. Jerome B. Fanucci was named Professor and Chairman of the Department of Aerospace Engineering at West Virginia University in July, 1964.

The new Department Chairman graduated from Pennsylvania State University in 1944, and earned his Master's and Ph.D. degrees from there in 1949 and 1956. He was also an assistant professor at Penn State, during which time he taught structures, aerodynamics, and propulsion courses.

From 1957 to 1959, Dr. Fanucci was a research engineer in gasdynamics for the Missile and Space Division of the General Electric Company. From 1959 until the time of his appointment at WVU he served as Senior Research Scientist in plasma and space applied physics for the Radio Corporation of America. He was RCA's principle investigator of magnetohydrodynamics and non-equilibrium chemically reacting laminar and turbulent wakes behind re-entry vehicles.

Dr. Fanucci is the author of numerous research papers and projects conducted for the military, industry, and Pennsylvania State University. He is a member of the American Institute of Aeronautics and Astronautics, Pi Tau Sigma, Sigma Gamma Tau, and Sigma Xi, and is a consultant for the Radio Corporation of America.

A NEW DOCTORAL PROGRAM AT WVU

Recently the Aerospace Engineering Department of West Virginia University obtained the approval of the Graduate Faculty to administer the degree of Doctor of Philosophy in Aerospace Engineering. The approval was granted when the Department was able to show that it fulfilled the requirements for available faculty and equipment.

The philosophy of the Department is to concentrate in various areas of research so that its efforts will not be dissipated.

The Department has a long-range plan to build a high stagnation enthalpy arc tunnel. At the present, it has asked for a National Science Foundation Grant to upgrade the existing supersonic wind tunnel. To supplement the new Doctoral program, the Department is adding to the curriculum courses on magnetohydrodynamics, turbulence, flows with chemical reactions, and low-speed aerodynamics. In addition to the new courses, a new faculty member, Dr. Yusuff, a structures specialist, will be joining the Department staff in the near future. This addition will aid greatly in obtaining a balance between the structures and the aerodynamics phases of the curriculum.

DR. NATHAN NESS JOINS DEPARTMENT

Dr. Nathan Ness recently joined the faculty as professor of Aerospace Engineering in the Department of Aerospace Engineering, West Virginia University. Dr. Ness was formerly employed by the Missile and Surface Radar Division of the Radio Corporation of America, Moorestown, New Jersey, where he participated in investigations to determine the electron density in the flow field and in the wake of hypersonic re-entry vehicles, as well as feasibility studies for an electrodeless magnetohydrodynamic generator and studies on hydromagnetic stability and turbulence.

Dr. Ness is the author of many papers in the field of aerodynamics and magnetohydrodynamics. Many of his articles have appeared in professional journals. He holds membership in the American Institute of Aeronautics and Astronautics, Tau Beta Pi and Sigma Xi. Dr. Ness received his B.Ae.E. Degree from the Polytechnic Institute of Brooklyn, New York, and his M.S. and Ph.D. degrees in applied mechanics from the same institution. He had been employed at Polytechnic Institute of Brooklyn, General Electric Company and Lockheed Aircraft Corporation.

Dr. Ness, with his wife and son, reside at 496 Lawnview Drive, Morgantown, West Virginia.

AIAA CHAPTER TO HOST REGIONAL CONFERENCE

The American Institute of Aeronautics and Astronautics Middle-Atlantic Conference will be held at West Virginia University this Spring on April 30 and May 1. The WVU chapter of AIAA will host the conference, while the local chapter of Sigma Gamma Tau has pledged its assistance in the preparations for the important event.

Oral presentation of the Paper Competition in the undergraduate and graduate divisions will fill the schedule for both days of the conference. A banquet will be held Friday evening during which a guest speaker will address those in attendance. Monetary prizes will be awarded to the best three papers presented in each division.

The schools which will participate in the conference, in addition to WVU, are: The Catholic University of America, Drexel Institute of Technology, Fairleigh Dickinson University, University of Maryland, Newark College of Engineering, Pennsylvania State University, and the University of Virginia.

PROFESSOR ULRICH LEAVES W.V.U.

Associate Professor B. H. Ulrich, Jr., left W.V.U. last fall to accept a job as Instructor of Aeronautical and Astronautical Engineering at Ohio State University in Columbus, Ohio. Professor Ulrich plans to stay at Ohio State for two or three years to work on his Ph.D. His home address is:

1504 Thurell Road
Columbus, Ohio 43224

NEW SHOCK TUBE FACILITY

The Department of Aerospace Engineering will have a shock tube available for the 1965-66 school term. Components for the \$9500 Helium/Argon driven facility are presently on order, and assembly is expected to be completed by May, 1965. The facility is intended primarily for undergraduate use in A. E. 205 (Experimental Fluid Dynamics),

A. E. 219 (Introduction to Research), and A.E. 200 (Research Problems). Graduate use will be limited to A. E. 356 (Fluid Flow Measurements) and various independent research projects.

The overall length of the shock tube will be 24 feet. It will have an inside diameter of 2-1/2 inches. The last section of the driven tube will be equipped with plate glass windows so that the flow may be observed by photomultiplier tubes. If desired, a nozzle can be added later to the end of the tube, to form a shock tunnel. The tube will be evacuated by a vacuum pump, and high-pressure gas bottles will be used to enter the desired gas into the tube. The driver section will be pressurized to about 100 - 200 psi from bottles of the appropriate gas. Expensive pumping equipment will not be required. Measuring equipment will include a dual beam oscilloscope equipped with a Polaroid camera, a microsecond counter, photomultiplier tubes, and quartz pressure transducers.

SENIORS COMPLETE INSPECTION TRIP

The Aerospace Engineering Seniors left Morgantown Sunday morning, November 15, for a three-day tour of Aerospace industry facilities in neighboring Ohio. The group was accompanied by Richard Walters and Donald Cunard. Transportation was provided by a chartered Mountaineer Lines Bus.

The group arrived in Cincinnati Sunday evening. On Monday morning they traveled to Evendale where they spent the morning touring the Jet engine plant of the General Electric Company. Here they saw engine parts being machined, assembled, and tested. The noon meal was provided by the company.

In the afternoon the group traveled to Dayton where everyone spent the night "on the town". On Tuesday morning they were conducted on a tour of Wright-Patterson Air Force Base. A program had been well prepared by base engineers.

The introduction and welcoming remarks

were given by host officer, Lt. Robert C. Cutright, WVU class of 1962. The tour included the Air Force Materials laboratory, the dynamics laboratory, the propulsion laboratory, and the structures laboratory. Testing equipment was viewed and various demonstrations were presented. The remainder of the afternoon was spent in the Air Force Museum.

Tuesday evening was spent in Columbus. The trip was concluded Wednesday with a tour of the North American Aviation plant. Introduction to the tour was presented by means of films depicting the development of the A-5 Vigilante, Redstone missiles, and various research projects. The analog computer facilities were viewed and discussed. In addition, the group was shown the structures laboratories, fatigue testing equipment, the subsonic wind tunnel, and the control section of the supersonic wind tunnel. Manufacturing facilities were inspected, and simulated flight equipment was demonstrated. The group found this to be one of the most impressive phases of the trip.

The group returned to Morgantown Wednesday evening. The students enjoyed the trip and considered it a complete success. An interesting summary of the evening and bus activities may be obtained from any Aero-Engineering senior!

SIGMA GAMMA TAU INITIATES

During the 1963-64 school term five Aerospace Engineering Juniors were selected for membership in Sigma Gamma Tau, the National Aeronautical Engineering Honorary. The Society recognizes and honors students who have, through scholarship, integrity, and outstanding achievement, been a credit to West Virginia University. Those selected were Robert A. Clise, Enterprise, W. Va.; Leonard E. Graham, Fayette City, Pa.; Alvin D. Howell, Elizabeth, Pa.; Dennis L. Rhen, Lebanon, Pa.; and John F. Sylvester, Bentleyville, Pa. Officers elected for the following year were John Sylvester, President; Dennis Rhen, Vice-President; Robert Clise, Secretary; Richard

E. Walters, Treasurer; and Donald Cunard, Faculty Advisor.

New initiates for the first semester of the 1964-65 term are Ernest L. Miller, Keyser, W. Va.; and Laurence V. Stento, Newburg, W. Va., Seniors; and Ronald L. Bruce, Wilmerding, Pa.; Edward H. Gibbs, Parkersburg, W. Va.; James A. Martin, Kingwood, W. Va.; and Gary D. Zoerner, Morristown, N. J.; Juniors.

RONALD BRUCE RECEIVES MARTIN AWARD

Each year the Martin Award is presented to the sophomore student in Aerospace Engineering who has maintained the highest scholastic average during his first two years. This year the award went to Ronald L. Bruce of Wilmerding, Pennsylvania.

The award, presented during the initiation banquet of Sigma Gamma Tau, consisted of an engraved desk - pen set. The recipient's name will also be engraved on the Martin plaque, which is displayed in the Aerospace Department.

Congratulations Ron Bruce!

EXPANSION AT W.V.U.

The Evansdale Campus will be the primary center of future physical growth, President Paul A. Miller has stated. Graduate and professional work, technological and scientific research and development, the Appalachian Center and new University housing will be furthered there.

The Evansdale Campus will have the more self-contained and professional areas of University study while the Central Campus will be devoted to undergraduate and graduate programs in arts and sciences and to the University's cultural and social areas.

The big program being pushed at the Evansdale Campus presently is the Appalachian Center. This development will encompass not only basic research but also academic and adult educational activity.

MEN FROM DEPARTMENT HONORED BY TAU BETA PI

Dennis L. Rhen and Robert A. Clise were recently initiated into Tau Beta Pi National Engineering Honorary Association. Initiation ceremonies took place on December 5, 1964, in the Engineering Building, and a banquet followed at the Hotel Morgan.

RICHARD CANNARELLA WINS PAPER CONTEST

The AIAA and Sigma Gamma Tau paper competition is an annual event for the WVU Aerospace Engineering Department. The event is usually held during the regular May meeting of the local AIAA chapter. Topics for a paper can be anything of interest in the Aerospace Engineering field. Cash awards of \$50, \$20, and \$10 are given to the first, second and third place papers respectively. An advance summary of the topic to be presented must be submitted at least thirty days prior to the competition.

Last year's winning paper was presented by Richard Cannarella. His topic was "Forward Thrust for Ground Effects Machines by Use of an Enclosed Wing". Cannarella presented three models which he had tested with enclosed wings. Test results were shown, and an idealized model achieved as a result of these tests was described.

The second place winner was Richard Stalnaker who presented a paper on "Secondary Injection of Reacting Gases into a Rocket Nozzle". John Bland's paper, "The Design and Testing of a Torsion Box Beam for Light Aircraft", captured third place. Judges for the competition were leading professors from other engineering departments in the University.

Student participation in the annual event are welcomed. Arrangements for this year's contest are still incomplete. It will be held in April or May, however, so begin to prepare your paper now - it may be worth \$50 to you!

1964 GRADUATES OF THE AEROSPACE DEPARTMENT

<u>BSAE</u>	<u>NAME</u>	<u>ADDRESS</u>	<u>JOB OR COMPANY</u>
	Sidney Frazier Absher	Bluefield, W. Va.	Traneco, La Crosse, Wisc.
	John Thomas Ach	Montana Mines, W.Va.	
	Brooks Ohley Bartholow, III	Fairmont, W.Va.	Rocketdyne Div. of North Am. Aviation, Canoga Park, Calif.
	Donald James Bennett	Weston, W. Va.	
	Barry Allen Berisford	Wheeling, W.Va.	
	Paul Irvin Bowman	Moorefield, W.Va.	U.S. Navy, Naval Air Base Training Command
	James Lowell Dillon	Lashmeet, W.Va.	N.A.S.A.- Langley Research Center, Hampton, Va.
	Daniel Otto Dommasch, Jr.	Blawenburg, N.J.	Pratt & Whitney, East Hartford, Conn.
	James Richard Faddoul	Sistersville, W.Va.	N.A.S.A. Lewis Research Center Cleveland, Ohio
	Jack Irwin Flaherty	Fairmont, W.Va.	Wright-Patterson Air Force Base FDMG, Ohio
	Samuel Leo Gall	Beckley, W.Va.	Pratt & Whitney Aircraft West Pal, Beach, Fla.
	John Jerome Hartl	Morgantown, W.Va.	
	John Edward Holmes	Clarksburg, W.Va.	University of Maryland/Naval Ordnance Lab
	Millard Lee Howard	Keyser, W.Va.	West Virginia University
	Richard Edward Longhouse	Morgantown, W.Va.	
	Gail Franklin Montgomery	Renick, W.Va.	LIV Vought Aeronautics Division
	Kenneth Allen Phillips	Ridgely, W.Va.	University of Maryland
	Paul Leroy Russell	Canonsburg, Pa.	
	Richard Lynn Stalnaker ^{MSAE 1967}	St. Albans, W.Va.	West Virginia University
	Harold Lee Stocker	Wheeling, W.Va.	
	Stanley Richard Sudol	Weirton, W.Va.	West Virginia University
	George Anthony Williams	Monterville, W.Va.	Naval Air Engineering Center Phila., Pa.
<u>MSAE</u>			
	Mei Kao Liu	Tainan	
	Hikmet Okuyucu	Air Force Military Attache - Turkish Embassy, Washington, D.C.	
	George Mokbel Saad		Lockhead - Georgia Co., Atlanta, Ga.
	Ming Hsien Wang	University of Illinois, Urbana, Ill.	
	Vincent M. Paglino	Liberty, N.Y.	Sikorsky Aircraft, Shelton, Conn.

NOTE TO ALUMNI

Alumni of West Virginia University are requested to notify the Department of Aerospace Engineering of any change in their addresses or employment status, so that the files may be kept up to date and the information may be published in the next "Missile".

For 1964 Graduates only: Your copy of the "Mountaineer Missile" has attached a form which will assist in bringing your files up to date. It is requested that you complete it and return it to the Department at your earliest convenience. Thank you.