6-18-1986

Avion 1986-06-18

Embry-Riddle Aeronautical University

Senior Class meeting tonight 8:00 p.m. in the U.C.

Avion

An Award-Winning Collegiate Newspaper

Embry-Riddle Aeronautical University, Daytona Beach, Florida

60 YEARS OF AVIATION EXCELLENCE 1926-1986

Volume 53, Issue 3 June 18, 1986

Traffic troubles are ahead

Director Fountain warns students at SGA meeting

By J. Miguel Vidal
Avion Staff Reporter

A series of dramatic changes in the campus will happen during the next few months. Preparation of the ground where the new administration building will be built, construction of a new parking lot, and the creation of two new entry ways for the university, one coming from Clyde Morris Blvd. and another from Catalina Rd., will be done.

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Metal debris from old cars and equipment, and two bunkers made of concrete are some of the things which are under this area. After a series of tests conducted last month, the university decided that it would need to excavate 13.5 to 14 feet of the ground that would hold the building's foundation, and substitute it with "good" dirt, prior to beginning the construction.

"When the project is completed there will be no more problems with mixing vehicles with people on campus"
—Charles Fountain

The new administration building will be a two-story building, and will cover an area of 50,000-square-feet. It will be a state of the art facility with a futuristic look, and its color will resemble the Jack R. Hunt Memorial Library. Construction for this building will begin by mid-October, and is expected to be completed by April of 1987.

A new parking lot with a capacity of 600 cars will be constructed behind the flight line complex, and in front of Dorm 11. It will have a two lane exit and entry way coming from Catalina Road, and connecting with Corsair Road, which connects with Volusia Avenue. Work on this project is set to begin on July 1, and for completion by September 3.

According to Fountain, the construction of the parking lot will create about 30 days of traffic problems as the Fall trimester begins. "These days of roughness will be well worth it when the project is completed because there will be no more problems with mixing vehicles with people on the campus" Fountain said.

In order to inform the students and faculty of this potential problem in traffic flow around campus, notices will be sent to everyone, including people who are not now on campus and new incoming students. Also, parking regulatory procedures, from ERAU security, will not be strictly enforced during this time, according to Fountain.

When the project is completed, the university will be a true walking campus. "It will take more time to get to classes, but it will much safer to walk from one place to another," Fountain said.

Avion photo by Mark Stern-Montagny

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ERAU awards scholarships to students

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Also, an essay is required answering these three questions: why are you pursuing an aviation career, why you think the university should award you a scholarship and what are your career goals?

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The Commission report is available to students from the Government Printing Office at a cost of $18 a copy.

The 256-page report includes color photos of the accident and

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Avion photo by Rich Grey

An Air Force ROTC cadet, here at Embry-Riddle training with the flight evaluation program, practices unusual attitude flying and collision avoidance while beating the heat last Saturday in the Embry-Riddle Aeronautical University pool.

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Administration welcomes two new vice presidents

Harman gets Development

By Geoff Murray
Avion Staff Reporter

The Embry-Riddle executive officers in Bunnel recently had a new member join their staff, Mr. James Harman. Mr. Harman is replacing Jack Fidel, past Vice President of Development who retired this past May. Sporting the new title of Vice President of University Relations, Mr. Harman brings with him a complete background in university administration, education and fund raising.

Prior to entering college, Mr. Harman served as a member of the 937th Engineer Aviation Group of Orlando and the 924th Engineer Aviation Group, Bordeaux Air Base, France. His aviation background deals primarily with land-based preparations and the completion of airfields in Europe during the Korean War. However, he "intends to make use of the extensive aviation resources available at the University and to do some flying."

After serving in the armed forces, Mr. Harman enrolled at the University of Pennsylvania to earn his degree. His undergraduate was completed at the Wharton School of the University of Pennsylvania with the granting of a B.A. in International Relations. In addition, he pursued graduate studies in Law and International Relations at the University of Pennsylvania.

His employment experience includes administrative responsibilities at two colleges: The Wharton School and Spring Garden College, both

See HARMAN, page 8

Williams gets Academics

By Jeff Kohlman
Avion Staff Reporter

Dr. John W. Williams, Jr. recently joined the administration of Embry-Riddle Aeronautical University as Vice President of Academics. "There are strong similarities to the U.S. Air Force Academy and ERAU," stated Dr. Williams in an *Avion* interview, "such as the dedication to high academic standards and continued interest in aviation education."

Dr. Williams was attracted to our university because of his past opportunities to be under the leadership of President Tallman while he was a Permanent Professor and Head of the Deparment of Behavioral Sciences and Leadership at the U.S. Air Force Academy in Colorado.

Williams was very impressed with Tallman's leadership capabilities and knows that he will benefit ERAU in many ways.

Dr. Williams said that he and President Tallman were involved during turbulent times at the Academy when they were in the process of allowing females to enter into the Academy. He feels that Embry-Riddle will benefit from President Tallman's experiences and knowledge of education and aviation.

Dr. Williams responsibilities here at the university are to coordinate academic policies that have been set by each campus in the past and help in developing university policies that will be followed by each campus. He feels that continuity of single

See WILLIAMS, page 8

Editorial

Shuttle report hits home

It is not often that national events mean much to the students of Embry-Riddle in any direct way. When Congress cuts student loan appropriations, the chances are small that someone from Embry-Riddle will have to drop out directly because of that reason. When a plane carrying hundreds of passengers crashes, it only affects us by creating a topic to discuss in and out of the classrooms.

The explosion of *Challenger* with the resulting loss of crew and orbiter has already become, like the death of J.F.K. or Martin Luther, one of those most historic events. In an ironic way, it was almost a privilege to be in Florida at the time, and witness that awful event through our own eyes. That privilege, however, may become a burden to members of the class of '86 and '87.

For most of our population, like those other national events mentioned above, the tragic event in our space history will not affect them. Unfortunately for the many students at Embry-Riddle who are heading into an aerospace career, the disaster of Jan. 28, 1986, will affect us in a most real way.

The Presidential Commission report on the *Challenger* disaster, released last week, offers a glimpse into what the next few years may be like for graduating students who dream of spaceflight, and new aerospace planes. At first glance it is not a pretty picture.

One of the recommendations of the Commission, if followed by NASA, could mean a substantially longer delay in resuming Shuttle flights. The members of the Commission have said they would like to see NASA investigate the possibility of testing a newly designed Solid Rocket Booster in a vertical position.

If such a test is pursued, a new facility may have to be designed, funded, built, and then ultimately used to fire the booster. It is unclear if such a test stand could be modified from existing rocket test stands left over from the Apollo-era. If this program for reproving Shuttle safety is adopted, the accompanying longer delay in the space program could mean trouble for graduates this year and next.

A life long dream of working in the aerospace field may fizzle in frustration as resume after resume is returned to sender marked, "Sorry, we're not hiring right now." This fact is the form the 51-L spectre will take for us in the next two years. While the disaster continues to haunt us as near-term graduates, those students graduating in a couple of years can look forward to an aerospace field that will see many positions opened up by retiring workers, engineers, and managers.

The future is bright, but the next two years will be tough.

Letters to the Editor

Special thanks

To the Editor:

In the last issue of the *Avion*, the recipients of the Beechcraft Training Scholarship were mentioned. It was a great honor for all of us to be chosen to participate in the competition for this award.

However, we must express our thanks to Alpha Eta Rho who contributed a large sum of money to finance transportation for two of the finalists to Texas where the final interviews were held. The members of the executive board of AHP held an emergency meeting to allot money to sponsor the finalists. If AHP had not financed this trip, it would not have been possible.

AHP has sincerely demonstrated its dedication to the University and to the aviation industry as well as its support for students pursuing aviation as a profession.

In the fall, a follow-up article will be submitted to the *Avion* to report on the Beechcraft training facilities in Wichita. Thanks again to the brothers of Alpha Eta Rho for making this possible.

Sharon Byrd
PD-ATF

Fair warning

[Editor's Note: The following opinion article from the ERAU Bowling League should serve as a warning to all students who participate in any club, organization or organized sport.]

Before any activity can take place on another person's property, consent from the owner must be acquired. Sometimes this consent is verbal, "Sure you can use my yard for a softball game." Other times the complexity of the activity requires a financial agreement such as renting a rink for a hockey game or bowling lanes for a bowling league. In this case it is essential to have a written and legally binding contract between the users and owners as to the conditions of the agreement.

The next step is for both users and owner to abide by the agreement. If this is not done, you have the right to take them to court. This is precisely what the ERAU Bowling League has done. We had a written agreement with Starlite Bowling Lanes that was in addition to our normal League contract. It was signed by their representative and our League President.

The contract was to run for one year, ending this summer when it would be up for renegotiation. The Fall and Spring Leagues came and went smoothly, but for the summer they got a new representative. This new representative said they were no longer going to recognize all of the contract and that we were, basically, out of luck. We showed our contract to a lawyer and he stated that it was legal and binding until the end of the summer. We have since decided not to patronize a business with what we felt were unethical practices and moved to another bowling center.

We are also keeping track of every concession that we now pay for but should be receiving for free or at a substantial discount. In the fall our lawyer will present a judge with our contract and expenses and hopefully we will be awarded damages.

If you feel that any person or persons have not fulfilled their obligations to your organizations, do not let them intimidate you just because you're young or go to Embry-Riddle. Collect the facts, present your case, and justice will prevail.

Kirk A. Gunn
Vice President,
Bowling League

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This week's staff: Judy Hendrickson, Patrick McCarthy, Mark Pearson, J. Miguel Vidal, Paul Novacek and Steve Cagle. Jeff A. Kohlman

The opinions expressed in this newspaper are those of the majority of the Editorial Board, and do not necessarily represent those of the university, the staff of the Avion, or the members of the student body.

Letters appearing in the Avion do not necessarily reflect the opinions of this newspaper or its staff. Letters submitted may be edited for brevity and may be printed provided they are not lewd, obscene, or libelous. Letter writers shall confine themselves to a single topic. All letters must be accompanied by the signature of the writer. Names may be withheld on request at the discretion of the Editor.

The Avion Editorial Board members are: James Banke, Bill Fisher, Gordon F. Crago, Tim Van Milligan, Mark Stern-Montagny, Jeff Guzzetti, Larry Benninger, and Brian Nicklas.

The Avion is an Associated Press member newspaper, and subscribes to the Campus News Digest and College Press Service. The Avion is a member of the Columbia Scholastic Press Association, College Media Advisers, and the Associated Collegiate Press.

The Avion is produced by a volunteer, student journalist staff weekly throughout the academic year and bi-weekly throughout the summer. The Avion is funded through student government fees and advertising revenue.

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Correspondence may be addressed to: The Avion, Embry-Riddle Aeronautical University, Regional Airport, Daytona Beach, Florida 32014. Phone: (904) 252-5561 Ext. 1082

Beer barons float lobbying battleship to extend Senatorial antitrust legislation

By Jack Anderson
and Joseph Spear

WASHINGTON — Does the beer industry need, or deserve, a far-reaching exemption for the antitrust law?

There are some who think the idea is laughable. Among these are the Justice Department, the Securities and Exchange Commission, watch dog groups like Public Citizen, liberals, conservatives and some members of Congress.

On the other hand we have other members of Congress and the beer industry itself — including its political action committee with the cute acronym: SIXPAC. The beer barons have managed to keep the idea of antitrust exemption afloat for four years now and some critics believe it has been accomplished through a steady flow of campaign contributions to selected members of the House and Senate.

On May 15, the long-pending legislation was scheduled for floor debate in the Senate, but Majority Leader Robert Dole, R-Kan., pulled it off the schedule at the last minute. He had been threatened with extended discussion (filibuster), even by opponents of the bill.

Dole's office scoffed at the idea that the majority leader had been influenced by the beer industry's largest. But those with suspicious minds point to the "Salute to Bob Dole" sponsored by the National Beer Wholesalers' Association in February at the Hyatt Regency Hotel here. At $1,000 a head, it was supposed to raise $25,000 for Dole's campaign chest.

Association officials wouldn't say how much was actually raised, but an internal memo obtained by our associate Stewart Harris gave a pretty clear indication of what the beer barons hoped to accomplish with their little party. The Jan. 2 memo, signed by the association's president, said in part:

"As majority leader, Sen. Dole is responsible for all legislation reaching the full Senate for debate. ...Dole will be playing a key role in any future (association) legislative efforts.

This will be a unique opportunity to discuss the industry's concerns with the majority leader. We also will be pleased to accept additional contributions from those unable to attend."

A Public Citizen study shows that the beer industry as a whole spent more than $700,000 in the last four years on lobbying expenses and campaign contributions. Among its lobbyists are Christopher O'Neill, son of House Speaker Thomas P. O'Neill, and former staff aides to Senators Orrin Hatch, R-Utah, and Dennis DeConcini, D-Ariz., both of whom happen to support the antitrust exemption bill.

What smells fishy to critics of the legislation is that current laws already permit the beer industry to do what it says it needs a new law for: assign regional monopolies to distributors, as long as they don't decrease competition among the various brands of beer. Critics deride the industry's claim that it needs specific exemption from antitrust laws to avoid the nuisance lawsuits that periodically challenge the wholesale beer distribution networks. Critics note that the only nuisance suit cited by the industry in Senate hearings last fall was thrown out of court by the judge.

The Justice Department and SEC are afraid that the beer industry — in which just four brewers control 77.9 percent of the market — might use a broader exemption from antitrust laws to move on to yard such abuses as price-fixing.

Fuddle factory

Bureaucratic trivia question of the week: Aside from the FBI, which government agency spends the most to protect its top executive? Answer: the Agriculture Department. Believe it or not, the department spends $229,132 a year to protect the Agriculture secretary from bodily harm. The Transportation Department spends about $4,000 a year to protect Secretary Elizabeth Dole. And the Commerce Department apparently thinks its boss, Malcolm Baldrige, can take care of himself. His protection bill comes to only $1,700 a year.

Watch on waste

In an effort to cut expenses, State Department officials decided it was costing too much — about $50,000 a year — to maintain the palatial Victorian residence of the U.S. consul-general in Sydney, Australia. The mansion overlooking Sydney Harbor is worth about $4 million. So an international real estate firm was hired to find more modest digs. After studying the problem for a while, they recommended a residence costing $1 million. Perhaps we could try again.

Under the dome

The U.N. High Commissioner on Refugees, Jean-Pierre Hoke, visited Capitol Hill on a recent Monday to observe the American democratic process in action. But he was obviously unaware of the Tuesday-to-Thursday congressional work week. House staffers could not find a single appropriate member to have tea with the VIP, so they made do with the most distinguished looking aides they could collar.

An aide to Rep. Stephen Solarz, D-N.Y., recently had lunch with a duly accredited diplomat from a Soviet bloc country, thinking nothing of it. But an FBI agent later turned up at the congressman's office and tattled on the staffer for consorting with a commie. Solarz was unimpressed, but the staff aide was outraged.

Student Forum

The *Avion* asks flight students:
Do you think that the AFROTC screening program is affecting your flight scheduling?

Muhammad Aliyu

"No, but it is not safe to be up there when the ROTC guys are up there too. They are coming in real fast. I wonder if they are actually doing what their instructors tell them to do."

Melinda Boles

"No, my instructor is not teaching (the cadets). I have not been no-aircrafted yet."

Eric Boecker

"Yes. Before they came we had a shortage of aircraft, and now the situation is even worse. It is hard to get in the flight shedule. They are giving priority over Riddle students."

Mark Little

"Yes, (the university) switched my instructors. It seems like the university has given (AFROTC) priority over us."

Del Duncan

"Not yet, but they may as soon as they begin using the aircraft that I need for my flight courses."

John A. Reyhani

"No, but airports are becoming unsafe. They come into an airport and take it over. You can not try to land in a place where they are practicing."

Senior class elections tonight

Editor's note: Senior class officers will be elected tonight in the U.C. Three persons are going for the top spot and each have provided the Avion *with a summary of who they are.*

Among her accomplishments, she was the financial officer and overseer of fund raisers for the ERAU Skydiving Club. She co-oped at McDonnel Douglas Aircraft Company this past spring and has been recognized in such publications as Who's Who and the National Deans List.

Daune Finke

Daune Finke is running for Senior Class President of the graduating class, Summer 1986. Her major is aviation business administration.

Daune has three major goals she wants to accomplish as senior class president. She wants to represent the ideas of the entire senior class. Secondly, she wants to raise as many funds possible for the senior class project. Fun is also in her schedule with her plans for the best senior class party ever.

Daune feels she has the qualifications required to successfully lead the senior class.

Joe Schimmelpfennig

Joachim "Joe" Schimmelpfennig has announced his candidacy for Senior Class President. As former President of the Student Government of the German School in Washington D.C., he hopes to put his ideas and experience to work for this summer's graduating class.

A former Air Science major, he transferred receipt of his last flight course (CFI) and will graduate with an Aeronautical Engineering degree. Elections are to be held on June 18, at 3 p.m. in the CPR.

Jerry Weitzel

Jerry Weitzel is running for the office of President of the Senior Class of Summer 1986. He has attended Embry-Riddle since the fall of 1982 and will be receiving a Bachelor of Science degree in Aeronautical Science in August.

Jerry currenly holds a Commercial Multi-Engine Instrument pilots license, and following graduation he will be entering the United States Air Force. Prior to attending Embry-Riddle, Jerry was the President of a church youth group for two years, serving as community representative for Luthern youth. He was also an officer in an explorer post for student pilots at his home airport in Pittsburgh, Pennsylvania. He is currently finishing his third trimester as an Aeronautical Science tutor working with both AS 150 and AS 250 students.

Jerry believes his experience and dedicatio.n will make him the best Senior Class President for this summer's graduating class.

Senior class elections tonight

Editor's note: Senior class officers will be elected tonight in the U.C. Three persons are going for the top spot and each have provided the Avion *with a summary of who they are.*

Among her accomplishments, she was the financial officer and overseer of fund raisers for the ERAU Skydiving Club. She co-oped at McDonnel Douglas Aircraft Company this past spring and has been recognized in such publications as Who's Who and the National Deans List.

Daune Finke

Daune Finke is running for Senior Class President of the graduating class, Summer 1986. Her major is aviation business administration.

Daune has three major goals she wants to accomplish as senior class president. She wants to represent the ideas of the entire senior class. Secondly, she wants to raise as many funds possible for the senior class project. Fun is also in her schedule with her plans for the best senior class party ever.

Daune feels she has the qualifications required to successfully lead the senior class.

Joe Schimmelpfennig

Joachim "Joe" Schimmelpfennig has announced his candidacy for Senior Class President. As former President of the Student Government of the German School in Washington D.C., he hopes to put his ideas and experience to work for this summer's graduating class.

A former Air Science major, he transferred receipt of his last flight course (CFI) and will graduate with an Aeronautical Engineering degree. Elections are to be held on June 18, at 3 p.m. in the CPR.

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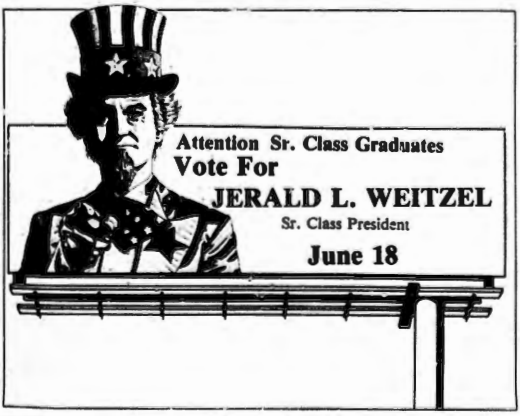

Orbital Inclinations

Stop and Think

By John Getay
Avion Staff Reporter

With the release of the Presidential Commission's report on the cause of the *Challenger* accident — mechanical malfunctions and human frailties — the mourning is over and the country is getting set to return to space.

One of the major problems that the report brings out is that NASA management ignored potential problems with the vehicle in order to maintain the flight schedule. Such a schedule by itself was not the problem, it was the resulting pressures from the commercial end of NASA, Congress and the press to maintain this schedule that was the problem.

I'm sure everyone has heard the news media blast NASA for "failing to launch" because of bad weather or mechanical problems. This type of criticism seems to be inevitable as shuttle launches become "routine." It is, though, not the point of this editorial to blast the press, or anyone else, criticizing NASA in this way. This has been done before quite well by previous *Space Tech* commentators.

I would like to point out that even though the Commission's report stated that scheduling pressures were a contributing factor in the accident, NASA, Congress and even the President are causing these pressures to build again.

For example:

— James Flecther has set July 1987 as the date for shuttle launches to restart.

— The President has given NASA 30 days to establish a timetable for restructuring the agency.

It seems that by setting such deadlines the agency will be under the same pressure it was under before the accident. Also, these deadlines are being established even before the full scope of the report and its recommendations can be understood.

Watch the evening news and you can already see that the media has latched onto these deadlines. I suspect that should one of them pass without being met we will once again hear "NASA today failed to meet one of its goals for restarting the shuttle program."

If NASA starts to hear this again, I fear they will only succumb to this tremendous pressure to succeed and we will be faced with another tragedy.

Now I understand that any program, and especially one of this magnitude, absolutely needs well defined schedules in order to meet objectives safely and successfully. However, I would like to suggest that the people of congress and the press not hold NASA to deadlines and blast them if they don't meet them. The shuttle program is still in its infancy and as such is subject to difficulties in design, development and operations. A consistent effort by people that do not have to meet deadlines to keep the program alive will make it successful.

NASA's Lewis center has new 'Super Computer'

National Aeronautics and Space Administration

CLEVELAND, Ohio — Predicting what happens to newly-designed aircraft engines, prior to their manufacture, is just one of the many complex functions performed by the newest super computer at NASA Lewis Research Center, Cleveland, Ohio.

Called the Cray X-MP, the computer was installed recently to assist Lewis scientists and engineers in key, wide-ranging research efforts. One such effort is developing mathematical models of jet engines and their components, including the study of air flow through inlet ducts, compressor turbine blades and exhaust nozzles. Modeling of combustion processes in aircraft engines and mechanical parts for indications of stress on bearings and turbine blades also is being performed with this super computer.

"A typical solution on the CRAY X-MP might take 1 hour, while the same solution would take 200 hours on a popular business mainframe computer," explains Dr. Allan R. Bishop of the Internal Fluid Mechanics Division. Bishop is a major user of the computer and is seeking answers on the reliability of structural design and the effects of solar radiation and temperature on internal fluid mechanics and spacecraft components.

Solutions to research problems, thought virtually impossible just 10 years ago, are being provided routinely by the CRAY X-MP. For example, Lewis engineers responsible for conducting thermal analysis of the Shuttle/Centaur avionics components are using geometric models of the components produced by the super computer to predict exactly where a component will be affected by solar radiation in space.

"It is impossible to do the analysis without the super computer," Lewis researcher Rafael Sanabria said.

Through three dimensional computational analysis, the CRAY X-MP provides Lewis engineers the same results in 1 day that would take 100 days on today's popular business mainframe computers.

The type of research underway by Lewis' Structural Mechanics Branch would be prohibitively expensive and time consuming without the super computer. Its researchers seek answers to structures subjected to cyclic thermomechanical loading and inelastic straining of turbine blades and combustor liners in the hot sections of gas turbine engines.

Lewis' super computer also is being shared with other NASA centers, industry and universities. Universities using the computer include Cleveland State, Case Western Reserve, Ohio State, Northwestern and Rensselaer Polytechnic Institute.

McDonnell Douglas photo

My, What ears you have...

Wind tunnel model of a McDonnell Douglas F-15 fighter that can take off and land on runways shorter than 1,500 feet, is prepared for "flutter testing" at McDonnell Aircraft in St. Louis. The test is designed to show how well the aircraft can withstand aerodynamic forces at speeds of 900 knots. Moveable engine exhaust nozzles and canards will be added to the fighter to give it unprecedented maneuverability as well as short takeoff and landing (STOL) capability. When the modified "Eagle" flies in April 1988, it is expected to demonstrate an improved roll rate of 24 percent and an improved pitch rate of 100 percent. McDonnell Douglas is modifying an existing F-15 under a U.S. Air Force contract.

Air Mail Service 'Pioneers' shown as first true commercial pilots

By Brian Nicklas

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Much credit is given to the "Father of the Air Mail" Otto Praeger, and evidently he deserves the title. Starting with his early childhood and quickly accounting his rise through the ranks to become the 2nd assistant Postmaster General, Leary shows how this man, though no aviator, became the driving force behind what went beyond a test and became a model for others to follow.

Pilots are shown to be more than barnstormers looking for a steady job, and indeed, men like James Clark Edgerton often rose beyond the status of pilot to management positions as well.

Pilots often lost their lives in the course of the duties they performed, with these deaths often forcing change upon the Mail Service, aviation, or both. Leary points that the development of altimeters with barometric correction (The "Kollsman Window") were a result of the death of pilot Charlie Ames.

Also noted is the forming of the Air Mail Pilots of America, possibly one of the first professional organizations devoted to advancing aviation from a commercial pilots standpoint.

Aerial Pioneers also devotes space to the aircraft used during this period, most space given to the DH-4s, but the Junkers all-metal F.13 / JL-6 is also covered for what proved to be a brief career. (They found that all-metal did not mean fireproof.)

The DH-4 was meant to be a stop-gap until a better ship could be found, but after considerable Postal modifications, the DH was found time and time again to be the best aircraft for the job.

Other major areas covered are aerial communication, and the development of navigation systems. An airport system was also devised, and with before all of these, what was most likely the first true operations manual for an air carrier.

Air Mail played an important part in not only America's past, but also in the past of Embry-Riddle Aeronautical University. Leary's book follows the Mail Service up to it's end and the awarding of contracts to private companies, and he names the first five Contract Air Mail (CAM) route companies. Had he listed a few more, he would have shown our past as "The Embry-Riddle Company - CAM 7".

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The story of the Service is the story of the core of commercial aviation, and Leary covers the ground point to point, leaving the reader beacons to follow on the way.

These pages show the accomplishments of the pilots, mechanics, machines and bureaucrats, all the while pointing to their weaknesses as well.

Starting the chapters with how the decision to carry the mail was made, Leary then covers such notable events as the first official DC to New York City.

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Goodyear's oldest 'Grand Lady' making last trips

By Pete Merlin
Avion Staff Reporter

LOS ANGELES, Ca.— Those famous aerial ambassadors, the Goodyear Blimps capture the imagination of people young and old. Earlier this year, the Avion took an intimate look at the airship *Enterprise* based in Pompano Beach , Fl., which visited Daytona for the Daytona 500 races. Goodyear recently invited the Avion aboard *Columbia*, the oldest blimp in the fleet, for a look at Goodyear Airship Operations on the west coast.

Columbia spends about six months out of the year at its Los Angles base. The rest of the time she travels, sometimes as far as Canada.

Because of the mild weather conditions in California, there is no need for a hangar. The giant silver ship sits attached to its mooring mast in the center of a grassy field, attracting the attention of passers-by on the adjacent freeways. Nearby are a passenger terminal with administrative office and a few maintenance and support buildings.

When the blimp travels, it is accompanied by a caravan of support vehicles and personnel. The crew consists of five pilots, one public relations representative and 16 ground crewmen.

With four specially equipped ground support vehicles, *Columbia's* crew is almost self-sustaining in the field with respect to operation and maintenance of the blimp. A special bus serves as a flight and communications headquarters. It is equipped with all administration aids necessary for the operation and a special mast for mooring the blimp if an emergency should arise during a cross-country mission.

A large tractor-trailer rig serves as a mobile maintenance facility. This unit includes a machine shop, night sign and television equipment lab, and carries the main mast, spare parts, and supplementary equipment.

The caravan also includes a passenger van and sedan used for ground liason work and crew transportation. All vehicles in the caravan are equipped with two-way radios for contact with each other and the airship.

Daily flight operations begin hours before sunset according to *Columbia* pilot Charles Russell. Each day, there are 11 scheduled passenger flights and one evening flight. the six passengers per flight are comprised of Goodyear customers, members of the press and electronic media, and other VIPs. According to Goodyear Administrative Assistant Jim Wood, *Columbia* carries about 10,000 passengers yearly.

Evening flights are used for advertising and public relations. The giant electronic sign, "Super Skytacular," lights up the sky with messages which can be read a mile away. About 75 percent of these messages are of a public service nature. At the request of the government, environmental groups, and some civic organizations. And at no cost, the blimp displays messages dealing with energy conservation, ecology and community projects.

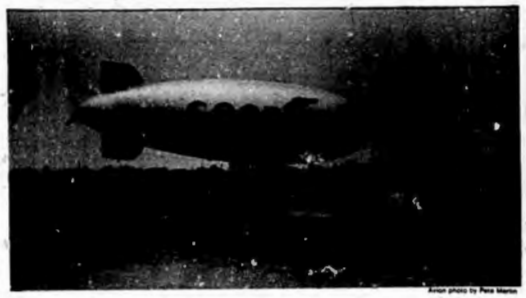
The "Skytacular" has been used to help draw support for such projects as the United Fund, Christmas Seals, American Cancer Society, Heart Fund and more recently, Hands Across America.

Columbia is frequently used as a camera platform during sports events in the Los Angles Coliseum, Dodger Stadium and the Rose Bowl. The airship saw extensive use during the 1984 Olympic Games in L.A.

Occasionally the blimp is featured in television and motion picture productions. *Columbia* was prominently featured in the movie "Black Sunday" in which terrorists attempt to blow up the President at the Super Bowl. It featured an exciting chase involving the blimp and police helicopters. *Columbia* also appeared in such movies as "Stroker Ace," "Oh God, Book II" and "The Wind," soon to be released by Orion Pictures. The blimp was also featured in the television series "Trapper John, M.D."

Columbia (N4A) is the oldest of the four G2-20A airships in service with Goodyear. Her bag was constructed in 1975 with an average useful life of 7 to 10 years. Once inflated with helium, the bag remains inflated until it is replaced due to deterioration and weathering. A complete replacement airship, under construction at Goodyear's airship base at Spring, Tex., will take *Columbia's* place in July when she retires. *Columbia's* car, built in 1934, and all associated hardware will be refurbished for later use. The new blimp will bear the same name, but a new "N" number.

Columbia may be old for a blimp, but she still performs as gracefully as ever. At 300 feet over the Los Angeles basin, pilot Charles Russell asked his passengers if they would like to descend fast or slow. After a general concensus, he said, "Fast it is!" pointed the great silver ship seemingly straight at the ground, and dove down to a pin-point landing. When she retires in July, a new *Columbia* will plod the skies of L.A. and people will still call her "The Blimp."



Avion photo by Pete Merlin

The Goodyear Blimp *Columbia* sways gently on her mast in Los Angeles, California while awaiting her next flight. One of four Goodyear airships, she is due to be replaced this summer.

Aerospace firms discussing joint transport venture

Associated Press

HANOVER, West Germany (AP) — Airbus Industrie and McDonnell-Douglas Corp. of the United States have been holding talks for months over possible plans to develop three passenger airplanes, a ranking West German economics ministry official said Thursday.

Martin Gruener, the ministry's state secretary, told reporters the joint venture talks have been going on for the past three months.

Gruener said the talks centered on plans for two new Airbus jets, a twin-engined, mid-ranged airliner and a four-engined, long-range model.

Gruener, speaking at the Hanover Air Show, said McDonnell-Douglas and Airbus were also considering joint development of a third long-range jumbo aircraft aimed at competing with the Boeing 747s.

He said the negotiations, which he described as preliminary only, would not effect existing plans for expanding Airbus operations.

Gruener said there were no changes to Airbus plans for developing its A330 and A340 planes.

Plans for the $2.5 billion project are expected to be approved by the company's government backers by early 1987.

Airbus is a coalition of the national aerospace industries of Britain, France, West Germany, the Netherlands and Spain.

Veteran astronaut leaves NASA

Skylab, Spacelab highlight career

National Aeronautics and Space Administration

HOUSTON, Texas — Astronaut Owen K. Garriott, Ph.D., leaves NASA and government service this week after more than 20 years at the Johnson Space Center, Houston.

Highlights of Garriott's career include a 2-month stay in space aboard Skylab, July 28 to Sept. 25, 1973, and the 10-day Spacelab 1 mission, Nov. 28 to Dec. 8, 1983, aboard *Columbia*.

Garriott's plans include consulting and an active role in space research.

AAAE

American Association of Airport Executives

By Cheryl Roy
Public Relations Chairperson

The American Association of Airport Executives will be holding meetings throughout the summer. Time and dates will be posted on Mr. Gannon's office window.

During our next meeting on June 19, we will be listening to a tape of a speech given at the 57th Annual AAAE Conference.

Two of our ERAU members attended the annual AAAE meeting held in Seattle, Wash. last month. They were Sue Mulvihill, President; and Karla Marchione, Secretary-Treasurer. Airport executives and AAAE members from across the nation met in Seattle to discuss current trends, government regulation, and the future of the airport industry.

Our club met with other student chapters and their representatives from around the country to discuss what the clubs have done during the previous year. Mr. Gannon, our faculty advisor, made a presentation to the Southeast Chapter concerning the airport economic symposium to be held in Daytona Beach.

Dennis McGee, Airport Manager of Daytona Beach Regional Airport, spoke to the club Wednesday, June 11. He discussed the future expansion of the airport. Since deregulation, the number of air carriers serving Daytona has increased from three to five. More air carriers are discussing the possibility of serving Daytona in the near future.

Mr. McGee discussed the master plans of the airport. With the expansion of the number of air carriers serving Daytona, and the number of passengers increasing, a larger terminal is becoming a necessity. The number of passengers during May of 1986 increased 21 percent over May of 1895. In the future as the population increases and the number of airlines serving Daytona increases, the number of passengers will continue to rise.

We also discussed how the airport makes money, how it will find a new terminal and what terminal configuration will best serve the future needs of the airlines, passengers, and the community.

We would like to express our thanks to Mr. McGee for speaking to us.

Several of our members are researching the difference in airline fares between Daytona and Orlando. You may be surprised to find out that many of the fares are almost the same. We will be presenting this information to the Chamber of Commerce this month.

The club is making exciting plans for the summer. We are contacting other airport managers to speak to us and we are planning a fundraiser for B term. We encourage anyone interested to join us.

L5

Aerospace Society

By Jim Banke
L5 President

As the first half of the summer term comes to a close, we can say that L5 has been one of the most active clubs on campus this summer. Well, we haven't been active ON campus at all. All of our meetings have been held at the "L5 President's Residence," affectionately known as the "Starship," and we have been having fun.

This summer has been spent so far on relaxing and escaping from the pressure of classes and the heat of Florida. Each Wednesday night we are watching movies, television shows, or NASA videotapes in an effort to relax, possibly learn something, and definitely get our spirits up during the worst year for spaceflight since the early days.

Our plans for the rest of the summer will continue on this same theme. Each Wednesday night at 7 p.m. we will gather at my place and escape into the fact and fantasy worlds of whatever's playing on the VCR.

While our smaller membership has been enjoying these activities, our officers who are present and accounted for are planning the biggest fall spectacular this school has ever seen.

Preliminary plans call for the return of those high quality laser prints being offered to everyone, guest speakers to talk about the future of the space program, model rocket building, launching and contests, and in honor of NASA's anniversary — Space Week 86.

Many Florida organizations will celebrate Space Week this summer during July in honor of the flight of Apollo 11. This is the correct origin of Space Week in the first place. But the officers of L5 decided in the past that it would be better to hold week-long space festivities in the Fall when more students are around and willing to participate and make Space Week a success.

'ERAU family' serves public through United Way

By Gail P. Myers
Community Relations

Some of us talk man to man. Some of us talk woman to woman. Through the United Way, the Embry-Riddle family is able to talk person to person. In February of this year the Person-to-Person Committee on campus began its effort to put the ERAU community directory in touch with the various United Way agencies.

The Person-to-Person concept was started by the United Way to involve all companies in Volusia county with the local agencies. Since its starting, the ERAU Person-to-Person Committee has been rated exceptionally active by the Volusia Chapter of the United Way. The Clothing Drive held in May was the most successful one in East Volusia this year. We are showing that we do care about our local community and it's working here.

The committee is represented by one person from each major area on campus. There is a very real need for student representation. There are approximately 5,000 students on campus and there is only one student on the committee, an SGA representative. Each club can be represented on the committee.

The committee meets on the second Tuesday each month at 1:30 p.m. in the Common Purpose Room (CPR) of the University Center (UC). Every month there is usually a brown bag lunch seminar. This month's seminar is on stress management. The seminar will be presented by the Mental Health Players of the United Way. The Players role play scenarios and involve the audience. If you have a problem handling stress, let the Mental Health Players help you to develop some solutions at noon on June 20, in the CPR. Bring your lunch.

NOTICE

The next issue of the *Avion* will be published on July 9. Deadline for all submissions is July 2. Issues 5 and 6 will be published on July 16, and August 6, respectively.

FLASH

For Leisure And Student Health

By Mary Ellen Bell
R.N. Health Services

Snake bites: Learn to avoid danger.

Those longated venomous reptiles seek the warmth of the sun as much as we do.

It may be difficult to learn all the snakes in our area, but knowing the general characteristics of most active when the temperature is between 65 and 85 degrees Fahrenheit, or 18 and 29 degrees Centigrade; however, they are adaptive and you may encounter them anytime.

Two groups of poisonous snakes are found in North America: pit vipers and coral snakes.

Pit vipers include rattlesnakes, copperheads and cottonmouths. These snakes have triangular heads, well developed fangs, heat sensing pits (to detect body heat) located on either side of the head, slit like elliptical pupils and a single row of scales on the major portion of the underside of the tail. Rattles on the tip of the tail characterize rattlesnakes. Also, two fang marks are usually seen in the wound. Occasionally, a snake may have lost a fang and only one mark will be evident.

Coral snakes are identified by their ringed colors. The first color on the rounded snout is black, the banding sequence is red-yellow-black-yellow-red-yellow. If red touches yellow, you're looking at a coral snake. Several harmless snakes look like the coral, but their color arrangement is different.

When bitten, get away from the snake, it may strike repeatedly. Try to note the characteristics, remain as calm as possible and avoid unnecessary activity—both increase the spread of venom. Immobilize the limb and get to a hospital.

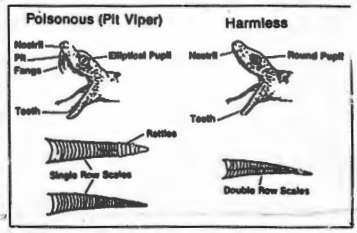
Most hospitals stock two types of antivenom—one for pit viper and another for coral snake bites. This life saving medication can only be administered by trained medical personal, so the main goal of first aid today is to get to a hospital as soon as possible.

When you know you will be unable to reach medical help within one and a half hours and you're sure the snake was a pit viper consider further treatment.

Place a band made from a wide piece of cloth, a shirt sleeve or a belt above the bite. It should not cut off the blood flow. You should be able to insert a finger easily between the band and skin.

Sterilize a knife or razor blade with a flame. Make linear cuts up to one-fourth of an inch long through each fang mark, and no deeper that through the skin. Suck the venom out with a suction cup from a snake bite kit or massage the fluid out with fingers. Continue suction of about 20 minutes. This procedure is only effective when performed within 30 minutes after the bite and is not effective for bites from coral snakes.

Remember, the main goal is to get to a medical facility where antivenom can be administered. If you do nothing else, you have done nothing wrong.



By Mary Ellen Bell
R.N. Health Services

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Bodine to race again in Firecracker 400

Daytona Speedway
Press Release

DAYTONA BEACH, Fla. - Geoff Bodine hopes a return to Daytona International Speedway for the 28th annual Pepsi Firecracker 400 on July 4 will reinforce the reputation he created by winning the Daytona 500 last February.

Bodine, who had lingered on the verge of NASCAR Winston Cup stardom since he won the Champion Spark Plug Rookie of the Year title in 1982, showed his potential in 1984. With a new team owned by Charlotte car dealer Rick Hendrick, Bodine won three races and forecast Hendrick Motorsports as a team to be reckoned with.

In 1985, Bodine and company failed to find Victory Lane, although they did win three Busch Pole positions.

Bodine entered himself in select company with his Daytona 500 victory. He has proven to be a force throughout the season as he and crew chief Gary Nelson have won five Busch Poles.

"The obvious difference between February and July here is the weather — it's hotter now," said Bodine. "Even starting at 10 in the morning, with the heat, we as drivers have to be concerned about our endurance. With the technology available in these new cool suits it shouldn't be a problem.

"What is important is the weather effect on the race track. When it's warmer it means there's a different set up that we have to make adjustments on."

Avion photo by Patrick McCarthy
Daytona 500 winner Geoff Bodine hopes for another win at this year's Firecracker 400. The annual race will run on July 4.

July 4th eve marks Revere 250 return

Daytona Speedway
Press Release

DAYTONA BEACH, Fla - The AMA/MotoWorld U.S. Endurance Championship (USEC) returns to Daytona International Speedway for the 20th annual Paul Revere 250 Thursday, July 3, at 10 p.m. For the second year the 250-mile race, preceding Friday's NASCAR Winston Cup Pepsi Firecracker 400, will feature motorcycles running more than 165 mph at night on the speedway's high banks.

The Daytona round of the series offers a purse of $20,000, the highest on the circuit, and is expected to attract more than 80 entries. The race will run for 71 laps on the 3.56-mile Daytona circuit that combines most of the 2.5-mile trioval with the six-turn infield road course.

For the first time, starting positions for the Paul Revere will be determined by two 25-mile qualifying heats, one each for the GTO and GTU classes. The GTO class is for bikes over 750cc. Both classes feature production-based bikes with safety modifications.

The Paul Revere 250 is unique on the USEC in that it is the only series race run entirely at night. It's also the fastest on the circuit with riders reaching speeds nearing 170 mph in the trioval.

The additional element of darkness places extra demands on both riders and crew despite the fact that the latest in lighting techniques are used on the two-wheeled racing machines.

Speedway News

Summer Speedweek schedule posted

Schedule highlights from Summer Speed Week '86: The track opens for registration on Monday, June 30 at 1 p.m. Press day and outing, Monday, June 30. The first Winston Cup practice session will be from 12-4:30 p.m. on Tuesday, July 1. Busch Pole qualifying will commence at 10 a.m. on Wednesday, July 2. At 8 p.m. Wednesday, there will be two 25-mile heat races for the Paul Revere 250 AMA/Moto-World U.S. Endurance Championship motorcycle race. On Thursday, July 3, Busch second round qualifying for the Firecracker will be at 10 a.m., with the 20th annual Paul Revere 250 at 10 p.m. The 28th annual Firecracker 400 is the week's climax at 10 a.m. on July

Lois Herrington to be 400 Grand Marshal

Grand Marshal for the Pepsi Firecracker will be Lois Herrington, the Assistant Attorney General of the United States. She will give the command, 'Gentlemen start your engines' just before 10 a.m. on July 4. Mrs. Herrington heads the Office of Justice Programs in the Department of Justice. One of the programs under her direction is the McGruff The Crime Dog campaign that has used several NASCAR stars as spokesmen in a national crime-awareness campaign.

Trivia Quiz

In honor of the upcoming "Summer Speed Weeks," we challenge your knowledge with this sports trivia quiz. If you can get more than 10 of these correct you're a contender for the the Busch Pole. Six to 10 correct makes you a middle of the pack runner. Less than six? Promoter's option.

1.) What was presented to U.S. President Ronald Reagan by Bobby Allison and Richard Petty after the '84 Firecracker?
2.) She sang "Stand by Your Man" to a famous visitor at the '84 Firecracker.
3.) What previous Daytona race did Greg Sacks' '85 Firecracker-winning Chevrolet capture?
4.) Four drivers have won Firecrackers in two successive years. Three are still active, who isn't?
5.) Who is the all-time Firecracker pole winner?
6.) How many times has he sat on the Firecracker pole?
7.) What make of car, not currently being used has the most Firecracker victories?
8.) Richard Petty has the most Firecracker starts, 25. But who has been in the most consecutive Firecrackers, 21?
9.) This driver totals four victories between the Firecracker and the SunBank 24.
10.) How many drivers have qualified at better than 200 mph for the Firecracker?
11.) In 1977, three woman competed in the Firecracker—a NASCAR first. Who were they?
12.) This former Firecracker winner is now a corporate jet pilot.
13.) Who was the Grand Marshal for Richard Petty's 200th career win, and said "Gentlemen Start Your Engines" from an airplane?
14.) When did the Firecracker become a 400-mile race and who won it that year?

See ANSWERS, page 9

Intramural Schedule

Table Tennis
Mohammed Sidiallu vs. Michael McLeod

Racquetball
Neil Duggan vs. Marty Vaughan
John Crisci vs. Ed Wurzbach

Tennis
John Walter vs. Robert San Gabriel
Adam Rose vs. Michael Barrentos

Softball
Outlaws vs. Delta Chi
Busch Boys vs. Tailhookers

'Aviation: 2026' garners $5000 award for student

A 17 year-old high school senior from Stuart, Florida predicts that within 40 years most families will own airplanes and that weekend flights from Miami to visit the grandparents in Seattle will be in "prominent use."

Marie Sue Hatton, a senior at Stuart's South Fork High School, says that the cockpit of the family plane will have the sophistication of a commercial airliner, and she foresees the merging of the space and aviation industries.

Miss Hatton's projections, along with observations on the development of integrated circuits, improvements in plastics and advancement in aerodynamic design, are contained in an essay entitled "Aviation in the Year 2026."

In return, Embry-Riddle Aeronautical University has awarded Miss Hatton a $5,000 Aviation Futurist Scholarship. The formal award will be presented Friday, June 6, at 8 p.m. at the South Fork High School gymnasium by Dr. John W. Williams, Jr., Executive Vice President of Academics at Embry-Riddle.

The competition was open to students enrolled in ERAU's International Campus and to all high school students who were accepted as freshmen at the University's Daytona Beach, Florida and Prescott, Arizona campuses.

Criteria for the scholarships at the Daytona Beach and Prescott campuses was a 3.0 or better high school grade point average, and submission of a 500-word typewritten essay on Aviation in the Year 2026.

Miss Hatton has a 3.98 GPA and has won numerous scholastic awards and honors. She is valedictorian of her class, has been on the Gold Honor Roll list for the past four years and placed second in her school's science fair.

"My desire for a career in aeronautical engineering is enhanced by my love for math and science, my two favorite courses of study," says Miss Hatton.

She is a member of the National Honor Society, the Civil Air Patrol, the Port Salerno Youth Organization, the Martin County Educational Association, the American Heart Association, the South Fork Band Boosters, and serves as president and treasurer of the South Fork Math Club. She has been a homecoming representative for the past two years and was a Miss America Co-ed Pageant State finalist. She has extensive training in karate and has served as a youth leader for the American Pistol and Rifle Association. She is currently working as a tutor in math, science and English at Stuart Academy.

Miss Hatton also received the Alison Mills Memorial Scholarship from Embry-Riddle earlier this year.

HARMAN (continued from page 1)

of Philadelphia.

Other positions held include Executive Director of the Management Center of the Greater Philadelphia Chamber of Commerce, and Director of the Resources Development for the National Trust for Historic Preservation in Washington.

Immediately following, Harman joined the offices of McManis Associates, also of Washington, as a Principal Associate. As a senior member of this international consulting firm, Harman provided counsel to nonprofit organizations and government agencies in program evaluation, research, strategic planning and fund raising operations.

Remaining in the consulting business, he formed his own firm, James Harman, Inc. of McLean, Va. The firm was designed to help nonprofit organizations solve problems in the vital interdependent areas of fund development and constituency relations.

Harman has served educational institutions, associations, societies, operating foundations and museums. He has also conducted management studies and prepared organizational plans. However, "the consulting business requires an incredible amount of travel and doesn't leave too much time to be home." Harman comments that "only half a dozen firms were in the Washington area," where he lived. He was approached by an executive search firm regarding the opening of Riddle and chose to accept.

Harman finds the job "a challenge" and looks forward to meeting the requirements and establishing some permanent, dynamic programs at the university. His position, Vice President of University Relations, involves the area of public relations, fund development (i.e. endowments, trusts) and alumni affairs. As Harman states; these areas are all in need of "growth and restructuring" and he already has plans to "reorganize when necessary and where organization hasn't existed before." He enjoys working for the university because of the "unique focus of the school in the areas of aviation and education."

As an indication of his work, an Alumni Workshop has been slated for June 25-27 where Harman intends to "tap into the needs of alumni and the resources they possess." He states that the "potential for an outstanding alumni group exists." The program will develop through "frequent communication to alumni and other important constituencies."

One of the major advantages to a strong alumni group is the financial rewards that can assist the university as a whole. Through constant communication about the university, its programs, students, alumni and faculty, Harman hopes to develop an "annual fund" that will result from contributions to the university.

The benefit, as Harman states, "is much greater than dollars." Contributions to the school may include a simple donation or gifts included in wills and trusts. The literature to alumni "will encourage these testimonial gifts" comments Harman.

Within the area of alumni programs, Mr Harman hopes to develop several alumni chapters throughout the United States. An interesting fact, as Mr. Harman notes, "is that of the 10,000 total alumni, 52 percent reside in six states." The result is that several high density areas are present where the potential for strong alumni involvement exists.

WILLIAMS (continued from page 1)

policies will allow for smoother operation of each campus.

Williams looks forward to increasing opportunities of personalized contact with students so that the university administration will know what the students believe to be the problems at the university, and so that a trust and confidence can again be rebuilt between the administration and students. He is concerned about the adverse relationship that has been shown between the administration and students, and he hopes that the move of the Executive Offices to the Daytona Beach Campus will allow for easier access to the administration by the students.

The need for increased facilities and activities for students has been recognized both by Williams and the administration, and he wishes to reassure the students that they will be seeing dramatic changes on campus in the near future.

With the possibility of increased facilities for athletics and activities for students here at ERAU, Williams believes that there will be an increase in student cohesiveness and camraaderie that will benefit the campus as a whole. Dr. Williams said, "I'm surprised about the amount of apathy on the campus and hope that with increased opportunities for the students, both on campus and in the community, there will be help in improving the overall morale of our students."

NOTICES

Attention August Graduates

The first meeting for all August Graduates will be held in the U.C. on Wednesday, June 18 and 8:00 p.m.

Graduation information will be reviewed and elections will be held for Senior Class President and Vice President. If you are unable to attend this meeting, contact the Student Activities Office.

Health and Counseling Center

June's Health and Counseling theme is Communication and Assertiveness. Come into the Health and Counseling Center in the UC to pick up handouts and see our displays.

Golf Club News

Memberships are still available for the ERAU Golf Club. Membership fee is $15 and includes green fees waiver at Pelican Bay South Course and full golf privileges. For more information, contact Richard Bryant, ext 1272, Scott Corrao, box 7192 or Doug Lampe, box 4178.

Prospective Graduates/Foreign Students

The Immigrations and Naturalization Service allows you to remain in the United States for 30 days after completion of your last class to effect your departure. If you are planning to pursue another B.S. degree or Masters degree at this or any other university in the U.S.A. you must apply to the INS not less than 15 or more than 60 days before you complete your program. Please come in and advise me of your plans immediately so that I, Carole A. Kessler, Foreign Student Services, can assist you.

Library Hours

The library will be closed on Saturday, June 28 and Sunday, June 29 and will resume regular hours on Monday, June 30

Final Examination Schedule

The following exams will be held in their regularly scheduled classroom unless other arrangements are made by the instructor.

CLASS TIME	EXAM DAY AND TIME
0810—0920	Tuesday 0800—1000
0930—1040	Wednesday 0800—1000
1050—1200	Tuesday 1030—1230
1210—1320	Wednesday 1030—1230
1330—1440	Tuesday 1300—1500
1450—1600	Wednesday 1300—1500
1610—1720	Tuesday 1530—1730

Those students who have exam conflicts or who are scheduled for more than three (3) exams on one (1) day must make special ar-

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Library Hours

The library will be closed on Saturday, June 28 and Sunday, June 29 and will resume regular hours on Monday, June 30.

The hours for the Fourth of July holiday will be as follows:

Thursday, July 3 0730-1800
Friday, July 4 Closed
Saturday, July 5 Regular hours

CLASS TIME | EXAM DAY AND TIME

0810—0920 Tuesday 0800—1000
0930—1040 Wednesday 0800—1000
1050—1200 Tuesday 1030—1230
1210—1320 Wednesday 1030—1230
1330—1440 Tuesday 1300—1500
1450—1600 Wednesday 1300—1500
1610—1720 Tuesday 1530—1730

Those students who have exam conflicts or who are scheduled for more than three (3) exams on one (1) day must make special arrangements with their instructors on an individual basis if they wish to reschedule ONE (1) of those exams. If students are unable to accomplish this on their own, they should contact the Department Chairman.

miscellaneous for sale

MTB SURFBOARD — New, with carry case and sock. $250. Call Ken 253-6944

COMMODORE 64 COMPUTER — 1541 disk drive, printer interface, RS-232 interface, C/PM cart, software. Must sell. Drop note in box 3541.

STEREO SYSTEM — Marantz 2252-B reciever (62 watts), Sony TC-K1A Tape Deck, Micro Seiki MB-15 Turntable, 2 Grafyn-SP speakers. I must sell for cheap. Asking only $300 for whole system! Call Jeff at 258-3849 after 4:00 p.m. of Box F214.

WINDSURFER — Onedesign. Excellent condition, ready to go. Sacrifice at $475. Call Mike at 788-5430

FURNITURE FOR SALE — Graduating senior must sell: twin size bed, $40; two bookcases, $15 each; desk, $30; 21 inch B&W TV, $35; and more. Everything in good condition and must go. Will consider reasonable offers. Call 258-8685, ask for Cheryl.

WANTED — CS-230 Tutor. Contact Steven, Box 4161.

SEXY FEMALE ferret desires male ferret for romantic encounters. Call 255-3952 or Box 8001.

REMINGTON 870 SHOTGUN with 30 inch barrel. Excellent condition. Plus 20 inch barrel with rifle sights. New $300. Call 707-9704.

25 INCH COLOR TV with dark brown cabinet. Very good shape. $270. Call 258-1329.

FREE SEX! - Now that I have your attention, please by my STEREO SYSTEM. It's worth over a thousand dollars, but since I'm graduating I'll sell it to you for $300 or best offer. It includes a Marantz 63 watt receiver, Micro-Seiki semi-auto turntable, Sony cassette deck, and two huge Grafyn-SP speakers. Call Jeff at 258-3849 after 4pm or Box F214.

DESK - 60 x 20 in. desk/dresser c. 30s. White with green/gold trim. Inlcudes mirror and chair. Only $201 Contact Pat at Box 7199.

KRAFT SEVEN CHANNEL RADIO control system with seven servos. $125. Contact Freddy 253-1182 or Box 4494.

HIDE-A-BED COUCH — Good condition. $75. Must sell. Call Mark 756-3561 after 5:00 p.m.

SINGLE BED with frame. $30. Call Eric 255-3613.

ENTERTAINMENT CENTER — Will hole TV, stereo, albums, VCR, etc. $150. Also have blue carpet for $2.00 per yard and blue and yellow drapes and curtains for best offer. Call 252-2702.

BELL MOTORCROSS HELMET — Quicksale, $30, will negotiate. Also, 2 Brand New Michelien Radial tires, size 13, $15 each. Contact at Box 4015 or call ext. 1100.

WATER BED — $300 new. Only used for one month, excellent condition. Only $200. Contact Drew at box 4005.

$100 REWARD for the identity of the person who hit my car, a blue 240Z with California tags, in the new condominos parking lot near the physical plant on June 9 between 9:00 a.m. and 1:00 a.m. Possibly a truck with high bumpers. Contact Eric 255-3613.

autos for sale

'79 280 ZX — Excellent mechanical condition, runs very good, gold color, no rust. $4800 (neg). Call 258-1329

'71 TOYOTA COROLLA — '81 engine, am/fm/eo mpx radio, a/c, new battery, new clutch, and other extras. Runs beautiful. Asking $700. Call 756-3034, ask for Coco.

'78 TOYOTA COROLLA — 5 spd, a/c, new tires, new paint, low mileage, good condition. Only $1300. Call 258 0939.

TURBO FUEGO — Silver, 5 spd, am/fm, maximum tint, 35 mpg, new Michelons. Sacrifice at $4,800 o.b.o. Consider a trade of equal value. Call Jeff 252-2702.

'64 PLYMOUTH VALIANT — Strong slant six, needs a radiator and body work, frame is solid and everything works. Best offer takes. Call 756-2587 after 5:00 p.m. or ext 1360 between 1300 and 1430 and ask for Bill.

'75 RED CHEVY NOVA — Newly rebuilt engine. Mechanical work done by Rick Martin. New tires, cassette stereo, good interior, black leather interior, excellent running condition. $1000 o.b.o. Call 257-3416 after 3:00 p.m.

'81 SPITFIRE — Convertible, very good condition, 4cycl, 4 spd, am/fm stereo. If interested please call 672-6312.

'82 HONDA CIVIC — Owned by Board of Trustees member. 9,000 miles, a/c, new paint. Was $5,200 new, now $4,700. Best offer considered. Call Jim or ext 1082 for more details.

'78 PONTIAC PHOENIX — Runs excellent, body good. $700 or will take first reasonable offer. Call Matt 255-4959.

cycles for sale

HONDA CB 350 — Excellent shape, $300 o.b.o. Must sell. Contact Paul Box 7912.

'75 KAWASAKI H2-750 — Very, very quick. Modified. $700. Call Ke- 253-6944

'82 SABRE 750 — $1400. Like new, garage kept, low mileage, new rubber. Call 253-5317

'85 MAXON X — Mint condition. If you want a cruiser that does an 11 second quarter mile, call Jeff at 252-2702 will sell for payoff or will consider trade.

rooms for rent

PRIVATE ROOM FOR RENT — Clean, furnished, quiet house, 1/4 mile from school. Prefer gentlemen, non-smoker, sober. All utilities included, private bath, private entrance, furnished with linen, kitchen use included, $180/month. Call evenings 258-5901.

TOWNHOUSE FOR RENT: 2 Bedrm, 2 1/2 bath, 2 floors. Deerwood Townhouse Complex. Brand new, 1 1/2 miles from school. $500/mo. 427-4108.

FOR RENT — master bedroom, kitchen, large bath, living room, pool and jacuzzi. $240 per month. Breakers Condominiums. Lease till April 1987. Call 253-5060 and ask for Dwayne or Monique.

NEW — 2 bed, 2 1/2 bath, townhouse at Deerwood Homes behind Volusia Mall. Large bedrooms, close to school, screened patio, central air, washer/dryer hookups, dishwasher, pool.$500 per month. Call evenings 427-4108.

ROOMATE NEEDED to take over lease for Summer B and Fall. Non-smoker and semi-quiet person preferred. Have your own bedroom and bath. Need your own furniture. 3 miles from school. Deposit required, 1/2 rent 1/2 utilities. Located in a very nice community. Call 761-0656 or write Box 7320.

FOR RENT — Furnished efficiency apt. within walking distance to school and shopping. Nice, quiet neighborhood. $300 per month including utilities. Call Rosa after 6:30 p.m. 253-3635.

personals

Garfield,
Haven't seen much of you this summer. I'd always like to see more of you. You still going to the beach?
Odie II

Yah,
'Tis so nice seeing you everyday. One of these days, hopefully, you'll let us show you just how much fun office supplies can be.
staple pullers.

Hi' sis
why haven't you come up to visit us? we're not as bad as big sis says...we're worse (which makes it better!)
the gang

L.
Why sure I'll visit you more often! Just don't try and run me over any more.
Speedsby

kid,
the last time we talked, you left me shackled. I'm patiently waiting for you to let me loose...so to speak.
pop

D.F.
Well I hope you win! I'll certainly be 'tickled' if you do.
Typist

L.
Perhaps our account is not yet balanced. Is there more renumeration in our future? You should be careful, I might be persuaded in my debt-collecting, and in other areas as well.
Elwood

PACO,
Happy birthday to you. Keep up the good work, and don't ever, ever refuse a free trip to Wet'n Wild again.
The Staff.

ACT
Watch out for those ditches.
the aviation universe

Cathy,
I just wanted to let you know that I am glad that we met and had a chance to expand our friendship into something very special. Thank you for being there.
RACO

Dorene,
This past week was the best with you here. We hope you had a great time here in the south. We'll miss you lots. See you in August. We love you
Mr. and Mrs. CSC III

QUIZ ANSWERS
(from page 7)

1.) Checkered Flag autographed by starting field.
2.) Tammy Wynette
3.) 1984 Daytona 500
4.) Firebell Roberts
5.) Cale Yarborough
6.) 7
7.) Mercury
8.) Buddy Baker
9.) A.J. Foyt
10.) Two
11.) Janet Guthrie, Lella Lombardi, Christine Beckers
12.) Sam McQuagg, 1986
13.) Ronald Reagan
14.) 1983, Firebell Roberts

Aerospace plane pushes technology to new heights

By Patrick W. McCarthy
Avion Staff Reporter

COCOA BEACH— The National Aerospace Plane project (NASP) offers the opportunity for the United States to continue to provide aerospace leadership into the twenty-first century, says Robert Williams, Director of the NASP project office.

Williams, speaking before the Twenty-third Space Congress recently held here, described the steps necessary to develop the hypersonic aircraft described as "The Orient Express."

The NASP project, leading out of a directive described by President Reagan during his 1986 State of the Union Address, will attempt to determine the technology drivers necessary to develop a vehicle capable of operating from conventional runways and achieving low-earth orbit.

According to Williams, the Pacific Rim will become the "economic centriod" for the twenty-first century. The Aerospace Plane will make rapid access to the Far East readily available, hence the name "Orient Express."

Williams explained the major questions facing NASP engineers revolve around the technological hurdles of developing an aircraft which pushes the "state-of-the-art" in several engineering fields.

"By the late 1980's, we need to know if we are ready to proceed with the development of the Aerospace Plane," said Williams. "We need to know if the technology will be ready when the time comes to design and develop hardware," he added.

Full reusability

One of the key aims of the Aerospace Plane program is to reduce the costs of orbiting payloads. To this end, designs being considered will emphasize full reusability, vehicle autonomy, and airline-like operations.

Elimination of pre-launch processing facilities and the reduction of the launch and flight operations infrastructure will serve to reduce costs.

Simplified logistics, similar to airline operations, is a key to further cost reductions, according to Williams. "We need to shift from space spectaculars to routine space operations." Vehicle maintenance will need to be more like aircraft maintenance than specialized spacecraft checkout.

Williams says a vehicle with many missions per day can reduce operations costs to a manageable level. "A vehicle that can fly four missions per day with home-based crews can have average operations costs similar to a 747," Williams said. "The productivity improvements will offer higher efficiency," he added.

According to Williams, the key technologies which will be the decidi[illegible] factor in the development of the NASP are in the areas of computational fluid dynamics (CFD) and structures and materials science.

Fluid dynamics studies

The Aerospace Plane project will take advantage of state-of-the-art technology in computational fluid dynamics. In the 1960's, when NASA and the U. S. Air Force were working on early test models of ramjets, they lacked the computer capabilities to perform the mathematical modeling of the complicated fluid dynamics taking place inside ramjet engines.

Recent developments in the field of supercomputers has led to the use of full mathematical equations (i.e. Navier-Stokes) for aerodynamics problems. Even so, computations on the Aerospace Plane's hypersonic ramjets could stretch the capabilities of today's most advanced computers. "Three-dimensional flow models on a scramjet (supersonic combustion ramjet) could take about *75 hours* on a Cray-4," said Williams.

Numerous other aerodynamic challenges face NASP engineers. For instance, compression ratios at high speeds could reach almost 200, causing unusual pitching moments and necessitating integrated control systems. And at the extremely high speeds at which the NASP will operate, severe thermal loads will be imposed on the vehicle's structure.

While most of the materials research involving the NASP is classified, NASA engineer Al Taylor outlined the areas of greatest interest to structures engineers.

One of the largest areas of research is investigating which materials will work best through the wide range of aerodynamic conditions the Aerospace Plane must endure. "Combinations of metallic alloys and composite materials will form the structure of the Aerospace Plane," said Taylor, "Among the composites being studied are metal-matrix, organic-matrix, ceramic-ceramic, and advanced carbon-carbon materials."

Analytical techniques

"We are using analytical techniques to do integrated thermal-structural analysis, structural optimization, and transient thermal optimization," said Taylor, "Computational fluid dynamics will be used to study the air loads and aeroservoelasticity."

Taylor said the biggest technical challenges in materials for the NASP are developing a durable thermal protection system which can withstand repeated hypersonic reentry into the atmosphere; developing the fabrication, coating, and bonding methods to build advanced structures from new materials; and integrating analytical techniques for verification of proper materials usage.

Williams described some of the interesting aspects of the Aerospace Plane.

Hydrogen has been chosen as the fuel, due to its high specific impulse to weight ratio. The design will be a blended engine/airframe structure— the entire underbody of the forward fuselage will act as part of the inlet for the scramjet engines located at the rear of the craft.

The plane may have both Air Turboramjet (ATR) and scramjet engines. The ATR will operate between Mach 2-4, while the scramjets will operate from above Mach 4 to near orbital velocity, when rocket engines take over for the final push into orbit.

While designs for the supersonic combustion ramjet engines (scramjets) are still far from complete, the basic configuration for these highly-advanced jets has been decided upon.

Scramjet operation

In the operation of the low-Mach ATR, a normal shockwave deflects off the inlet of the engine with subsonic flow behind the shockwave inside the engine. In the scramjet, the idea is to "swallow the shock", as Williams put it, and propagate oblique shockwaves inside the engine. This way, it becomes possible to have fully-supersonic flow through the engine. The flow is less than Mach 8 inside the engine at airspeeds of Mach 25.

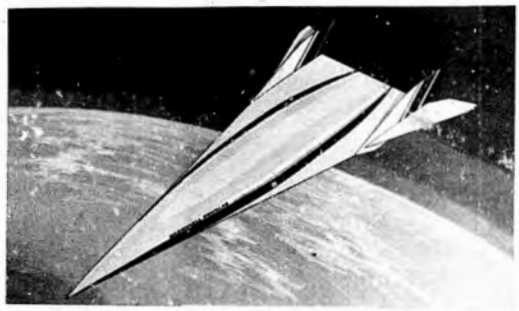
Temperatures of the engines would be controlled through a regenerative cooling process, using the gaseous injection of hydrogen fuel.

Some cooling of the structure would be accomplished through the use of sodium-cooled heat pipes running thorugh the nose of the vehicle.

The hydrogen fuel would also be used for the reaction control system once the vehicle has attained orbit.

Williams said the vehicle designs looked at so far "tend to look large due to their volume, but the weight is not really that great."

Williams estimates the NASP program will require about $600 million for the initial research, and about $2.5 billion to build and test fly the first research vehicle.



The National Aerospace Plane would be able to take off and land at conventional airport runways and fly directly into low-earth orbit. The vehicle could also ferry passengers between cities such as New York and Sydney, Australia, in under two hours.