

1-29-1992

## Avion 1992-01-29 (B)

Embry-Riddle Aeronautical University

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# SPACE TECHNOLOGY

Aeronautics .....	B4
Classifieds .....	B6
Clubs .....	B5
Comics .....	B6
Notices .....	B7
World View .....	B2

## First space shuttle mission of the year is successful

by Todd Hughes  
Staff Writer

STS-42 was launched into space last Wednesday at 9:52:33 a.m. after a delay of almost an hour due to static electricity. Once the astronauts reached space it was business as usual and they went on with the mission.

Discovery's astronauts were spun in a chair, strapped blindfolded onto a lurching sled and jolted by electrodes high above the Earth on Thursday in a study of space motion sickness.

The tests were conducted on the second day of the mission, typically a quiet time for space travelers.

More than half of all astronauts are nauseous and dizzy during their first few days in orbit.

"We're going to do whatever it takes to get the science," astronaut David Hilmers said before the flight.

"Maybe if someone does get ill because of the experiments, that will be good data."

Hilmers tried out the rotating chair as well as the sled, which slides along 40-inch rails and stimulates the gravity-sensing part of the inner ear. His leg was zapped with an electrical impulse every few seconds as the sled moved back and forth; each charge caused an involuntary twitch.

**The crew has been conducting experiments non-stop since Discovery blasted into a 187-mile-high orbit Wednesday.**

German physicist Ulf Merbold also took a turn on the sled. The men wore blindfolds and earplugs during the experiment to eliminate sound and visual cues normally used in movement and balance.

Researchers hope to learn more about space motion sickness by analyzing how the nervous system reacts in weightlessness. NASA usually does not reveal when, or if, astronauts become sickened during missions, regarding such medical information confidential.

Dr. Douglas Watt of McGill University in Montreal, a space motion sickness expert, said he was surprised to see the astronauts' legs twitching so hard.

"The influence of the inner ear on that reflex is stronger than it was on the ground. That's not what we anticipated at all," Watt said.

The crew had trouble with the rotating chair. A circuit breaker kept tripping at high speeds, and astronaut Norman Thagard spent part of the day trying to resolve the problem. His initial attempts were unsuccessful.

Between medical tests, the seven astronauts tended to a slew of organisms carried into orbit for research, including roundworms, fruit flies, stick insects, frog eggs and sperms, fetal mouse bones, slime mold, yeast, wheat and oat seedlings, lentil roots, bacteria and

billions of single cells.

The astronauts got a closer-than-expected look at the fruit flies. Some of the flies escaped from a cage, but were trapped in a glove box and removed by suction.

Astronaut Roberta Bondar, a Canadian neurologist, showed off some of the wheat seedlings - pale green stems a few inches high leaning in all directions.

The seedlings are being subjected to varying amounts of artificial gravity and light during the seven-day mission. They periodically are killed and preserved so researchers can analyze each phase of development.

Bondar later planted some oat seeds in soil so scientists can compare space-germinated seedlings to those germinated on the ground and then removed from the influence of gravity.

The crew has been conducting experiments non-stop since Discovery blasted into a 187-mile-high orbit Wednesday. The experiments - there are 42 primary ones - are sponsored by scientists around the world.

Virtually all the work is being done inside Spacelab, a 23-foot-long pressurized module in the cargo bay connected to the cabin by a 19-foot tunnel. The astronauts are splitting 12-hour work shifts during the mission, scheduled to end Thursday at Edwards Air Force Base in California. Discovery was supposed to land on Wednesday until shuttle managers decided to extend Mission



**Into the wild blue yonder...**

Space Shuttle Discovery lifts off of pad 39-A after an hour delay. The shuttle will stay one extra day in space to obtain further data for its scientific mission.

STS-42 one extra day.

They are taking turns wearing a Los Angeles Dodgers cap that belonged to astronaut Manley "Sonny" Carter Jr., who was supposed to be on the flight. Carter was killed last April in a commuter plane crash in Georgia while on NASA business. Hilmers replaced him aboard Discovery.

"I feel, personally, totally inadequate to step in his shoes, but feel wonderfully blessed that I've had the opportunity," Hilmers said before the mission. "I'll be trying my best."

There were a few light moments Thursday. NASA television caught Merbold in an embarrassing moment when his pants slipped

down during an experiment. The pants were down around his knees, and cameras showed him in white briefs with his back turned. Later in the day, Mission Control offered birthday greetings to William Readdy, whose 40th birthday was Friday. "You may be younger now through relativity," Mission Control joked.

## Space junk clutters many Earth orbits

by Joshua S. Mussal  
Space Technology Writer

Over the past 30 years, many rockets and spacecrafts have traveled into space. Unfortunately, with all of the spacecrafts orbiting the Earth, space is becoming a premium.

Zooming around in space are millions of pieces of trash. Parts from old spacecrafts, exploded rockets and dead satellites account for much of the large debris. There are also odd items such as a glove, a camera, a screwdriver and some screws inadvertently left behind by astronauts.

Most troubling are the countless small, unseen objects, including pieces of metal and Styrofoam and flecks of paint that are orbiting around in space at various altitudes and in every direction.

Concerns over the orbiting mess above Earth has prompted work on new debris-monitoring devices and a system that would warn astronauts of impending collisions with space junk.

Traveling at more than 35,000 kilometers per hour, a piece of metal smaller than a fingertip could slam into an object such as the Hubble Space Telescope or the future space station with the force of a 180 kg safe moving at more than 95 kilometers per hour.

The small fragments create hidden space mines that are a danger and hazard to navigation. Ironically, the large chunks of junk that could wipe out a space station are of less concern. They are tracked by the U.S. Space Command's space

surveillance network, which could give crews enough time to take evasive action.

The network currently keeps track of about 6,700 pieces of the largest litter, objects measuring at least 10 cm in diameter, about the size of a softball.

During two recent space shuttle missions, astronauts had to maneuver to a different orbit to avoid a potential collision with the orbiting space debris.

A small telescope, designed to detect and record aspirin size pieces of orbiting debris, may fly on the space shuttle as early as 1995. Equipped with infrared sensors, it could even single out objects when the shuttle is orbiting in the darkness of Earth's shadow.

The telescope may not be part of an eventual collision avoidance system, but it is anticipated to provide data on small debris and the ability of sensors to detect it. The goal is to devise a system that would give astronauts at least a minute or two's notice so that they could battlen hatchets, close bulkhead doors, vent pressurized vessels and brace themselves for impact.

Space Station Freedom with a surface area of more than 2,500 square meters would be especially vulnerable.

The first debris damage to a piloted spacecraft was recorded in 1983, when the Space Shuttle Challenger was hit by a piece of paint that gouged a crater in one of its windows, which had to be replaced after the mission.



**Not again...**

The Long Duration Exposure Facility was recovered in January 1990 with only minor damage due to collisions in received by space junk while in orbit.

Using two powerful ground-based radars and a new telescope, NASA hopes to come up with a more accurate inventory of the number and location of small pieces of space junk.

The telescope will be able to detect "stealth debris," such as

plastic and Styrofoam, which do not reflect well on radar.

Scientists at the Johnson Space Center predict that if the amount of new space debris is not limited or that present debris is not removed, large objects will begin to collide, creating an even bigger mess.

## Challenger debris still being found in Florida

by Gregory Rezendes  
Space Technology Editor

Almost every month, Kennedy Space Center gets a call from people who believe they may have found a piece of Challenger.

Six years after the nation's worst space disaster, the searching and sorting of debris go on. Most of what's sorted is ocean junk, but occasionally, the real thing turns up.

Early last year, fishermen found a small tank and a metal fragment a few feet long in the Atlantic Ocean off Cape Canaveral. The articles are locked in a holding area, awaiting burial in the abandoned missile silos that hold a quarter-million pounds of Challenger remains.

"I think it's about over. I don't

think we're going to see much more," said Elliot Kicklighter, a National Aeronautics and Space Administration official in charge of the crypt.

"It hasn't been a very busy job, thank goodness."

The two 90-foot-deep silos have been opened only three times since the bulk of the shuttle was buried in 1987. Ten-ton concrete caps cover the silos, which are surrounded by a chain-link fence at the Cape Canaveral Air Force Station.

Only hardware is contained in the silos; all 5,000 pieces are cataloged.

The remains of the seven astronauts killed in the explosion and their personal effects have long since been turned over to the families.

## Bush calls for space spending increases

WASHINGTON (AP) - President Bush on Friday called for robotic missions to pave the way for man's return to the moon and urged a hefty spending increase to develop the \$30 billion Space Station Freedom. He said it is "America's destiny" to keep sending men into space.

"We must make a new public investment in our space program now, and I'm asking Americans to make a farsighted commitment, one that looks dozens of years and millions of miles beyond the recession and the other things that preoccupy us today," Bush said.

He spoke to the Young Astronauts' Council, a group of school children interested in space exploration.

Afterward he and some of the children talked by telephone to the crew of the Space Shuttle Discovery in orbit.

Previewing the space portion of the 1993 budget package he will submit next week, Bush called for funding of two robotic missions to fly over the lunar surface and map the moon in preparation for the landing of other robots and eventually men.

The last manned lunar landing was in 1972.

Bush did not specify a cost for the two robot missions, but administration officials have said they will be under \$100 million each.

The missions, for which the administration is seeking money for the first time, are considered crucial to complete the mapping of the moon. They could be used to decide the eventual site of a moon station and also to explore the lunar poles and check for the possibility of any water or frozen subsoil ice.

The president also called for an 11 percent increase, to \$2.25 billion, for the space station project, which survived congressional attempts to eliminate all money last year.

Recalling that fight, Bush said, "We won because the American people agree that Space Station Freedom is not only a very valuable scientific project but is essential to our destiny as a pioneering nation in space."

"America's destiny must include manned exploration. We need to send man beyond earth's orbits in other space projects in the new budget," Bush stated.

Bush asked Congress for \$250 million toward a new multibillion-dollar launch system and 580 million to develop the National Aerospace Plane, a hypersonic plane that can fly directly from Earth to space without a rocket launch.

The money Bush is seeking in NASA's budget for the hypersonic plane is in addition to a Defense Department share that would exceed \$200 million, an administration official said.

Under Bush's 1993 budget proposal the National Aeronautics and Space Administration's \$14.3 billion budget will go up more than the 3 percent inflation rate, administration officials said. But the space agency was not slated to enjoy the hefty budget increases of years past.

"Pushing forward into space already is helping us here and now," Bush said. He said U.S. commercial space programs grew by 14 percent last year.

Focusing on the economic argument, he said the country exports \$1 billion a year in commercial space goods and

services. "Those exports alone translate into jobs for 20,000 Americans," he said.

The Space Station is at the top of Bush's space priority list

as an early step toward returning men to the moon and sending astronauts on to Mars.

The president's proposal would keep the station on a timetable that calls for astronauts to work in it by 1997 and for it to be permanently occupied by 2000.

The project has split the scientific community, with critics saying the space station is too expensive for the value it will give to scientific research. NASA considers the space station the core of its planned research for the next several decades.

Bush's budget proposal drew immediate criticism from a congressional space station opponent, Rep. Dick Zimmer, R-N.J.

He said a less expensive version could be built.

"NASA wants full funding of the space station at any cost even if it means killing other programs," said Zimmer, a member of the House Space subcommittee.



**In memory...**

Tuesday, January 28 marked the sixth anniversary of the Space Shuttle Challenger disaster. Crew members from STS-51-L were Michael Smith, Dick Scobee, Ronald McNair, Ellison Onizuka, Christa McAuliffe, Gregory Jarvis and Judith Resnik.



## Unique career opportunity

## ICAO offers on-the-job international exposure

by Taras John Stratechuk  
Special to the Avion

What do an Irish airline captain, the late Indian Prime Minister Rajiv Gandhi, a remote airfield in the Indo-Gangetic plain, millions of dollars in sophisticated electronics equipment, prehistoric agricultural techniques and the United Nations Headquarters in New Delhi all have in common?

They are part of the little known world of "International Aviation Technology Transfer" - a fancy term used by the International Civil Aviation Organization Technical Assistance Bureau (ICAO TAB) in their dealings with developing nations. These are multi-cultured aviation applications in their truest sense, and you won't find them in any university catalogue. Living among the not-so-fortunate, the sometimes fortunate, and the always privileged, here is my brief account of life outside of Riddle procedures and the FAA regulations.

It is a brief glimpse into a realm of aviation which few people have ever experienced, or would ever want to experience.

## A project is born

International assistance in the form of aviation is rendered to "developing" countries primarily by allocating funds from the United Nations System of Member Nations.

In terms of global politics, this is known as "Technology sharing." Most of the money comes from the already developed world and is allocated to countries based on GNP and Per Capita Income.

Each country knows how many millions of dollars it will be getting for the next four years or so and must find a way in which to best utilize this money. It must decide for itself how much will go into improving agriculture, health and medical facilities, or, as is often the case, aviation. This is where ICAO TAB comes in.

ICAO is set up with Headquarters in Montreal and has vast regional networks all over the world. India falls under the Asia and Pacific region which has its own headquarters in Bangkok, Thailand.

ICAO sends fact-finding teams to countries all over the world in order to generate business for its Technical Assistance Bureau. ICAO visits airfields, training centers, maintenance operations and consults with government officials on the potentials of a Technical Assistance "Project." This is usually a fairly hard-sell affair since in-country competition for the U.N. funds is extremely vigorous and politics always plays a major role.

In 1986, one such fact-finding team visited India and a project proposal was conceived which would allow India to strengthen its civil aviation sector through the successful upgrading and improving of a major airline pilot training academy. The project was to be named IND-89-101.

Little did I know back then that three years into the future, in 1989, I would be flying to India to be the one in charge of implementing (fielding) this project for ICAO. The academy, IGRUA (Indira Gandhi Rashtriya Uran Akademi), would be located at the site of an abandoned airstrip used by the British and American forces during the WW II

campaign into Burma. It would be located in one of the most remote, overpopulated and economically depressed provinces in India (Uttar Pradesh) approximately 300 miles southeast of the capital, new Delhi, and close to the little town of Farsaiganj ("Lazy village"). Details for the project formulation were to be dealt with by a private consultant who ultimately put the whole thing on paper according to strict ICAO/UN guidelines.

This consultant happened to be a likeable Irish airline captain whom I met while in London on my way to New Delhi. Tremendous effort and extensive research is required to put together an effective ICAO Project

...upgrading and improving of a major airline pilot training academy. The project was to be named...

Document. It is an art in itself and may take several years to get done. Once the project is on paper (some can get to be the size of a phone book), ICAO becomes the "Implementing Agency" and everything reaches a more formalized stage. Deadlines are set and equipment procurement, along with employee recruiting processes, begin at headquarters in Montreal Canada.

A highly complex and efficient operation is mobilized. Bids for equipment and contracted services are sent out and acted upon. It is a system where everything has its rules and regulations, a system which is manned and operated by a truly international staff where Germans, Britons, Russians, French, all co-exist under one roof.

## Technology transfer is a shared effort

ICAO is extremely well tuned to the sensitivities of their host countries. Developing countries rarely like to be called "backward," nor do they like a wise guy who arrives talking about how much better things are in England or in the United States. All personnel going on assignments in the field are screened and briefed to insure that above all a high degree of tactfulness and diplomacy is always maintained.

A project consists of three basic elements: (1) Personnel - in the form of experts, advisors and consultants; (2) Equipment - in the form of simulators, training aids, avionics and maintenance; (3) Fellowships - such as Indian nationals going to developed countries for training. All three components must be maintained in a certain ratio for the project to be valid and useful. In other words, a project can't be designed with 90 percent of the money going only to equipment, even though many countries would prefer it that way.

All personnel, including the one in charge of the project, are assigned national "counterparts." My counterpart, the Director of the academy, also happened to be a friend of the former (later assassinated) Prime Minister Rajiv Gandhi, an extremely influential person to have known in India.

Both had worked together as pilots for Indian Airlines. When Mr. Gandhi later became Prime Minister of India, a naturally-expected appointment was made.

Counterparts are supposed to be people you work "with," not people who work for you. More often, in order to maintain harmonious relations, it turns out that they become people you pretend to work "for."

## India and its people

Going to India was as much a part of an adventure for me as it was a challenge. A leave of absence was granted by Embry-Riddle with a blessing from my bosses who probably thought I was crazy. I had told them I needed a change of pace from the routine of the Flight Department, but I sure wasn't counting on anything this radical.

Stepping off the plane at New Delhi one is immediately aware that this is a place like no other. There is an overwhelming feeling that life as we know it in the United States has come to a rapid end.

The air is filled with strange scents and there is strange activity going on everywhere. Historian Michael Wood once described it quite aptly: "India is a country governed by matters of the soul."

This is evident in everything one sees in India, from the elaborate wedding rituals of a Brahmin to the simple morning "puja" (prayer) of a peasant in the countryside. Indians are extremely tradition-bound, and one can't help but love them for it.

It brings a peaceful order in a country which has a population three times that of the United States yet is only one-third the size. Indians like to remind us of the chaos which would ensue if we tried to put that many hyper, stress-laden Americans in a land the size of Texas.

It is often said that India is the land of contrast. Nowhere is this truer than in the world of aviation. At the Indira Gandhi Rashtriya Uran Akademi (IGRUA) our two King Air C90-A turboprop airplanes were equipped with the latest VLF/Omega-FMS navigational systems.

We had the latest in full axis motion simulators by Rediffusion



ERAU Professor John Stratechuk is back from India...

"The most interesting experience I've had throughout my career," John Stratechuk was the Project Coordinator/Flight Standards Advisor for ICAO in India.

as they accuse each other of taking part in the latest national scandal.

Efficient railroad, postal and communications systems are in place from pre-partition days, and the vestiges of the British Empire can be seen even in the most remote villages.

The number-one problem which plagues India is the tremendously high birth-rate in the face of existing over-population. Another problem is the lingering remnants of the caste system.

In general, I found the Indian people to be highly resourceful, well-mannered and very polite to strangers. The poorer people's calm resignation to their fate is astonishing from a Westerner's perspective.

There is no cardiovascular disease in India and most people are gracefully slim and well-proportioned. Indians possess an inner beauty which is mirrored in the Hindu practice of meditation and yoga.

Ancient tribes of Northern Europeans migrated into India several thousand years ago and intermarried with the existing aborigines,

Government. Most of my correspondence involved countless telexes and faxes between Montreal and the UN office in New Delhi.

This correspondence had to also be transported to and from our remote location via the academy King Air or single-engine TB-20 airplane. Telephone lines were totally unreliable in this part of the country, and overseas mail always took a few weeks.

Equipment came to the project site by overland lorry (truck) after first being received and cleared at UN headquarters in New Delhi. A sea of paper-work accompanied every single item arriving at the project site, since everything had to be tracked by four different offices. The arrival and departure of all project personnel had to be planned and an array of reports had to be prepared for all the parties concerned.

As Flight Standards Advisor (the other half of my job title), my work involved suggestions for improving and upgrading their training activities. Recruits from all over India came to the academy in order to complete roughly nine months of training and then move on to Air India (Boeing 747s) or Indian Airlines (Airbus-300s/320s/Boeing 737s).

We also did helicopter training in one small Robinson piston helicopter which sometimes barely got off the ground in the extreme heat of North-Central India. These helicopter graduates would then end up with the well-organized national oil-rig helicopter fleet called Pawen-Hans.

In conjunction with counterparts, my work involved the re-writing of syllabi and the introduction of many management concepts and procedures which have worked so well for us in the past here at Embry-Riddle. We primarily focused on conduct of valid phase-checks and meaningful standardization practices. Enhancing safety was another major concern, and an Accident Investigation /Operational Safety Plan was introduced.

The ground training classes were enhanced with wind-tunnel equipment and a complex interactive computer/video based training system was introduced to teach King Air and Boeing 737 systems. Several touch-panel procedure trainers and large quantities of audio-visual/library reference material also went into the project.

Approximately six months into the project a Tripartite Review (UN,

ICAO, Indian Govt.) was held. This standard formal event took place in the Ministry of Economic Affairs in New Delhi and involved the preparation of an extensive report which under UN regulations remains confidential to this day. Changes to the original plan were made, and key items were discussed.

No ICAO project ever gets implemented exactly the way it was originally envisioned. Ours was no exception, especially since almost four years had gone by between the start of planning and the actual implementation.

The next six months in the field saw more work and more adventures. The Indian monsoons stopped all training for more than a month, and I took some time off to visit Calcutta.

I also visited the ancient city of Benares and the Taj Mahal at Agra. I embarked on a twenty-four-hour train ride to Calcutta against the advice of friends and colleagues. I saw the slums and I saw Mother

Teresa's place.

I was fortunate to be able to travel with friends I met at the academy who showed me India the way it should be seen: from the back of a rickshaw, and not from an air-conditioned bus.

## Going home

The project ended after a year with a visit to the ICAO Regional Headquarters in Bangkok, Thailand. There, I was able to take a week's vacation before submitting my final report. Then it would be on to Montreal for a week of debriefing before flying back to Florida.

Bangkok is modern and cosmopolitan compared to anything one ever sees in India. That's because Thailand doesn't exercise the severe trade restrictions India does.

I had a great time in Bangkok and I sensed that life as I know it before I stepped off the plane in Delhi nearly one year ago was soon going to return. Later, somewhere over the Pacific on my way to Vancouver, I would think about the things I would miss about India.

During my last six months at IGRUA, after everyone got to know each other real well at the academy, not a day had gone by when a healthy political or world-affairs discussion did not take place over dinner (we all ate in a military-style mess hall together with the students). We didn't always know what we were talking about, but it was always lively and we always laughed.

Indians love political discussion and humor. Many hours were spent during long and lazy after-dinner walks with family, friends and neighbors discussing every imaginable subject under the sun (another pleasant Indian tradition). And of course, many hours were spent discussing the future of the Academy.

India had predicted a shortage of well-trained pilots in the next ten years and the Gandhi regime of 1986 sought to solve this problem by building IGRUA. Our mission was to help India obtain the "well-trained" pilots they desired and deserved. For the most part we did this with the greatest of friendship and camaraderie.

Life-long acquaintances were also made, customs were learned and addresses were exchanged. With my impending departure it was not as clear anymore who benefited more from the exchange, who gave and who gained knowledge in the process. Would it be appropriate to get a measure on regaining lost virtues like serenity, tolerance and patience... virtues which the West has almost forgotten?

"Shared Experiences in Aviation" would have been a more suitable name to call my extraordinary mission. Shared experiences which in India are all part of the never-ending cycle of birth, life, death and rebirth. How amusing that we in the West should have in the end called our project a mere cut-and-dried "Technology Transfer -IND-89-101."

Taras (John) Stratechuk is an Associate Professor of Flight Technology at Embry-Riddle. He was born in Austria, grew up in Argentina and has later lived in New York. He has a B.S. and a Master in Aeronautical Science from ERAU. He learned to fly when he was a Drill Sergeant with the US Army. He has logged over 9,000 hours in twenty years. He speaks fluent Spanish and German. He is involved with the Cockpit Resource Management course as the Aircraft Procedures Coordinator for our most sophisticated, unique T242 simulator.



A moment of pause...

John Stratechuk and his very privileged students have taught a lot to each other.

thus giving the Indians their Caucasian features. It is not uncommon in the countryside to find a very dark-skinned man or woman with hauntingly piercing blue eyes.

## Implementing the project

Getting the project going was no easy task. First, high diplomacy had to be used in order to convince staff and employees that our team was not there to disrupt their traditional lifestyle. Aviation in India is basically still managed by the same rules and regulations which existed during the British colonial days of 1947.

Surprisingly, it still works quite

well. Many Indians have heard of the advances in civil aviation in the West, but are intimidated by the complexities of a system which is different from theirs. Besides, a US-type regulatory system would never work.

The vast technological base needed to support it just doesn't exist. India's technological base is people, not so much machines.

So many in India are unemployed that job streamlining as we know it is a touchy and controversial subject. More often than not, efficiency is rightfully sacrificed in order to decrease unemployment and relieve hunger.

Our project thus concentrated mostly on introducing contemporary international training standards to their already existing program.

As Project Coordinator/Flight Standards Advisor, my job was to coordinate equipment, personnel, fellowships, etc., between the United Nations Headquarters in New Delhi, ICAO headquarters in Montreal, and the various offices of the Indian

... "untouchables" eat their evening meal meters away from a major taxiway while 747's and L-1011's thunder off towards distant lands...



The culture of India...

The culture of India is evident in this photo, where Indians are involved with their normal, everyday habits and routines.



## Avion congratulates international students

by Sean Le Douarin  
World View Editor

The third edition of the nationwide merit publication, Who's Who Among International Students in American Universities & College, has just been completed. Eleven outstanding ERAU international students attending have been selected on the basis of sound academic and high personal achievements. The Avion is willing to congratulate all of them; Anna C. Ceberio, Ismail Chowdhury, Isam M. Farhan, Florian G. Jentsch, Yves P. Koning, Vandana Lall, Vivek Lall, Jen Wooi Loo, John J. Osei, Sunil K. Patel, Tanes Prasertphon.

## French diver jumps twelve thousand years into the past

by Philippe Le Scao  
World View Reporter

At the end of a narrow passage, 120 feet under sea level, a scuba diver suddenly tripped 12,000 years into the past. On the wall of a cave were drawings of bulls, horses and goats. A high place of magdalenian culture.

Sunday, December 1, 1991, three scuba divers had been reported missing after diving in front of the shore. During the difficult search of the presumed dead, a professional scuba diver, Henri Cosquer, finally discovered the bodies in a small passage. 450 feet long, this passage ends in a huge underground room above sea level, where he found charcoal paints of animals and mutilated hands.

This is Lascaux protected by the sea. The way in is situated below "les Calanques de Cassis," on the Côte d'Azur. Twelve thousand years ago, the access of the cave was above sea level.

This discovery takes us in a 10,000 years jump prior to all knowledge we had about the southern European culture. The oldest paintings known were 2,000 years before Christ.

The cave now has the name of the one who found it, Henri Cosquer; the access is now closed to avoid any vandalism and is qualified as "international level of importance" with the archaeologists. Specialists believe that it will reveal major data about the prehistoric age.

## Europe has signs of new perspectives

by Sean Le Douarin  
World View Editor

The fall of the Berlin Wall, and the consequent collapse of the eastern block structure and political situation, have been some of the most important news and international issues for the last decade. Countries such as Cuba, Albania and Vietnam are being strongly subjected to give consideration to those changes. It is now considered that China is the only socialist country left with a rigid and high potential of possible survival to those changes. Meanwhile, the reconfiguration of the political map has already given Europe signs of extensive new perspectives for the future, most dramatically since the German reunification.

As soon as the Berlin Wall fell, it has been clear that an exceptional set of advantages would logically follow for Europe. In terms of economics, the very first one was the liberation of the tremendous resources available in the Soviet Union and its former satellites. Even if most of those are still organized by remains of the past systems, they are all now logically set to be considered as available on the international market.

For example, one of the very first

decisions made by the new government in Czechoslovakia was to restore their right to dispose of their natural and agricultural resources. Human resources in the same countries are also now considered in terms of effective and efficient management. Unemployment is now recognized, and handled as well as the former typically socialist "mis-employment."

Again, the best examples can be found in Germany. There has been an actual phenomena of carrion over the former East Germany. The most powerful West German corporations have properly rushed their specialists to buy the most interesting and profitable of the public factories.

**...the EEC could even severely threaten the United States world economical leadership,...**

Groups like MBB (Aviation, Weapons, Space Technology...) or Volkswagen-Audi have pursued to immediately secure the best technicians in

their fields and the most updated production sites.

The Luftwaffe, the West German Air Force, has been more than pleased to discover the importance of its gain in overtaking its former deadly archenemy. Moreover, the

present German arsenal is now almost senseless and much could be sold for billions of US dollars. In the same pattern, since the eventuality of a major conflict is decreasing, large economies should be made in European countries' defense budgets.

Last but not least, the European Economic Community can be expected to largely benefit from all the new dispositions of its neighbor countries or states such as Poland, Czechoslovakia, Romania, Lithuania, Yugoslavia or even the Ukraine.

All factors of capital are to be considerably increased and improved, even if those countries don't join the European Economic Community, because they will still be under its influence.

The new political aspect of the European resources is probably the most tell-tale factor in the perspective of the final results of the breakdown of the "Soviet empire." If all factors are handled correctly, the EEC could even severely threaten

the United States world economical leadership, and most probably give a very hard time to the Japanese expansion.

But the eventual alliance or gathering of the EEC with the Soviet Union, whatever aspect the latter could take would definitely mean the most ultimate perspective of prosperity for Europe. It would build-up the world most unique economic potential.

The possible European reality also involves some drawbacks and problems. Unemployment is often inevitable; it has reached an unexpected, or rather unannounced, expected level in the former East Germany. Many standardizations have to be carried out in the previous Soviet satellites.

There are also ethnic issues, oppressed under the socialist power, which are now clearly expressed. The civil war in Yugoslavia is probably the best example of these issues.

Hopefully, in a view of global perspectives, most of these problems should only occur and be solved in the short run.

Therefore, we can consider the recent political evolutions in Europe as the opening of most likely excellent economic long range perspectives.

**... and most probably give a very hard time to the Japanese, expansion.**

## Flight recorders provide nothing to warrant grounding A320

PARIS (AP) A tape of cockpit conversations aboard the Airbus A320 whose crash killed 87 people provided nothing to warrant grounding the computer-guided planes, the top French aviation official said Wednesday.

One of two flight recorders aboard the plane was badly burned when the jetliner crashed Monday night, but most of the data it would have contained can be retrieved from separate recorders, said the official, Pierre-Henri Gourgeon.

An analysis of a second flight recorder, which taped conversations of the cabin crew, "has not raised any evidence of incidents aboard the

airplane," he said.

Nine people in the tail section survived the crash and freezing cold on Mont Sainte-Odile, a 2,500-foot mountain near the German border. The survivors included a flight attendant, a 71-year-old man and a 13-month-old girl and her mother.

The plane, put into service in December 1988, had no record of mechanical trouble in 6,312 hours of flying time. It had been checked earlier Monday, the airline said.

The pilot, Christian Hecquet, 42, had flown for more than 9,000 hours, Air Inter President Jean-Cyril Spinetta said. It was not known if Hecquet was among the survivors.

Flight IT-5148, which left Lyon at 6:30 p.m., was carrying 90 passengers and a crew of six, Air Inter said.

The Airbus A320, produced by the European aviation consortium Airbus Industrie, is a twin-turboprop plane, designed for short- or medium-range flights. It

carries from 130 to 179 passengers.

The two-engine A320 is the world's only aircraft in which all flight commands are controlled by computers. Some pilots contend the computer system reduces their control in emergencies.

Airbus, partly subsidized by the French government, says the controls make the plane safer and easier to fly.

Officials have refused to speculate on the cause of the crash pending their investigation. It was the third A320 to crash since the aircraft began service in April 1988. Three passengers were killed when one crashed into a forest in June 1988

while executing a low pass during an air show at Habsheim, France.

In February 1990, a 3-month-old A320 crashed while preparing for landing in Bangalore, India, killing 92 people.

Survivors said the plane plunged without warning and began plowing into trees.

While investigators sought clues at the crash site, families filed through a village chapel Wednesday to identify the remains of those killed on the Air Inter jet.

The two previous A320 crashes, which killed a total of 95 people, were blamed on pilot error by official investigators.

But some aviation officials suggested computer malfunctions might have been involved.

Gourgeon said there was no reason at this time to restrict A320 flights. Airbus says it has delivered 251 of the short to medium-range aircraft to 30 airlines around the world.

**Survivors said the plane plunged without warning and began plowing into trees...**

## Safe Environment

by the Aura Guru



## Wonk

by Gregory Breault



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Tanker Trainer...

The T-1A will replace the T-38 to train Air Force tanker and transport pilots.

## First Jayhawk delivered

by David Fekke  
Aeronautica Editor

Beechcraft introduced its first T-1A trainer aircraft to the United States Air Force in a Ceremony on January 17. Ernest Hall, a sheetmetal assembler for Beechcraft, gave the keys of the light jet over to Lt. Gen Joseph Ashy, commander of the Air Training Command.

The T-1A, or Jayhawk, aircraft is a derivative of the Beechjet 400A corporate aircraft. The design was originally from the Japanese company Mitsubishi.

The Jayhawk is powered by two Pratt & Whitney JT15D-5 engines. The two engines produce 2900 pounds of thrust each, allowing the aircraft to travel at speeds as high as 468 knots.

The differences between the 400A and the Jayhawk include cabin mounted avionics, increased air conditioning, a single point refueling system, and increased resistance to bird strike damage in the Jayhawk. The Jayhawk has a service ceiling of 41 000 feet.

So far the Air force has orders for 77 of the T-1A's with a funded contract value of \$348.3 million. This is good for the beleaguered Beechcraft, who recently lost a product liability case worth \$56 million, half of their annual income.

Military contracts are becoming increasingly popular with general

aviation manufacturers, such as Beechcraft and Mooney, who have found the government a healthy customer.

Beechcraft currently has 1000 of their 10 900 employees working on all aspects of the T-1A program. Beechcraft is no stranger to the military market of training aircraft. Beechcraft built the AT-10 for the Army Air Corp to use for multi-engine training. The popular T-34 trainer is still a primary trainer for the Navy's training program.

The Jayhawk is part of the Air Force's new training program, otherwise known as the McDonnell Douglas Training System (or MDTs). With this program there will be two different training programs, one for training transport and tanker pilots and one for fighter and bomber pilots. The Jayhawk will be used for training tanker and transport pilot or T-1A TS.

With MDTs, much of the training will be done in ground based training equipment and computers for teaching checklists and crew techniques. The MDTs program will also include simulators built by Quintron Corp.

The T-1A TS goal will be for 180 aircraft and 11 simulators to be located at five Air Force bases around the country. Reese AFB will be the first site for the T-1A TS program in January 1993.

## WW II aircraft invade Daytona Beach

B-17 and B-24 survived to fly despite large attrition rates after war

by Bryan Gross  
Aeronautica writer

It's hard to miss planes like the B-17 and the B-24 doing a flyby. Unlike the normal flow of cadets, 172s and Crusaders in the pattern, these old World War II bombers tend to draw a crowd. The airplanes are owned by the Bob Collings Foundation, which flies them to various sites throughout the country. Their purpose is to allow the different generations to learn what these aircraft are all about.

This non-profit organization is supported by the donations it receives. The total cost to run these planes is about \$2000 per hour.

The pilots that flew the WWII bombers into Daytona Beach were Joe Coleman in the B-24 and Art McKinley in the B-17. Talking to McKinley, who has about 10 000 hours crop dusting plus an additional 18 000 hours of corporate flying, he believes that, "We'd all be talking Japanese if we didn't have these bombers." McKinley was only 16 at the end of WWII, but flew Wildcats in the Korean Conflict.

The Boeing B-17 flown presently by the foundation was of the 1930s design which evolved into the B-17G. It is powered by four Pratt and Whitney engines with an exhaust turbocharger that allowed the aircraft to have a total of 4800 hp. A 7-9 man crew was used in bombing raids over England, Italy and the Pacific. About 13,000 B-17s were made. The top secret Norton bomb

site was used in the lead aircraft to allow for very precise bomb drops.

The Bob Collings Foundation has the only flying B-24 left. It was found in the jungles of India and restored to flying condition. 18 000 bombers were made in two plants in the United States.

Missions were flown in 12 aircraft squadrons at 25 000 to 30 000 feet MSL (with no heaters) in tight formations. These tight formations,

along with the gunners on board, were the only means of protection from enemy fighters. With the development of the P-51, the "knock down" fighters became totally ineffective.

The attrition rate was so bad, at first because of the Messerschmidt fighters and the anti-aircraft artillery. Crews were allowed to go home if they completed 25 missions. The United States lost as many as

100 aircraft in daylight missions. The American bombers were the only ones that would go on these extremely dangerous daytime raids. This cost many U.S. servicemen their lives. The B-17's exhaust trails left a perfect trail to be followed by enemy aircraft. But the persistence of the bombers helped to wear down the enemy, giving the allies many important victories to help them win the war.



Bombers away...

WWII aircraft are still flying due to the valiant efforts of few. After the end of the war, aircraft like the one above were scrapped for their metal.

## Confederate Air Force keeps WW II aircraft flying

by Bryan Gross  
Aeronautica writer

It all started in 1960, when a group of cropdusters, mostly ex-fighter pilots, were doing some hangar flying. The topic of discussion was which one of their fighters was the faster, the more maneuverable and the best overall aircraft flown in World War II. To try to find a solution to the argument, they decided to go out and buy these airplanes and find out for themselves which one was the best.

The first planes that the group

acquired were a P-40, a Corsair and a P8F Bearcat. At the time, these planes cost about \$1200-\$2000 from surplus dealers who were just melting them down.

They enjoyed refurbishing the planes so much they formed a group to collect all types of aircraft that contributed to the efforts in WWII. This group became the Confederate Air Force.

The CAF's goal was to keep the planes in running condition, not make them static displays. This led to the group, in

1965, to be invited to Kingsville Naval Air Station to put on a show.

This show was soon turned into a pageant with WWII as its script. The Air Force simulates everything from the Japanese attack on Pearl Harbor to

the dropping of the atomic bombs by B-29s.

They turned AT-6s into Mitsubishi zeros that dogfight with the American fighters. Live dynamite was used to liven up the show along with a speaker system that describes the action. The show is still performed today.

The Confederate Air Force is the 11th largest active Air Force in the world. There are 140 planes actively flying. Some are the last of their kind, making the show a must see for old aircraft buffs.

**The Confederate Air Force is the 11th largest active Air Force in the world...**

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## Delta Chi

by Alex Furlong  
Clubs Writer

Well men, we've had many interesting occurrences over the past few weeks, so I hope to present a flash news summary at a third grade reading level so that everyone can understand it.

The rush parties are going well, with a live band appearing last Friday and Saturday nights. To say the least, a good time was had by all. On that note, Rich, did that tour that you gave go well? We still can't understand how all of that dirt got on your back.

The Camel Jockey has finally been successful in mounting and exploiting young women. Maybe he finally managed to introduce himself before he pulled down his zipper. Our pig has been sold without notification, and retaliation for such action must be taken soon. A stealth operation may be in order.

Lee has been behaving lately, but Dan and Doyle are struggling desperately to stay out of prison until the end of the semester. In lieu of current events, the Chapter Room will be renamed the Love Shack, and what was previously known as the Love Shack is now the Peephole.

To all of the Brothers interested in mutilated and decapitated bodies, a

bus trip may be planned to the county morgue (we might even be able to witness an autopsy).

In an unrelated event, I may be forced to set some traps to kill off the large rodent living in the house (Jerry Mouse?).

Be sure to sign up for fundraising; we'll be working the track soon (this weekend). Contact Bill when you have spare time available for helping out with rush.

The darkroom will be up and running shortly, and donations are graciously accepted. Maybe we can finally expand our photo albums some more.

See Lance for your reservation to the 20th anniversary alumni formal. It's a well planned event and should be a great time. There's already many alumni in town, such as Tony D., and many more are expected. Pay dues by the end of the week, or you'll be assessed a late fee.

If anyone would like to see other entertaining or informative news in the articles, please see the P.R. chair at the meeting.

Also, please keep the fools off of the intercom at four in the morning. By the way, Jim, just what does that braille message on your (censored) say? We heard that blind chicks have a very delicate touch.

dating me, as well as Mrs. Sliwa and Mildred McMillan.

For those who do not know what the Riddle Sister Program is, and are curious in becoming a Big Sister, please contact Deanna Burt in admissions ext. 6130.

The Women's Programming Board were present at C&O Day, so those of you who signed up, watch for our notices in your box. Please respond to them promptly.

Our next event will be a 'Slumber Party' on Jan. 31. Look for our upcoming events such as shopping, bowling, retreat, roller skating and ice skating. Look for our flyers and come check us out.

## SAA

by Eric Stevens  
Clubs Writer

Welcome back everybody! The SAA is ready for another active semester.

Last semester we sponsored the first Talent Show which turned into a great success. We also made a trip to the Orlando airport for a behind-the-scenes tour of the facilities. For Halloween we helped out the Daytona Jaycees at their haunted house. The proceeds from the haunted house went to help make Christmas special for some needy children.

Our activities peaked with the Homecoming festivities in November. The SAA showed its spirit during the Homecoming basketball game and the pre-game party with the Alumni. SAA members were also present for the Alumni dinner the following evening. The alumni were touched by the treatment they were given by the SAA.

The Solo kits and Finals kits were also distributed last semester with great results. Our Christmas party was a great success with most of the membership present. Thanks to all that helped out with the kits and other events.

This semester the SAA has a lot of events planned. In February we will be sending several delegates to the SAA regional convention at James Madison University in Virginia. They will be exchanging information with other schools and bringing it back to share with us.

Other upcoming events will be a trip to McDonnell Douglas and a trip to Georgia. The Georgia trip will include a tour of Lockheed's plant and a possible tour of the Delta facilities in Atlanta.

Our next meeting will be held in Spruance Hall boardroom on Thursday, January 30, at 5:30 p.m. All are welcome to the meetings and we hope to see everybody there.

## Clubs Policy

- All articles must be type-written, double spaced or on disk format (unformatted in Word Star or Microsoft Word).
- Deadline for submission of all club material is **Wednesday at 5 p.m.**, one week prior to publication.
- Photos may be submitted with club articles.
- All submitted material becomes property of the *Avion* with the exception of disks.
- The *Avion* reserves the right to edit all submitted copy.
- For more information stop by or call the *Avion* office at (904) 226-6079.

## Sigma Chi

by Pete Zaccagnino  
Clubs Writer

CONGRATULATIONS newly initiated brothers, your journey has just begun. Welcome new officers, the chapter has placed its confidence in very worthy and responsible leaders.

The spring semester is off to a great start, the Sigma Chi brothers are actively pursuing acquisition of a multi-engine aircraft to add to the current fleet, consisting of a Mooney and an Aerona Champ for use by

the active brothers.

RUSH has officially started and will continue this week. We welcome everyone to come and enjoy the multifaceted activities that we have planned.

This coming Saturday is formal rush - stop by if you're serious about rushing! Feel free to stop by the house or the lunch table at any time to meet the brothers and get any of your questions answered. We look forward to partying with the Rushers.

## Surf Club

by The Kid  
Club Writer

Wake up it's 1992! Welcome back to all those stormriders who survived another year and most importantly another New Year's Eve!

It seems that most of us did in fact catch good surf over the Christmas break from the stories circulating. That is if it wasn't snowing at your home. Roger "No Fear" Cabral had 15-foot plus surf back in Hawaii while the rest of us on the mainland had fun 4-8 foot surf in on either coast.

It seems that the Island got the better of Cabral however, feeling his Hawaiian bravado he's sporting a Ninja for '92. One question though; where do you put the board?

In what's new for '92, there's plenty. As far as new club officers go, we threw them all out and voted in new ones!

The new president of the club is Dave Allen and the Vice President is Sean Martin. However, cleaning house wasn't easy; Bob Taylor crawled his way back to the office of secretary as well as Jason Walker to the treasury. The Kid is still the club writer which was changed to "club publicist" earlier in a meeting last week. It seems that no one else wanted the job.

And finally, it was moved by secret ballot by a few that Skabo should be our new mascot and that the team band be The Vandals! As president, Dave Allen said "Lookout! It's going to be a head-stomping, sled-dog abusing, hard-core year!"

Last year's president Von Steimetz could not be reached for comment. Reports have it that he is panic stricken and not even surfing

this year!

As far as image is concerned, the 1992, 100 percent original, multi-colored T-shirts and sweat shirts are finally here. They're available for 13 and 18 dollars and look cool. Stop by during any of our weekly meetings on Wednesday at 7:00 p.m. in A105 or check the display case in the S.C. for club details and events.

Dues are needed from all members, so dig deep under your couch and car seats to scrape up the ten spot. As far as the surf report goes, it's been pretty dismal for the month of January. Hopefully it will pick up before we all go insane as a club. But, until then all we can do is BBQ and brag about last year!

See you in the water! (and now the top ten):

The top ten reasons Chris Skabo did not return to ERAU!

10. He missed his flight connection in Denver and is still stuck there on stand-by status waiting.

9. He just couldn't handle the big Florida waves.

8. Scared off by all the New Yorkers.

7. Couldn't afford Spring semester dues.

6. He might still be here!! (His roommates don't know for sure.)

5. Moved to Plant City!!

4. He forgot his dorm room key and went back home to get it.

3. He went to Hollywood and is auditioning for the part of Citrus Spicoli in "Fast Times II."

2. Timmy, or anyone else for that matter, didn't want to pick him up at Orlando International.

1. Bought a VW bus and is presently following the Grateful Dead, but he hasn't figured out where they are yet!

## Ninety-Nines

by Laura Krista Brewer  
Clubs Writer

Welcome back to the Spring semester, girls! Our first meeting will be held on Wednesday, January 29, at 6:30 in room B-503. We are looking forward to seeing all of your familiar faces from last semester and those new faces who are interested in the 99's.

Many great things have already

been planned for the coming months. We will be discussing these events at our meeting, so we are inviting all previous 66s and 99s to please come back for the new term. We are strongly encouraging any other girls who would like to see what we are all about, to attend our meeting! Look for flyers in your box, banners in the U.C. and notices in the wall glass display.

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## by Bill Waterson

by Gary Larson



## by Joe Martin

by Mike Peters





## Senior Air Force officials to discuss air warfare

ARLINGTON, VA, Jan. 13 — Senior Air Force leaders will discuss all aspects of air warfare requirements in the context of the changing nature of national security strategy, organizational changes in the U.S. Air Force, the emergence of high technology threats in many potential theaters of operation and extraordinary budget constraints at the Air Force Association's National Symposium, "Air Warfare — Changing Patterns in a Changing World." The symposium will be held at the Buena Vista Palace Hotel in Lake Buena Vista, FL, on January 30 - January 31, 1992. The opening session will be keynoted by Gen. Merrill A. McPeak, Air Force Chief of Staff, and both sessions will be moderated by AFA Executive Director and former Air Force Vice Chief of Staff, retired Gen. Monroe W. Hatch, Jr.

The symposium is open to the public. The symposium fee of \$340 for non-AFA members includes the sessions on both days, the reception/buffet on January 30, and a continental breakfast on January 31. Reservations may be made by contacting AFA Headquarters at (703) 247-5800.

### THURSDAY, JANUARY 30:

2:00 p.m. - 2:05 p.m. **Ollie Crawford**  
President, AFA  
2:05 p.m. - 2:50 p.m. **Gen Merrill A. McPeak**  
Chief of Staff, USAF  
2:50 p.m. - 2:55 p.m. **Gen. Jon M. Loh**  
Commander, TAC  
Presentation of the Spaatz Award  
Trophy to Gen. George L. Butler  
2:55 p.m. - 3:40 p.m. **Gen. George L. Butler**  
Commander in Chief, SAC  
3:40 p.m. - 3:55 p.m. **Coffee Break (Exhibit Hall)**  
3:55 p.m. - 4:40 p.m. **Gen. Jimmie V. Adams**  
Commander in Chief, PACAF  
4:40 p.m. - 5:25 p.m. **Gen. Robert C. Oaks**  
Commander in Chief, USAFE  
6:00 p.m. - 8:00 p.m. **Reception/Buffer (Exhibit Hall)**

### FRIDAY, JANUARY 31:

8:00 a.m. - 8:45 a.m. **Continental Breakfast (Exhibit Hall)**  
9:00 a.m. - 9:45 a.m. **Gen. Jon M. Loh**  
Commander, TAC  
9:45 a.m. - 10:30 a.m. **Gen. Charles C. McDonald**  
Commander, Air Force Logistics Command  
10:30 a.m. - 10:45 a.m. **Coffee Break (Exhibit Hall)**  
10:45 a.m. - 11:30 a.m. **Lt. Gen. John E. Jaquish**  
Principal Deputy Assistant Secretary  
of the Air Force (Acquisition)  
11:30 a.m. - 12:15 a.m. **Lt. Gen. Joseph W. Ashy**  
Commander, Air Training Command

## April graduates

If you are interested in getting involved with the Senior Class Council, please stop by the Student Activities office to sign up by Tuesday, January 30, 1992. This group had a fund-raising program in place which needs volunteers to work. Thank you.

## Self-help seminars planned

### LECTURE NOTE-TAKING

Learn efficient lecture note-taking skills and increase your retention of the information provided in the lecture.

TUESDAY, FEBRUARY 4, 1992 - 1:30-2:20 p.m. - Student Center Conference Room.

### TEST TAKING TIPS

Learn ways to prepare for tests, combat anxiety and take exams efficiently.

TUESDAY, FEBRUARY 11, 1992 - 1:30-2:20 p.m. - Student Center Conference Room.

## Attention April graduates

The first meeting for April graduates will be held in the Student Center at 8:00 p.m. on Monday, February 3, 1992. Important information will be reviewed. Elections for Senior Class president and vice president will be held. If you are interested in running, please schedule an appointment to meet with Laurie Ranfos, Senior Class Advisor, by Friday, January 31, 1992. The Senior Class Council will be secured at the February 3 meeting. This group consists of volunteers who meet weekly and plan fundraisers, the Senior Class Party, Class Project, secure discount hotels for guests of the graduates, etc. If you are interested in becoming involved with the Senior Class Council, you may sign up at the meeting.

## New student organizations

If you are interested in starting a new Student Organization, the deadline to begin that process with the Department of Student Activities is Wednesday, February 19, 1992. Please schedule a meeting with Laurie Ranfos, Student Activities Coordinator, to review the process. Thank you.

## IFC Scholarship

The Embry-Riddle Interfraternity Council is offering a \$100 scholarship for the Spring '92 semester. The scholarship will be awarded to the student who best represents Greeks through academic achievement and fraternity/sorority, campus and community involvement.

The requirements to apply for the scholarship are:

- 1) Only initiated brothers/sisters of those groups represented on the Embry-Riddle IFC are eligible.
- 2) Applicants must be currently enrolled as a full-time student at Embry-Riddle Aeronautical University, Daytona Beach Campus.
- 3) A minimum cumulative grade point average of 3.0 (based upon last semester's CGPA). Applicant must be in at least the second semester at Embry-Riddle.
- 4) A signed grade-release form.

For further requirements, see the application form.

Applications are available at the Financial Aid Office or in the IFC Student Activities Mailbox. All applications must be returned to the IFC mailbox by February 21, 1992.

## Red Cross blood drive

Sigma Chi is sponsoring a Blood Drive for the Red Cross on Thursday, Jan. 30 and Friday, Jan. 31.

## Spring '92 degree completion

Applications for degree completion are being accepted for those expecting April '92 degree completion. Come to the Records and Registration Office to complete an application to receive an evaluation and have your diploma ordered. Also, fill out the necessary form if you desire to attend the Spring '92 Commencement Ceremony.

## Students anticipating Summer '92 degree completion

We suggest that you fill out your Degree Completion Application if you intend to complete your degree during the summer semesters. You will then receive a PRELIMINARY EVALUATION. It is especially important for those summer applicants anticipating attendance at the Spring '92 ceremony to apply at this time. You must submit your applications no later than February 21 if you plan to attend the Spring '92 Commencement Ceremony.

## Pre-Law Association meeting

The next meeting of the Pre-Law Association of Aviation students will be on Monday, February 3, 1992 at 7:00 p.m. in room A-115.

Topics to be discussed include the upcoming mock trial, possible court visits and the upcoming LSAT. In addition, well-known attorney Flem K. Whited is scheduled to address the club. He is one of the top four DUI lawyers in the nation. Please come by and see what it's all about.

- Have you ever thought of a catchy verse at 2:00 a.m., just as you were about to sleep?
- Have you ever caught on film what seemed the perfect sunset, or a look in a woman's eye that said more than any words could?
- These and more are wanted *NOW* for . . .

## Creations

Embry-Riddle's literary magazine

Because talent is nothing to waste.

How do you submit materials, either poems, stories, essays, photos or artwork? Drop by the AVION office, on the second floor of the Student Center, and place them in the *Creations* drop box inside door. Submissions must be brought in soon, your name and box number/address optional. Stay on the lookout for a submissions deadline, announced soon.

## Elite Forces

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in G-102 at the Flight Line

You Don't have to be an  
Aeronautical Science Major  
to Attend!!!



## Roomates &amp; Rental

Room for Rent. Nice private home near ERAU. Kitchen and living room privileges. \$235/month includes utilities. Laundry. Available. Phone 756-3529 and leave your phone number and I'll call back.

Flight Instructor needs roommates. Female or Male. 2 miles from ERAU. Great home, furnishings, arrangements. \$225 + 1/4 Util. \$190 summer rate. Furnished or unfurnished. Won't last - call 248-1184.

## Miscellaneous

Anyone finding a gray wallet please leave a message in Box 5508 or call 788-4709.

LEARN TO FLY!! Get your Pilot's License or continue with your Flight Training. Experienced and Quality instruction at low rates. Aircraft rental \$36.50/hr. Train at a local airport. Contact Jack at 756-1494 (evenings). CFI and MEI.

SCUBA Diver Training in the Bahamas. PADI Open Water-Advanced, two days, one night. Walkers Cay, Bahamas. \$495.00. Everything included. Call Bob Routh 226-6864 or 1-426-2911.

Reasonable Flight Instruction!!! Private, instrument or commercial. Best rates around the area. Flexible schedule. Plane rental \$36.50 per hour. Contact Tom at 677-6895. CFI.

I will work on any foreign car. Even Yugos. If your car is broken give me a call. Specializing in Bosch fuel injection and Volvo repair. I'll even fix British cars! Don't delay, call now. John's Volvo has role and mig welding. 248-0143. Not the number in last week's paper.

Aircraft rental, reasonable rates! C-152 and C-172, overnight available. Call M.C. Flyers.

Flight Instruction. Finish a current course or start your next rating. Experienced instructor. Ralph ATP/CFI. 756-9149.

Flight instruction. Get your flight training at the best rate around town. Contact Dave at 756-8977.

Fly at your Pace. Avoid the ARSA! Fly at your convenience. Very competitive rates. \$36.50/hr aircraft rental. Professional instruction. don't wait, start today. Contact Karl at 756-7061.

PLANE FOR RENT! Piper Warrior II with Lozan C and 10 extra HP than standard engine \$25/hr. block time. Based in Orono. Call Max at 760-1485 or Marc at 756-9395 or drop a line to Box 1407.

Could you use \$1000 to \$10000 per month above what you're currently making without affecting school or your job? Call John at 767-4442 or Tom at 760-1243 to make an appointment for free details.

Quality flight instruction. Low rate, private, commercial, instrument. CFI fly when you want to! Call Jason. 255-7126.

Do you have an Amiga and don't know how to use it? Call 767-4442 and ask for John for info and details on expanding your Amiga knowledge.

Self-Hypnosis Group. Learn how to use self-hypnotic techniques to build your ego, improve study habits, eliminate negative habits, solve problems, develop positive habits, explore your inner self and much more... The group size is limited. Interested persons need to make an appointment to discuss the group, in the Counseling Center, during the week of February 10- March 9, 1992. The self-hypnosis group will meet for five two hour sessions during the weeks of January 27 - Feb. 5, 1992.

Money for collage! Private source scholarships, grants & financial aid total in the billions of dollars annually. Every student eligible. Get Your Share! Database of over 300,000 sources. Results guaranteed. For FREE information call American Scholarship Assistance Program, 1-800-524-4894.

## Misc. for sale

For Sale: Waterski 65" H.O. Much 1 with ski bag \$200.00 firm. Used only a few times. Excellent condition. Call 252-6310 Ask for Will.

For Sale: Mitsubishi Color Television 13" Remote Control. Sleep Timer on Screen Display. Brand New Condition. Asking \$180.00 or Best Offer. Contact Mike or Lori at 255-9186.

For Sale: Roller Blades, size 10-11. Brand new, still in box, \$200. Mobile Car phone, 4 years left on warranty, has every option available in a mobile phone worth \$1600, sell for \$800. U-fence, be able to play hands free on your Nintendo-530. Cordless phone \$50. Racquetball racket \$75. Prof. Pool stick \$90. Utility trailer 8x7. Rated 3500 lbs. \$275. Where there's a will there's an A. Videotape and manual in help raise your grades in any class. It works!!! \$50. Call Mike after 6:00 or leave message.

For Sale: Paintball Gun for sale. Semi-automatic, Tippman 68-Special 6 rounds/sec, 130 round loader, squeezing and scope. \$250 dollars. Destroy the opposition. Call Tammy at 441-7132 or write box 4175.

For Sale: Big PVC big drawing table, white, \$29- folding portable steam electric bath, very good for losing weight. Sofa, 3 pillows \$25. Many French books everykind - Reasonable. Etc. 258-5901.

For Sale: Bedroom for Sale! Queen size bed with Linen - great condition \$75.00. Wicker chest, night table and mirror, like new \$100.00. Ethan Allen Rocker - like new \$100.00. Singer Sewing Machine and table - excellent condition \$100.00. EPI Hi power Cassette PM/AM - \$100.00. Majestic 100 Wan Car Amp - \$50.00. Call 760-3493.

For Sale: Super Twin waterbed \$75. Lakeside engine stand \$30. Heavy Duty car ramps \$15. Call Rob, 257-2472.

## Personals

Don't you hate it when you give the boomer the wrong I.D.?

Jesse is a stand-up kinda guy cuz it still hurts to sit down.

GEORGE: Thank you for showing us what a good RA should be like! 1 ST EAST

LEI: It's only just begun... AGAIN!!

CHUCK: Why steal Bike Hood?

DC: Happy 23rd. I'm Glad I'm getting a chance to share your B-Day with you. You're a very special person. Where do you want to eat? Chris

Do not look back. And do not dream about the future, either. It will neither give you back the past, nor satisfy your daydreams. Your duty, your reward- your destiny- are here and now. D.H.

Attention Graduating Seniors: On Feb 3 at 8 p.m. in the U.C. vote for your senior class officers: Bill Bath (Pres) Sonja Minto (Vice-Pres) Eric McElldowney (Sec/Treas) THANKS!

RICH: Get a room! Don't mess up the backyard with Hut Prints.

TO THE HEARTH OF THE BLOODSTONE: The character who kills the two children and places their heads on pikes in the middle of the square is not getting into the spirit of the game. THE PRIAR

TO JILL: Seeking attractive blonde woman with green (cat) eyes and a great personality. CHRIS

Would someone please teach the flight team how to spell PROSpective?

DAVE AND GORDON FROM R.C.: How about a Romantic Dinner for Six? Your place or ours? Get in "Touch" with us. THE FABULOUS FOUR

DR. RUTH: I'm glad we could work everything out. Our friendship means a lot to me. And, I look forward to an interesting semester! But, you're still going to lose the BET. FRIENDS FOREVER FLYING NUN

TO GORDON OF THE RANGER CHALLENGE TEAM: What would our gorgeous blonde male enjoy more than two hands caressing his body? Maybe-eight hands? Sound good? Just call us.

THE FABULOUS FOUR: TO DAVE SMITH OF RANGER CHALLENGE: You gave us your roommate, whipped cream, ice and a cupful of "special things." Where were you? We always have room for one more. Please join us next time we think you and "The Big G" would make a Dynamic Duo! LOVE-THIE FABULOUS FOUR

GORDON FROM RANGER CHALLENGE: Thank you for the chance to realize your sensitivity. Try wearing ear muffs next time. THE FABULOUS FOUR

To Kiss you once, I would shed a tear, to kiss you twice would shed my fear, to kiss you three would not suffice, because kiss four would open the door, kiss five would make me come alive, kiss six would help to fix, kiss seven would take me to heaven, kiss eight would forget the wait, kiss nine would really be fine, kiss ten would make everything better again! HOBBS

RANDOM VIOLENCE: Our first game is coming up, our T-shirts are in, and the other teams are scared. Good luck! TERMINATOR

Nice night for a walk.

TO PROSPECTIVE: I hate to mention it to you, but they aren't the only ones who continually misspell banners. Those clubs should be ashamed of themselves. C. ED.

Where are we going? Planet 10. When? Real soon.

What's the greatest joy in life? The joy of unity.

RUTGER: Enjoy that big party in the sky. DELTA CHI

Happy birthday, Dad. I'm in jail. I'm in jail. It's nice. I like it here.

National Gay Pilot's Association: Connect and Correspond with other pilots and aviation professionals. Newsletter, personals and events. Totally discreet. Send a \$450 to: P.O. Box 1291 Alexandria, VA 22313

**CLASSIFIED AD POLICY**

- Non-commercial classified advertising and personals are free to the student body, faculty and staff of Embry-Riddle with 35 word limit.
- All other non-commercial advertising is \$10 with a 35 word limit. Each additional word is 10 cents.
- Commercial advertising is available through the Avion advertising department, at 226-6051.
- Classified advertising is carried out by filling out a classified ad card in the Avion office.
- Only one classified ad per card. Name and address of advertiser must be included for the ad to run.
- Only paid ads will run for two issues and may be renewed by filling out another classified ad card.
- No classified ads will be accepted over the phone.
- For more information, stop by or call the Avion office at (904)226-6049.

For Sale: unopened Falcon 3.0 for IBM \$30. VGA monitor \$100. Call 238-7355.

For Sale: IBM XT 5 1/4" Disk drives (2) color monitor, mouse software \$600 OBO.

For Sale: RC car, 3 motors, 2 bodies, on/off road tires, oil shocks and more. \$125. Call Brian 238-1932.

Bieffe Helmet \$20, windshield for motorcycle \$25, Stereo Cabinet \$15 (white) \$35 Honda Scooter motorcycle stereo \$120 (brand new Kenwood). Call 767-4442 ask for Kat or leave message.

For Sale: Paintball Guns. Razorback, Bushmaster Deluxe. Excellent condition. call for details and price 761-5483 ask for Mike.

For Sale: Aliens comic books for sale. Will sell at catalog prices minus 10%. If interested call 756-1541. Ask for Jill.

Driving to NC and will ferry anyone wishing to be dropped off and/or picked up anywhere along I-95. Leave Friday 1/31 return Sunday 2/2. Anyone interested call 238-3608.

Seniors for Sr. Class V.P. Vote for Big Al.

HEY FRAGGERS: You dweebs who write here are whimps. REITAL'S GIZZI THE LAST CZARMIAN

DEAR DAVIDI: If you think that recipe was good, wait till you try mine. LOVE, JOHN

STEVE: Cut off? NO! She is spayed!!!

RUSH DELTA CHI: The Brotherhood of a lifetime.

Once there was a way for them to show their talents.  
It was believed to have perished.  
Now, there once again will be . . .

## WHAT IS CREATIONS?

**Creations** is a magazine for ERAU's family to expose their artistic talents to the world. It is for anyone who chooses to show their personal work to others, either poems, photos, drawings, essays, or short stories.

Submissions for **Creations** literary magazine are being accepted now! To submit your work, visit the Avion office and drop them in the **Creations** box.



PROJECTED DEADLINE: February 21  
**Don't delay!**

Show us  
the world  
through  
your eyes