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Embry-Riddle Aeronautical University

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GPS instrument approaches tested by the FAA and AOPA

By Bryan Gross
Aeronautics Editor

Flight tests are being conducted by the Airborne Systems Technology branch of the Federal Aviation Administration (FAA) on the new Global Positioning System (GPS) non-precision instrument approach.

The information received will be analyzed by the FAA's Office of Aviation Systems Standards in Oklahoma City.

Atlantic City International (ACY) Airport was the site of the testing.

However, the GPS 22 approach into ACY was not necessarily an atypical approach because of the inclusion of a 120 degree left turn between the initial leg and

intermediate leg of the procedure. This is the maximum permissible turn allowed under TERPS criteria.

This experiment is the first step in a program that is designed to overlay already existing published VOR and NDB approaches.

"Merely duplicating today's non-precision approaches is a good first step," commented Aircraft Owner's and Pilots Association (AOPA) president Phil Boyer, "when you see the precision and potential ease of operation of a GPS approach. While our ultimate goal is new approaches where none exist today, establishing overlay approaches will get the ball rolling."

AOPA expects that the FAA will someday be able to establish overlaying GPS non-precision approaches on some 5,000 existing

approaches. The current VOR and NDB radio navigation facilities used are 1950s and 1930s technology, respectively. Non-precision approaches offer the pilot position information, but no vertical descent guidance.

In the future, AOPA also anticipates the establishment of thousands of new instrument approach procedures at airports lacking them because of the high cost of the ground-based systems.

The objective, given by the FAA and AOPA, is to determine if the airspace required to fly the GPS approaches fits within the existing TERPS airspace requirements.

The program was not designed to develop new criteria for Category A approaches (those flown with final approach speeds of 91 knots or less).

The program has been underway since July 30, 1992 when the FAA's Thomas C. Richards and Boyer signed an agreement to cooperate on the flight test program.

AOPA donated a 1984 Beech Bonanza A-36 and 14 "test" pilots. This group of pilots consisted of both low and high time pilots.

The high time pilots were those with instrument ratings and more than 1500 hours total time and the low time pilots consisted of pilots with instrument ratings and less than 500 hours.

Summit Aviation, under contract with the FAA, modified the aircraft and used a Northstar M2 GPS navigation receiver wired to the Bonanza's Horizontal Situation Indicator (HSI).

This provided the Course Deviation Indicator (CDI) needle with movement based on GPS-derived position.

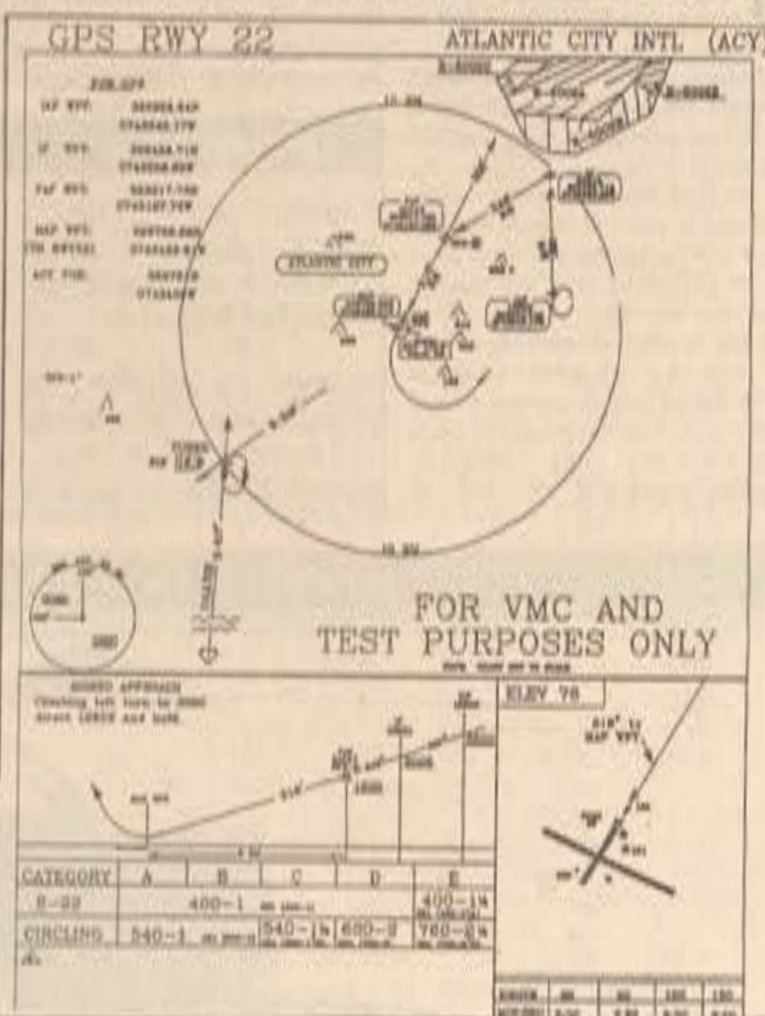
The needle was manually increased for final leg of the approach to one-sixteenth mile per dot of movement at the Final Approach Fix inbound to the runway.

All of the pilots flew two familiarization runs and then eight recorded approaches "under the hood" (with a vision limiting device that simulates actual instrument weather conditions).

All of the approaches were recorded and tracked by NIKE radar. No flight director or autopilot were used, instead relying completely on the Bendix King K152A HSI.

All of the tests were conducted in single pilot IFR operations. GPS course deviation indications are linear, not angular and therefore off-course indications do not vary with distance from a navigation facility on the ground.

"Compared to procedures based on distant VOR stations, the navigational accuracy of GPS non-precision approaches will be a welcome



AOPA's Beech Bonanza, as modified for GPS non-precision approach flight testing in the Flight Test Hangar of the FAA research facility in Atlantic City, New Jersey. The GPS equipment is in the rear floor area of the Bonanza.

The GPS non-precision approach into runway 22 at Atlantic City International airport is not a typical example of a normal GPS approach. This is because of the 120 degree angle between the initial and intermediate legs of the procedure, the maximum allowed by TERPS.

improvement," said AOPA's Boyer. "And overlaying the harder-to-fly NDB approaches will be a major improvement."

Twenty-one GPS satellites have been launched by the Department of Defense and provide part-day coverage for supplemental en route navigation today.

By 1995 a full constellation of 24 satellites will provide 24 hour

navigation coverage on most of the globe. Of the 24 satellites, three of them are spares.

Civilian users will have a less precise system as compared to the military users.

While it is too early for any results to be announced, the FAA is examining the issues concerned in the development of the GPS approach system.

SimCom delivers Inertial Navigation System

By Ron Hess
Data Technology Editor

SimCom International, Inc., of Orlando, Florida has delivered a Litton LTN-92 Inertial Navigation System (INS) to Northwest Airlines.

The SimCom Training Systems Division worked with Litton Aero Products of Moorpark, California to develop a simulator that provides a "hands-on" training and practice in the operation of the INS.

The system delivered to Northwest will be used to train DC-10 pilots in the operation of the LTN-92.

The system also includes a simulation of the DC-10 Flight Guidance System.

Additional training also is provided for the autopilot and flight director procedures.

SimCom's LTN-92 simulator is the company's first Computer-Based Aircraft System Simulation (C-BASS).

C-BASS is a new approach to pilot training.

The system operates on an IBM PC/AT compatible computer with a 14 inch color monitor.

The software is stored on one 3.5 inch floppy disk. This allows for portability and flexibility for classroom and private use.

The purpose of SimCom's C-BASS software is to provide the most realistic training possible at the least amount of cost, time and hardware.

The focus of the C-BASS system is to train pilots through task-oriented and repetitive training.

Currently, task-oriented training is costly for airlines. Airplanes have to be removed from service to train the students. The risk of damaging the aircraft is increased.

Three dimensional simulators are

a good substitute for an airline cockpit.

Three dimensional simulators provide students with audio, visual and tactile input through the use of software and cockpit replication.

This is a cheaper alternative to on sight training because it allows the student to perform repetitive operations and to experience the consequences of errors.

The drawback of three dimensional simulators is, training is limited to a few centralized locations due to hardware limitations.

Typically, airlines pay 25% to 35% of their training budget to provide travel, housing and meals for students to train on the simulators.

There is also the loss in productivity.

Many training procedures can be taught effectively without the use of a three dimensional environment. Two dimensional systems can replace the physical simulators by using high resolution graphics to represent the training equipment. C-BASS belongs to this category.

The portability of C-BASS allows it to be sent to remote locations, at a cheaper cost than sending personnel.

Two dimensional simulators can be operated in a classroom environment, or used to provide individual training, reducing the necessity and cost of instructors.

Another significant benefit of the computer-based training program is the system operates on widely available off-the-shelf computer hardware.

This reduces the cost of hardware and distribution.

The Litton LTN-92 C-BASS simulator will allow Midwest's DC-10 pilots to train on the INS equipment while freeing higher level equipment for more productive uses.

The focus of the C-BASS system is to train pilots through task-oriented and repetitive training.

General Aviation's safety record slowly improving over the past decades

AOPA Press Release

FREDERICK, MD -With new safety records in general aviation in 1992, the Air Safety Foundation will continue its programs to reduce the total accident rate of this segment of aviation by the mid-1990s.

Reacting to National Transportation Safety Board statistics released, Air Safety Foundation executive director Bruce Landsberg said, "Through renewed programs of continuing pilot education, we hope to make 1992's new records just a step on the way to even better results by mid-decade."

The safety of non-airline, non-military flying, known as general aviation, has improved dramatically and steadily since modern statistics were compiled beginning in 1946.

NTSB reported today 408 fatal accidents in 1992 over nearly 27 million NTSB-reported flight hours last year, the nation's lowest total since 1958. The number of accidents of all kinds—both serious and non-serious—sank below 2,000 for the first time in the post-World War II era to 1,959.

The all-time high was 9,253 in 1947.

The fatal accident rate dropped slightly to 1.50 per 100,000 flight hours in 1992, the lowest in history and down from 2.57 in 1972 and 7.0 in 1946.

The total accident rate decreased substantially in 1992 to 7.19 per 100,000 flying hours, also the lowest in history and down from 15.8 in 1972 and 77.8 in 1946.

The number of fatalities, 812 in 1992, was slightly above the 1991 level but was the second lowest annual total since 1961. Fatalities in general aviation are well below those suffered in accidents on or near railroads (1,197 in 1991), in pleasure boating (924 in 1991), motorcycling (2,808 in 1991) and similar transportation-related activities.

Total flying hours were estimated by NTSB at 27.19 million for 1992, an estimate that has remained around 27 million to 28 million since 1985. "These annual NTSB statistics encourage everyone working for the cause of air safety," noted ASF's Landsberg.

"They also send an annual mes-

sage to every pilot in America to support further improvement through participation in recurrent training and continuing pilot education," he concluded.

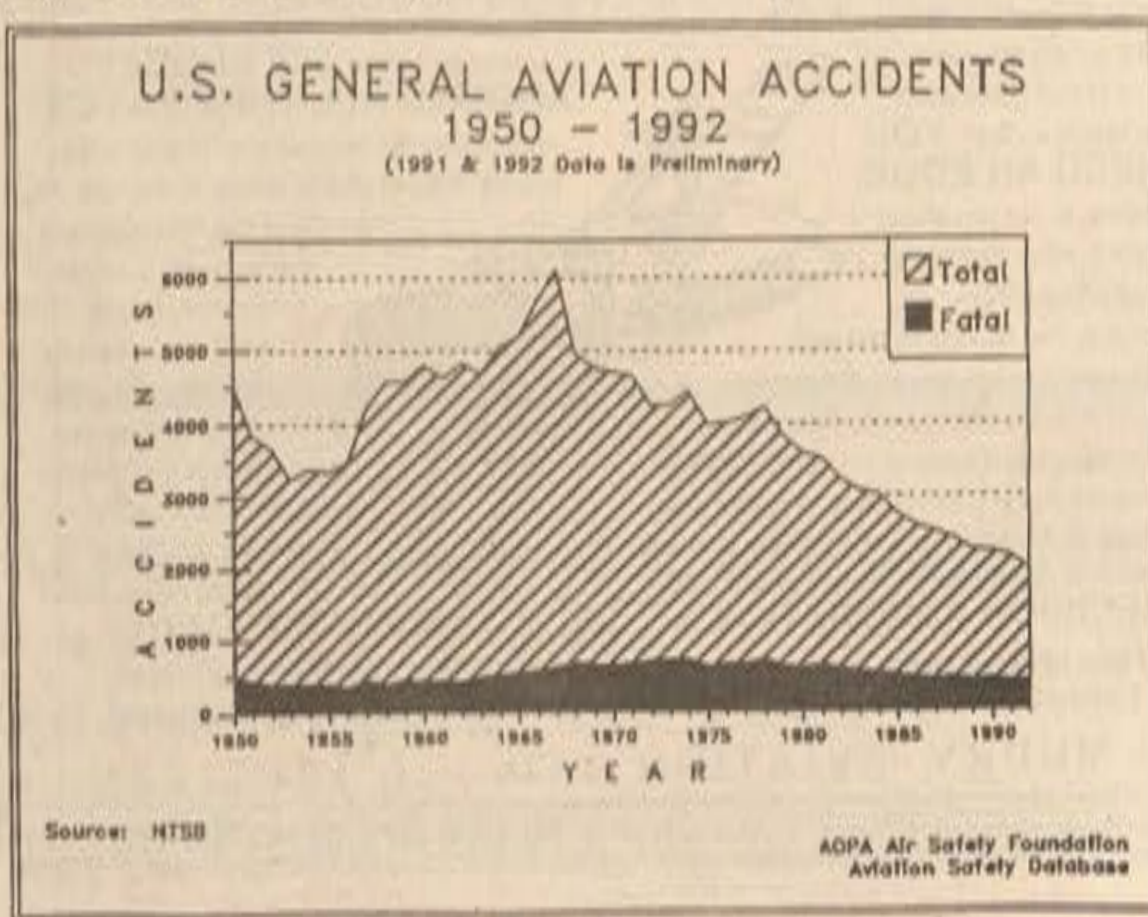
The AOPA Air Safety Foundation was founded in 1950 by the 300,000-member Aircraft Owners and Pilots Association to promote a reduction in general aviation accidents, at the time totaling 4,505 a year.

The Foundation's work is supported by contributions from AOPA members, private individuals, and grants from corporations and private foundations.

Since then, the Foundation has conducted thousands of evening and weekend safety seminars and pilot safety clinics nationwide.

Its classroom training for flight instructors is attended by 25% of all those seeking FAA-required biennial flight instructor recertification each year.

The Foundation's popular Pinch-Hitter Course trains non-pilot flying companions the skills necessary to handle an in-flight emergency in case of pilot incapacitation.



Orbital Sciences prepares Florida launch of Pegasus

By Brian Gamage
Space Technology Editor

A new type of launch vehicle, different from the conventional vertical rocket system, will attempt a launch at Kennedy Space Center (KSC) in February.

Because of this brand new launch vehicle the Brazilian rain forest could be saved from its current decline.

The Brazilian Government chose Pegasus to provide launch services for Brazil's Satellite de Coleta de Dados (SCD-1) remote sensing and data relay satellite.

Once in orbit, the satellite will be the first of a two-satellite system intended to collect environmental data gathered on the ground by up to 500 automatic Data Collecting Platforms.

The data collected will help scientists monitor the condition of the Amazon River Basin and its surrounding rain forests. They will be able to determine its rate of degradation, ground temperature and moisture, which will in turn help environmental engineers determine methods for preserving the precious forests.

Pegasus Facts

Pegasus - Space launch booster that is air-launched from underneath the wing of a modified B-52.

Mission - To lift small payloads into low Earth orbit at a lesser cost than other launch vehicles.

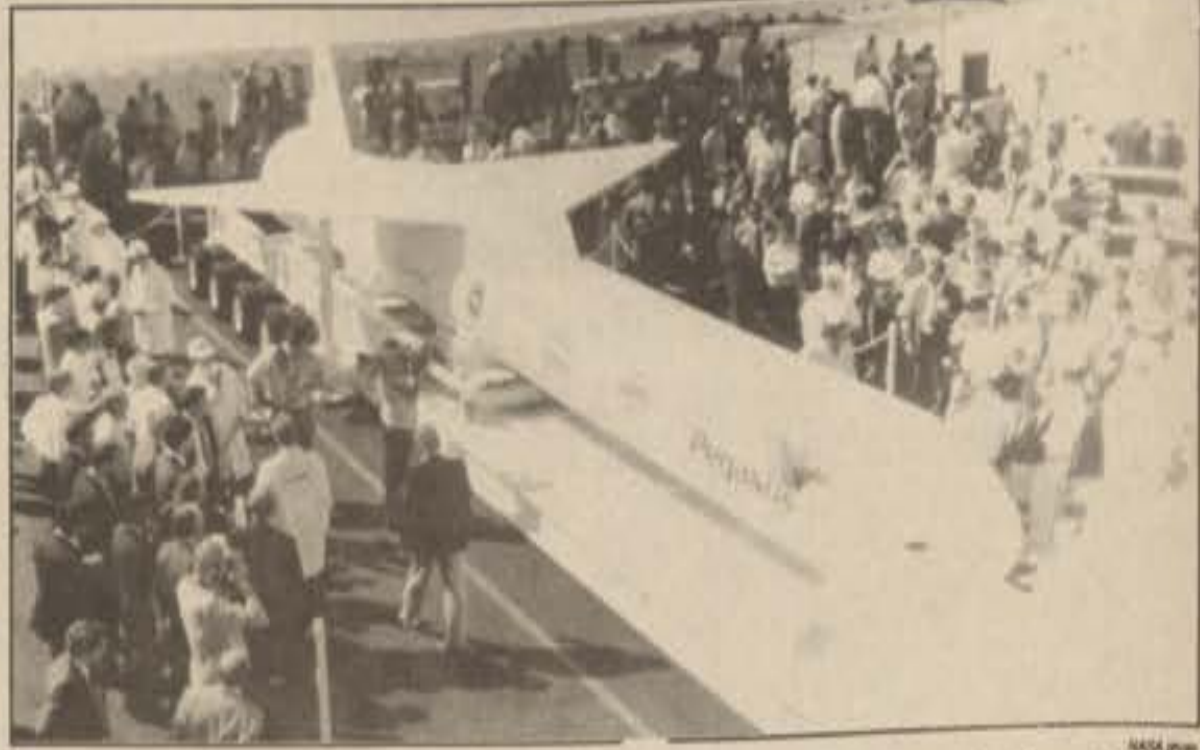
"Brazil's choice of Pegasus is clear evidence of the emerging international market for small satellites and the need for low-cost, responsive transportation to space," said Mr. David W. Thompson, Orbital's Chief Executive Officer.

Orbital is a space technology company that designs, manufactures, operates and markets a broad range of space products and services. The company develops and produces space transportation systems, which include space and suborbital launch vehicles and orbit transfer vehicles.

Pegasus is a winged launch vehicle with three solid rocket motors that is launched from under the wing of a B-52.

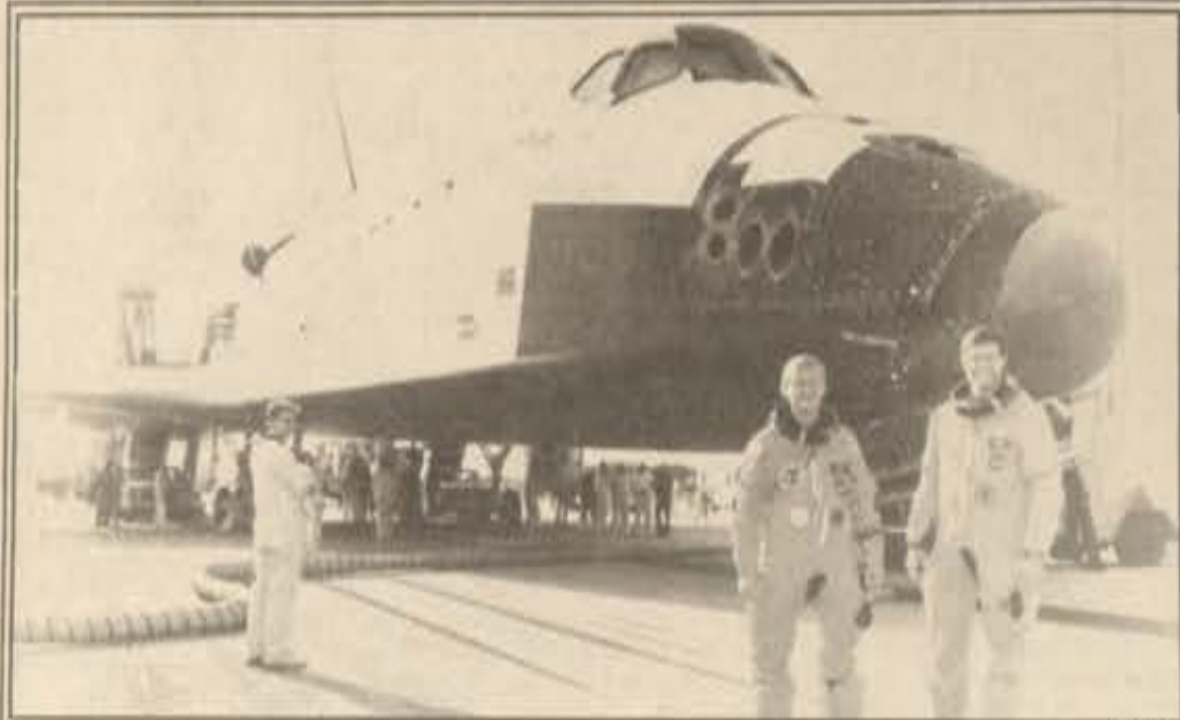
The vehicle is ferried up to an altitude of about 41,000 feet and

see Pegasus, page B8



The Pegasus Space Launch Vehicle was rolled out for public viewing in August, 1989 and successfully delivered a payload into low Earth orbit on April 5, 1990. Pegasus is the first all-new unmanned space launch vehicle introduced in the U.S. in 20 years.

Fill 'er up and check under the hood



Commander John Casper and Pilot Donald McMonagle inspect *Endeavour* after it landed at KSC on Tuesday, January 19. The right inboard tire experienced unusual wear, there were 57 debris impacts and four to five tiles are expected to be replaced.

Seven more shuttle flights planned for '93

By Brian Gamage
Space Technology Editor

The National Aeronautics and Space Administration (NASA) plans to launch eight space shuttles in 1993, with one successful mission already completed.

The first mission of the year was STS-54, which saw the deployment of a Tracking and Data Relay Satellite (TDRS) and extensive extravehicular activity (EVA) in preparations for Space Station Freedom.

The Space Shuttle *Endeavour* launched from Kennedy Space Center (KSC) on January 13 and landed at the Shuttle Landing Facility (SLF) on January 19.

The next space shuttle launch is scheduled for February 25. *Columbia's* seven member crew will perform 90 experiments in the Spacelab laboratory module during

the planned nine day mission.

Discovery is set to launch near the end of March on STS-56 for a planned eight day mission. The five member crew will perform atmospheric research and release a Spartan 201 satellite.

April will hopefully see the launch of *Endeavour* again on its fourth flight. The five member crew of STS-57 will operate Spacebab and the European Retrievable Carrier.

Discovery will launch again in July on its 17th flight into orbit under the designate of STS-51.

Discovery will carry in its cargo bay an Advanced Communications Technology Satellite, an astronomy telescope and the Orfeus satellite.

STS-58 will launch in August on the orbiter *Columbia* with a six member crew and the second Spacelab Life Sciences experiment.

see Shuttle, page B8

Ambassador packs and moves East

By Joshua Mussal
Club Editor

The Space Shuttle *Ambassador*, a full scale model that has been at Spaceport USA since December 1990, is taking off.

Ambassador was leased to Spaceport USA under a short-term leasing arrangement. The replica became one of the most popular attractions at Spaceport, and subsequent leases were extended to allow more visitors to tour the mock shuttle. Approximately four million visitors have climbed inside the cargo bay of the shuttle to see the crew compartment and a communications satellite in its pre-launch configuration.

The *Ambassador* was built by a central Florida firm and construct-

see South Korea, page B8

- ATTENTION CONTINUING STUDENTS -

FALL/SPRING 93/94 HOUSING SIGN-UP

1993/94 Housing contracts will be available February 1st through 12th in the Housing office, McKay Hall, Suite 278. All contracts must include a \$150.00 prepayment, paid and validated at the Cashiers office. Deadline for housing sign up is February 12th at 4:30 p.m. Contracts from continuing students will be randomly selected for available spaces. Contracts received after February 12 will be placed on a secondary waiting list.

1993/94 Housing fees are as follows:

DOOLITTLE HALL	\$900.00 per semester/per student
MCKAY HALL	\$900.00 per semester/per student
CHANUTE COMPLEX	\$900.00 per semester/per student

Thank you for your cooperation!

"Please remain outside the ARSA and call back in 10 minutes"

- Daytona Beach Air Traffic Control

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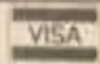

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Ball makes amusement parks a Virtual Reality

By Brian Gamage
Space Technology Editor

Ball Corporation, and its Aerospace Systems Group department based in Boulder, Colorado, recently made advances in the field of computer image generation which will have major technological impact in many graphics based interface applications, such as simulators and, now, amusement park rides.

Ball acquired a new product in 1991 called the 944 Visual Image Generator, which allowed their computer programmers to develop more sophisticated and detailed simulators.

The simulation market at the time was geared primarily for military

applications, such as training pilots to fly in dangerous situations.

The civilian market had not opened up yet due to the high costs of operating the virtual reality (VR) computer systems needed to handle the intense data load.

The older simulations, however, had limitations that allowed for the pilots to memorize the patterns, which detracted from their goal of simulating a real flight environment.

The 944 would be capable of storing enough memory to let the pilot not only fly over mountains, but also down into valleys and around the peaks.

The system gave Ball designers the power to create realistic scenes, complete with fog, textures and

reflections that were very difficult to create on a computer screen.

The major advancement of the 944 was that the graphics could be displayed in real-time, which meant that there was no lag-time while the computer calculated the new graphics setting after the pilot commanded a maneuver.

The 944 could accomplish these things at a much lower cost than other VR systems that used more realistic graphics.

In 1992, Ball won a contract with Veda International, a flight simulator maker, to provide the computer database for the first truly interactive amusement park ride.

The ride, a flight simulator on a grand scale, was named the

Chameleon, after the 10-person Veda division that worked with the Ball programmers, and because a change in software could change the theme and plot of the ride altogether.

Veda has manufactured simulators that were used to train Israeli fighter pilots.

That same successful design had to be modified to fit the needs of a civilian amusement ride.

First, it had to be reconfigured to handle approximately 1,500 people per hour, a figure relating the volume of customers to a popular amusement park like Universal Studios in Orlando.

Then, it had to be slowed down, because the average amusement park goer does not have the same

trained reflexes and in-flight knowledge as Israeli fighter pilots.

And, most importantly, it had to provide a new and different adventure with each ride. This is the important step ahead that makes this ride different from, for example, the *Back To The Future* ride at Universal Studios, where the participants merely ride along a set story line possessing no power to change the outcome.

The new rides will allow for the participants to choose from a menu of possible thrills, like race car driving, daredevil flying or space shuttle launches.

The riders will also be able to control what they see and where they go, a first in civilian VR technology.

The 944 was recently updated with a more powerful central processing unit, and its graphics abilities were miles ahead of anything else in the real-time, interactive market.

The engineering team at Ball created fighter plane and race car databases for the ride. They designed them to be as realistic as possible so that when the participants crashed their Indy cars, they screamed all the way to the wall. They enabled the riders to feel the G-forces as they flew their fighter jet straight up into the sky.

The 944, when teamed up with \$1.2 million worth of Chameleon hardware, could very well be the greatest ride ever built.

If you think college life is tough, try being a human

By Roland Houle
Staff Reporter

If you like the game *Lemmings*, you will probably like Gametek's (a child of Atari Corporation) new release, *The Humans*.

The story begins with "First, there was darkness. Then there was light. Then some more darkness. Then it was light again. Then the humans arrived. And it rained."

The object of the game is to control stupid cavemen to achieve certain tasks. These objectives range from rescuing a fellow caveman from other humans, to getting to a certain location, to killing a dinosaur.

Along the way, you must discover the spear, fire, the wheel, rope and even a witch doctor. You must use these items to do such things as pole vault onto the back of a pterodactyl, burn bushes or stab evil humans before they spear you.

The game is set in prehistoric times - when dinosaurs were around, lava pits were everywhere and pterodactyls ruled the skies. Also, the cavemen were scantily clad in small, furry thongs.

The game is similar to *Lemmings*

in that you must control the humans to accomplish a goal by using various items. Of course, another similarity is that the ways in which the humans can be killed is very humorous. For example, make sure your other cavemen are out of the way when you "lose" the spear to them.

Despite the basic similarities in game themes, *Humans* can still bring new laughs to game players.

This game has one of the few instruction manuals that I actually read. It's not because the game is hard to figure out, but because the manual is filled with humor. It defines humans as small squidgy pink creatures with four semi-articulate limbs. It says that humans eat poisonous plants (once), sickly or very small carnivorous lizards, lava (for lizard curry) and each other. The manual also gives you a brief (and somewhat accurate) history of the human race.

With the exception of a few scenes with animation, the game runs well even on a 286 computer. A VGA monitor and sound board are recommended (as with most games). While my *Stacker* program was running, I ran the game without any problems but a friend had some trouble getting it to run on his



Gametek's new game, *the Humans*, offers a humorous alternative to *Lemmings*.

Stacker drive, so *Humans* may or may not have a problem with *Stacker*.

Overall, the game gets low marks for originality, but high marks in difficulty and humor.

IBM stops funding of supercomputer project

SAN JOSE, Calif. (AP) — IBM has confirmed it halted funding a daring attempt by designer Steve Chen to build the most powerful mainframe computer in the world.

Chen, who reportedly is seeking new funding for his Eau Claire, Wisconsin-based Supercomputing Systems Inc., had been working for five years to develop a mainframe to compete with the most powerful Cray Computer Corp. machines. Chen formerly worked at Cray.

International Business Machines Corp. had agreed to fund \$51 through 1992, and had continued the funding on a temporary basis until this week, said IBM spokeswoman Maria Decker in White Plains, N.Y.

She declined to say how much money IBM spent on the project, and said the decision to stop funding was not related to IBM's budget cuts or reorganization.

"We never intended to fund \$51 beyond the scope of this current agreement," Decker said. "We basically looked at all the factors and there was no product delivered."

The move does not signal a withdrawal from supercomputing by IBM, she said. "Supercomputing at IBM is alive and well."

But analyst Jay Stevens at Dean Witter Reynolds in New York said: "Obviously they are going to save some money by not funding this project."

Jim Olson, a spokesman for Chen, said on Friday the company would have no comment.

IBM has been the leading maker of conventional mainframe computers. It has 600 of its top-of-the-line ES 9000 computers installed around the world.

But a recent trend away from mainframes toward what are called "parallel processing" computers may have contributed to Big Blue's decision, Stevens said.

Parallel processing computers, unlike traditional mainframes, use hundreds or even thousands of smaller, less expensive processors. They break down large computation problems into individual segments and run them all at once.

Other computer and microprocessor manufacturers, including leading chip maker Intel Corp. of Santa Clara, Calif., also are developing parallel processing computers.

see IBM, page B9

MORRISON'S HOSPITALITY GROUP

Def Leppard concert ticket giveaway

Show is Wed., Feb. 3, 7:30 pm. Orlando Arena

2 pairs to be won

Drawing is February 2nd

Entry forms available & accepted by the Cashiers in the Food Court.

Check at Morrison's Hospitality Group's office in the John Paul Riddle Student Center for winners on February 2, after 4 pm, to see if you won!

Winners will be posted on Morrison's bulletin board in the Student Center.

No purchase necessary to enter. Only Embry-Riddle students, enrolled in Spring 1993, may enter.

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Custom Card sale: Save \$100 on \$500, \$50 on \$400, \$40 on \$300, \$30 on \$200 and \$10 on \$100 purchase.

This great sale ends February 2, 1993, act now!

All offers or terms, expressed or implied, within the above advertisement are subject to change at any time with or without notice. All sales are final. Custom Card sale ends Feb. 2, 1993. All sales and promotions are subject to all current written contractual agreements between Morrison's Hospitality Group and Embry-Riddle Aeronautical University. Void if or where prohibited. See purchase agreement and receipt for specific rules, prices and agreements for all sale purposes. Paid advertisement printed in the Avion, 27 Jan 1993.

Madonna heats up the screen in sexy thriller *Body of Evidence*



Mike McGrath

Avion Movie Critic

Rating: ★★☆☆

Body of Evidence
Starring: Madonna, Willem DaFoe, Anne Archer, Joe Mantegna
Director: Eli Edel
Length: 1 hour, 45 min.
Playing at: Volusia Square 8

He said he did not know what it was. My comment was this: "Everybody knows it is battery acid."

So what does this have to do with the movie? Well, everybody knows there is going to be sex in a Madonna movie.

From the beginning of the movie until the very end, sex plays an important role. Madonna's character (I can't remember her name because I can only think of her as Madonna) is put on trial for the murder of an older man, who is also considerably rich.

What is the weapon, you ask? It is Madonna's body. Apparently, Madonna used her ample talents to cause his death.

Coming to her defense is Willem DaFoe, who plays a happily married lawyer with an altogether happy family.

Happily married, that is, until he is struck by blonde ambition. In becoming involved with Madonna's character, he tries to live with the best of both worlds. It would seem that he wants his cake and Madonna, too.

Joe Mantegna, Anne Archer and Frank Langella also star in this sexual thriller. Their performances were faultless only because the characters they portrayed had no depth. Make

no mistake, Madonna is the star of the movie. The movie was tailor-made for her.

This movie was full of scorching sex scenes. They were so hot, Willem had burn marks after some scenes.

Unfortunately, the writing and the storyline were poor. Dull courtroom scenes were accompanied by short and dry dialogue. I like gratuitous sex as much as the next person, but the movie could not escape the gravitational pull of *Basic Instinct*.

Along with a weak plot, there was also a strange musical score. While Madonna was expressing herself, some kind of Latin chanting combined with dance music was playing. I half expected five guys in robes to enter the room and start banging boards on their heads. Madonna should have given her musical talents to this part.

Madonna's body as a weapon is on target, however, the movie is shooting blanks. If you like Madonna and don't mind a bad movie, go see it. If you like Madonna and a good movie, bring your headphones to *A Few Good Men*. If you have a broken flight computer, for heaven's sake, don't put it in your mouth. You don't know where it has been.

★★★★ - Can't miss!
 ★★★ - Worth watching.
 ★★ - Wait until dollar theatre.
 ★ - Read a book instead.

Madonna's body as a weapon was on target, however, the movie is shooting blanks.

Touch-n-Go Productions Spring 1993 Movies

Glengarry Glen Ross	1/28
Consenting Adults	2/4
South Central	2/11
Dracula	2/18
Last of the Mohicans	2/25
Deep Cover	3/4
Forever Young	3/11
The Bodyguard	3/18
Distinguished Gentleman	3/25
Aladdin	4/1
A Few Good Men	4/15

All movies begin at 8:30 p.m. in the Student Center
 Titles are subject to change

TIME TRAX adds new Sci-Fi dimension

By David Gass
 Staff Reporter

Lately there has been a slew of new science fiction series premiers on television. Among these is *TIME TRAX*, the new time-travelling show from the PTEN (Prime Time Entertainment Network) that airs on the Fox network across the country.

TIME TRAX stars Dale Midkiff as Darien Lambert, a police officer from the year 2193. Lambert, an orphan, named himself after the hero of the futuristic *Just War* in 2129.

He is a history buff who believes in the old fashioned ideals of what used to be the United States of America. Humans in the future seem to have improved both physically and mentally; Darien Lambert has a life expectancy of 120 years, an average of 35 heartbeats per minute, and an IQ of 204. He can also slow down the speed of visual images reaching his brain by a mental process called timestalling, which aids him in being able to avoid rapidly moving objects.

In the beginning of the premiere movie, Lambert attempts to stop a criminal named Sep Dietrich from assassinating the President of the

United Nations with the stolen pistol that John Wilkes Boothe used to assassinate President Lincoln. He fails in stopping the assassination but arrests Dietrich in the process. While in jail, the assassin suddenly disappears after opening a blue envelope containing TXP. TXP is a drug that is essential for time travelling.

Lambert meets Allysa Knocks, a young woman who helped create TRAX (Trans-time Research And Experimentation). She collaborates with the police to help capture Dr. Sahmbi Mordiaci, her former lover and co-creator of TRAX who has been helping criminals escape to the past. In the middle of the stakeout at the TRAX secret base underneath the Smithsonian Museum of History, Mordiaci escapes into the past and causes Allysa's death.

Lambert travels back in time to the late twentieth century to apprehend the criminals that Sahmbi helped to escape. He is accompanied by a super-computer the size of a credit card, whose functions include everything from telescopic sight to processing genetic information.

Darien also carries a device known as a PPT, a weapon that

freezes his intended criminals and transports them back to the future.

He enters the power zone for time travelling, transports back, and arrives in a bathroom stall in the Smithsonian. Apparently, he gets there just after the assassin Dietrich, and is blamed for the theft of the John Wilkes Boothe pistol in the past.

Now in 1993, Lambert meets a Smithsonian security officer by the name of Annie Knocks, who has a surprising resemblance to Allysa Knocks. She has been assigned to capture the thief who stole the pistol from the museum.

Darien and Allysa discover that Dietrich is here in 1993 and planning to assassinate the President of the United States. Lambert foils Dietrich's plans and they fight one on one, until Darien finally sends him back to the future. Darien decides to stay in the twentieth century and capture the rest of the criminals from the future.

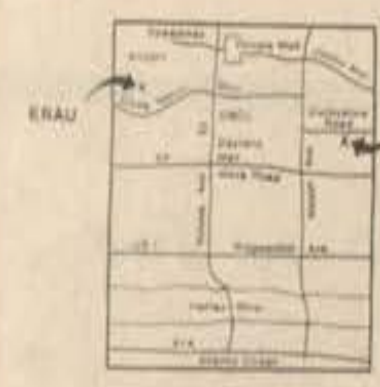
Although the premiere movie aired last week, the series should begin on February 3rd. For those with a taste for science fiction and the "lost in time" plot approach, this should be for you.



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Tin Machine comes back

By Shawn McBride
Staff Reporter

Tin Machine is committed to pleasing the rock and roll audience. This is very evident on their newest release *Oy Vey, Baby*.

Oy Vey, Baby is the third release from this talented quartet. The members of Tin Machine are David Bowie as lead vocals, guitar and saxophone, Reeves Gabrels on lead guitar and vocals, Hunt Sales on drums and vocals and Tony Sales on bass and vocals.

All of the material on *Oy Vey, Baby* was recorded live on Tin Machine's three week tour of Japan and their six week tour of the U.S.

With such a wide mixture of talent, there is some very distinctive sounds. For example, the opening of

"Goodbye Mr. Ed" reminded me a lot of the opening to Ziggy Stardust, but this isn't surprising, considering the fact that David Bowie is in the group.

On the other hand, the album's longest track, timing in at just over 12 minutes, has the very distinctive sounds of Hendrix, mixed with some blues. This track, "Heaven's in Here," has some exceptional guitar solos as well.

The group released their first self-titled album back in 1989. The music on the first album was termed "aggressive, direct, and brutal."

Tin Machine's second album, titled *Tin Machine II*, was written and recorded in a variety of places. For the most part, the album was recorded in Sydney, Australia. The remaining parts of the album were written during David Bowie's Sound

and Vision tour. In the spring of 1991, the album was finally completed in England.

When you trace back the origins of Tin Machine, you find that they all started during the recording sessions for Iggy Pop's *Lust for Life* album. While Bowie was co-producing this album, he met Hunt and Tony Sales.

In 1987, Bowie met Reeves Gabrels. Reeves and Gabrels began playing together in public in 1988. Bowie got the four together and the band members all got formally introduced to each other the day before going into the studio to record the first album in Montreaux, Switzerland.

After hearing this album that all fans of David Bowie will patiently await (the release of Tin Machine's fourth album, I know I will.

Delores Claiborne is no Cujo

By Keith Towers
Staff Reporter

Stephen King's newest effort, *Delores Claiborne*, has a twist on using a first person narrative. The first person was the title character, Delores Claiborne. The local police of the island town she lives in has brought her in for questioning in a suspicious death of a senile old millionaire woman that she was taking care of.

The entire book is seen from her point of view as we read her entire testimony to the police. When she is asked a question, the question is not seen. Rather, her answer is all we read, so the question must be inferred. This is not difficult if you know King's long, explanatory prose.

This book is related to his previous novel, *Gerald's Game*, by a central event in the form of a solar eclipse. After King killed the town

of Castle Rock in *Needful Things*, he lost a connecting point between books. Now he has found a new one in an event, not a place.

So far, the solar eclipse has put out two duds compared to the classic horror that Castle Rock put out in the form of *Cujo*, *Christine*, and *Carrie*. But back to *Delores Claiborne*.

The book is entertaining, and inventive in the form it is written, but it seemed an easy, shallow read. It doesn't have the enthralling jumpiness *The Shining* induces or the fun of riding along with the survivors of the Superflu in *The Stand*. In both *Delores Claiborne* and *Gerald's Game*, there are quite graphic descriptions of daughters getting molested by their fathers which disqualifies them from being made into films.

In *Delores Claiborne*, Delores envisions the little girl of *Gerald's Game* being molested while Delores is killing her husband. Somehow a

mindlink occurs between the two females. One is a mother of a molested girl who is killing her husband for the crime, and the other is being molested at the time of the eclipse. The connections between the two seem vague and of no particular interest to the reader.

Hopefully, King will come around and write another classic horror or thriller, because the last three have not been what we have come to expect from the modern master of horror. His most recent suspenseful and nailbiting experience has been *Misery*. That is, except for the epic which he created, called *The Dark Tower*, which is on the third book.

If he keeps contriving weak plots and subplots about dustbunnies, the mind-games of an old woman outsmarting her nurse as to when she was going to have a bowel movement, and more molestation than you can shake a stick at, he better sit back awhile and think about what makes good literature, or even just a good horror novel.

Overall, *Delores Claiborne* was a decent ride in the mind of an old lady, but either King is getting flat or I'm becoming jaded. I'd prefer to think that I'm not getting so old as to not like a good scare now and then.

"The book is entertaining, and inventive in the form it is written, but it seemed an easy, shallow read."

Big Deal/Hard Knox appears at The Other Place



photo by Douglas O. Fischer

Live on stage this week is a special reunion performance of Big Deal and Hard Knox. These guys play a no-nonsense, stripped-to-the-frame style of rock 'n' roll. Besides playing their killer originals, they pounded out the covers of many classic songs.

Boneclub is really Beautiful

By Jaylin Billig
Diversions Editor

The alternative rock band Boneclub has recently released their second album *Beautiful* on Imago Records. First recorded in March of 1992, it has now been reissued, and is ready to climb the college music charts.

After listening to the CD, I found an amazing variety of crisp, torturous guitar sounds on their six songs. Starting off with "Everything's on Fire," which is one of the best tracks on this release, Boneclub rips through heavy, hard-hitting grunge until it comes to *Slomo*, which, though it may be a slow song for them, is still a rock-hard four minutes of vocals and rhythmic guitar riffs.

We're not talking about just another alternative/grunge/Seattle sound rock band. When one hears the songs on this album, one gets the

"The overall impression these five... give is one of individuality..."

feeling of having sharp needles thrust into the ears, of seeing stars from the heavy blows these songs deliver.

Boneclub has definitely evolved into a "respectable" grunge band. Formed in 1989 by vocalist Andrew Arashiba, brother Dacey Arashiba, and bassist Pat Kallemeyn, the group played together until the end of the year, when Andrew spent a month with Seattle's Skin Yard as their vocalist. They reformed in 1990, and in 1992, Boneclub readmitted founding member Kallemeyn and added second guitarist John Hausman.

Though still a very young band (all members are in their early twenties), Boneclub has done some very interesting and exciting things. Their

first tour was in October of 1991, and since then, things have been going consistently uphill for the Minneapolis-St. Paul band. In only a year and a half, Boneclub has finished three European tours and more American road trips than they can count.

The overall impression these five artists give is one of individuality and emotion. Boneclub is difficult to pigeonhole into one category or another. Rather, they stand apart from the rest with their diverse and heavy-hitting style.

Check out *Beautiful*. You'll find it therapy for the thrasher tired of that old, form-letter type of hard rock. Take two and call me in the morning.

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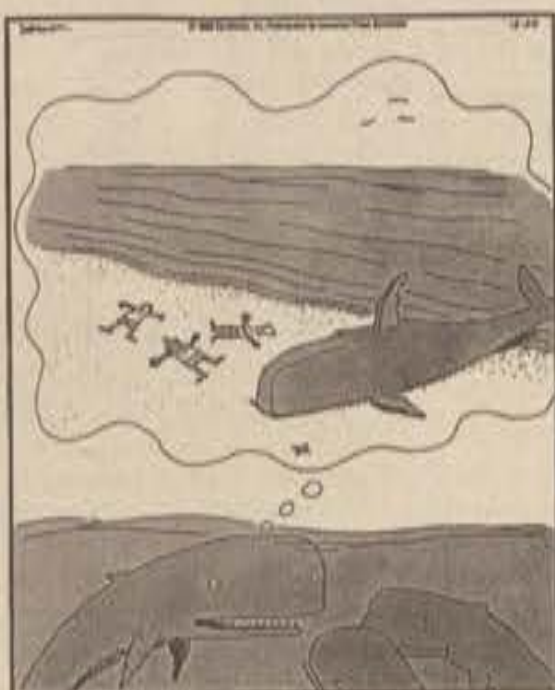


Outland by Berkeley Breathed



Far Side

by Gary Larson



And then, just as he predicted, Thag became the channeler for a 2 million-year-old gibbon named Gus.



"We're screwed, Marge. Big Al was our star attraction, the king of the show. ... And now he's gone."



→Autos for sale

1984 Ford Escort, \$1300+ in engine and transmission overhaul. Have all receipts. Body and interior in good condition. Runs good but does not idle very good. Asking \$1000. Ask for LAK at 322-0496.

1987 Honda Accord 87,000 mi \$4,900. Call Wanda Hatfield Ext. 6120.

1987 Buick Wildcat. New battery, chain, exhaust pipe, muffler, etc. \$800 OBO. Price will go up if I finish up the little things. Call John at 257-5107, P.S. Bike has good Florida title.

1987 Mazda RX-7, 5-speed, unroof, in nice excellent condition. Call 257-5029 between 8:30-3:30.

1986 Mercury Sable L.S. 83,000 mi (V6 V2 V3 V4) 73horse, cruise, excellent car \$3,495. Call 258-1257.

1986 Honda Interceptor 16,500 miles. Karkis, excellent eye, Red and Black, rattled earlier. \$550 more included. Need pay tuition or goodbyes Riddle! \$1,300 OBO. Call Man 257-0853.

Roommate needed to fill bedroom in 4 bed/1.5 bath house in South Daytona. Male or Female Non-smoker preferred. \$250/mo. All utilities paid by owner. Call Kim at 756-8560.

For rent - Private room with bath. All utilities \$300 a month from first of March 1993. Call evening 258-5901.

→ Misc. for sale

10 speed mountain bike, only used a few times, needs new gear changing cables and minor adjustments. Bought for \$160, will sell for \$80. Call John R. at 253-6065.

Super Nintendo Entertainment system. Includes control disk, two controllers, organization center, 4 games and hint books. Only \$250 firm (over \$375 value) Call Steve at 226-6576.

Refrigerator-cream color, no frost freezer-top, 16 cubic feet, 4 years old, clean! \$300 Call 672-6801.

Boxes - cheap, small, medium, large packing type wardrobe boxes (no. Used ones) excellent condition. call 672-6801.

For Sale: Full set of 528 Wilson Golf Clubs. \$75 neg. Call Marf 760-8866.

Custom subwoofer with 2 Alpine 10's 300w power handling. Caver PMA 2150 300w power amp with crossover. Rockford Fosgate Punch 751FD 120 w power amp. Make best offer. Ron at 257-1825 / Box 2698.

Large white sleeper-sofa: \$35 Call Cliff @ 258-5852.

For sale-RC model airplane excellent condition - includes: Futaba radio, 3 axis control, .25 engine (brand new) moving most sell. \$200 OBO. Call 756-8210. (all equipment included).

5'6" Grizzly surfboard. \$100 OBO. 756-9239.

PMI Tracer Paintgun. Top constant air, 8", 12", 14" barrels, viewfinder III, speed bolt. \$225 OBO. 756-9259.

Water design 2X10 kickerbox. Includes two - 10" woofers. \$150 OBO. 756-9259.

→ Miscellaneous

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PUSSYCAT
I'm glad you might have a job. If you go I'll miss you also. And, I'll always be here for you. Sorry I wasn't home when you came back.
KITTY

You know it's going to be a bad day when you put your bra on backwards and it fits better.

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- Non-commercial classified advertising and personals are free to the student body, faculty and staff of Embry-Riddle with 35 word limit.
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- For more information, stop by or call the Avion office at (904) 226-6049.

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1986 Honda Interceptor 16,500 miles. Karkis, excellent eye, Red and Black, rattled earlier. \$550 more included. Need pay tuition or goodbyes Riddle! \$1,300 OBO. Call Man 257-0853.

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Roommate needed. Location: The Breakers (1.5 miles from school); very nice area. \$165/month to share room or \$240/month for own room. Contact Ray or Mark at 258-3972. Please leave message if not home.

Room for rent in a quiet Port Orange neighborhood. Only 15 minutes to school. Private house with numerous amenities! Hurry at \$200 / month it will go fast! Call 756-1494.

Mature female wanted starting mid-February to share 2 bedroom apt. \$240/mo. + 1/2 electric and phone. Clean, swimming pool, tennis courts, on bus. Close to school on Clyde-Morris & Beville Road. Call 322-1409.

Diamond Back Master Racing Bicycle 14 speed Shimano 105cc w/ clipless pedals, sun rise wheels, aerobar, and wireless computer included less than 200 miles \$650 OBO. Call Ron 257-1825.

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Sailboat \$225. 12' Kema beginners board Two sails: 5m storm-7m speed. Clip-on adjustable boom, 1 piece composite mast. Jerry 756-7965 box 6595.

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Microwave oven - Kenmore, like new. \$100 firm. Call John 258-1829, pay cash pick up today!

Sofa. Contemporary style sofa for sale. 2 years old. Asking \$195 OBO. Call 238-3390.

Nintendo for sale. 8 games plus cleaning kit included. \$125. Call Chris 255-3126.

For sale: Snap-on Basic Tool kit. Same as in bookstores. Almost new. \$350 OBO. Call Chris 255-3126.

Marching couch & chair (burnt orange), side chair (gold) two end tables \$300 for group (will sell separate). Call Wanda Hatfield ext.6130

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→ Personals

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The air grows warmer, the sky grows brighter. The seemingly ever-present shadow has disappeared from campus.
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I never enjoyed the "Halls of Medicine."

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Shuttle
(continued from page B2)

NASA is projecting the launch of *Discovery* on STS-60 to be in November. The six member crew, including a Russian cosmonaut, will operate the second Spacehab module. This mission will mark the 16th time the orbiter *Discovery* has successfully launched and then safely returned to Earth.

The 1993 shuttle manifest concludes with the fifth launch of *Endeavour* on STS-61. This will be the mission that attaches the corrective equipment to fix the aberration in the Hubble Space Telescope (HST).

There are only three years left before the shuttles will be used exclusively for the construction of Space Station *Freedom* and many of the missions in 1993 will involve extravehicular activity.

The one EVA that will probably be the most celebrated and closely watched is the attachment of the Harris-built optical instrument to the HST. This maneuver will prove, as have other EVA's, like the satellite retrieval aboard the first *Endeavour* flight, that our astronauts are capable of performing critical activities in the vacuum of space.

These EVA skills and the information gained from these operations will be key to the successful construction of Space Station *Freedom*, which will begin in 1996.

South Korea
(continued from page B2)

ed by a crew of 39 persons working for 18 months. The orbiter is transported in 18 huge shipping containers. Once at its destination, it takes approximately 20 days to assemble the orbiter.

The replica, made of steel and fiberglass, offers visitors an astronaut's view of a space shuttle flight deck, crew quarters and cargo bay. *Ambassador* is 122-feet long, 36-feet high and has a 78 foot wingspan.

The lease has now run out and the new owners wish to take the replica to South Korea to show off this American achievement to the rest of the world.

But don't fear, if you did not have the opportunity to see the inside of a shuttle, Spaceport USA is in the process of acquiring its own.

A \$1.7 million replacement should be in the same location as *Ambassador* by the end of the year.

Spaceport marketing supervisor Tom Blair said the new orbiter will be "as exact as possible," mimicking the present NASA orbiter fleet of *Columbia*, *Discovery*, *Atlantis* and *Endeavour*.

The name of the new shuttle replica will be determined by Florida students in a contest this fall.

Pegasus
(continued from page B2)

released. After a five second free fall the vehicle's first stage rocket motor fires beginning the sequence that takes the craft into orbit.

Pegasus can deliver payloads of up to 1000 pounds into low-Earth orbit, with the option of an additional liquid fourth stage that would increase its payload capacity.

The Brazilian satellite launch will originate from the Shuttle Landing Facility (SLF) at KSC with a launch window of February 8 through February 21.

NASA will provide the B-52 that Pegasus needs to attain launch altitude as well as all of the range controls involved.

"Orbital has seven launches scheduled for 1993, which will make this a very busy year for us," Orbital spokesperson Laura Ayres stated.

This will be the first and only launch from the Florida location. The remainder of Pegasus' missions will originate in California.

IBM
(continued from page B3)

In December, IBM announced it would accelerate its own development of parallel processing and planned to produce early models sometime this year.

Analysts estimated last year that conventional mainframes still contributed about a third of IBM's \$65 billion annual revenue and two-thirds of its annual profit.

Last year IBM said it planned to eliminate 25,000 jobs in 1993 on top of the 40,000 cut last year. And this month, the company shocked the corporate world when it said it lost a record \$4.97 billion in 1992.

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