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Aeronautics

B

Volume 67, Issue 5

October 10, 1990

Denney Kitfoxes reunite at Fly-in celebration in Idaho

by Hoyt E. Brown
Aeronautics Editor

Eleven Denney Aerocraft Kitfox kits returned to the Nampa, Idaho factory recently. They were not being recalled, they were all airworthy and had been brought to the Denney facility for the first annual Kitfox Fly-In. The eleven privately owned aircraft were joined by three other factory aircraft for a two-and-a-half day celebration of sport flying.

Activities began on Friday with Kitfox owners flying in from as far away as 600 miles. On the opening day of the Fly-In, Ed Wilson, a representative of Rotax Engines, conducted a six-hour seminar on maintenance procedures for the Rotax.

During a Saturday morning session, there were three seminars: one on Kitfox painting guidelines, another on appropriate rigging, and the third on the annual maintenance inspection. After the seminars, the owners flew their aircraft in a loose formation to McCall, Idaho, a resort town up in the mountains. The Denney company put one of their factory airplanes on a new pair of Aerocraft floats and launched from a nearby river.

At McCall, the float equipped Kitfox was beached in front of the Shore Lodge. The afternoon was spent flying and giving rides to those who had come to Idaho without

their airplanes, had not finished them yet, or had not bought one yet.

That evening a dinner sponsored by Denney Aerocraft was attended by 169 people who had come to the Fly-In from as far away as Florida, New Hampshire, California, and Toronto, Canada, and points in between. The dinner was a lead-in to the award presentations for aircraft owners with the best Kitfox paint jobs, outstanding engine installation, top upholstery, and superior instrument panel. The Grand Champion Kitfox trophy was won by Lorin Wilkinson of Yelm, Washington.

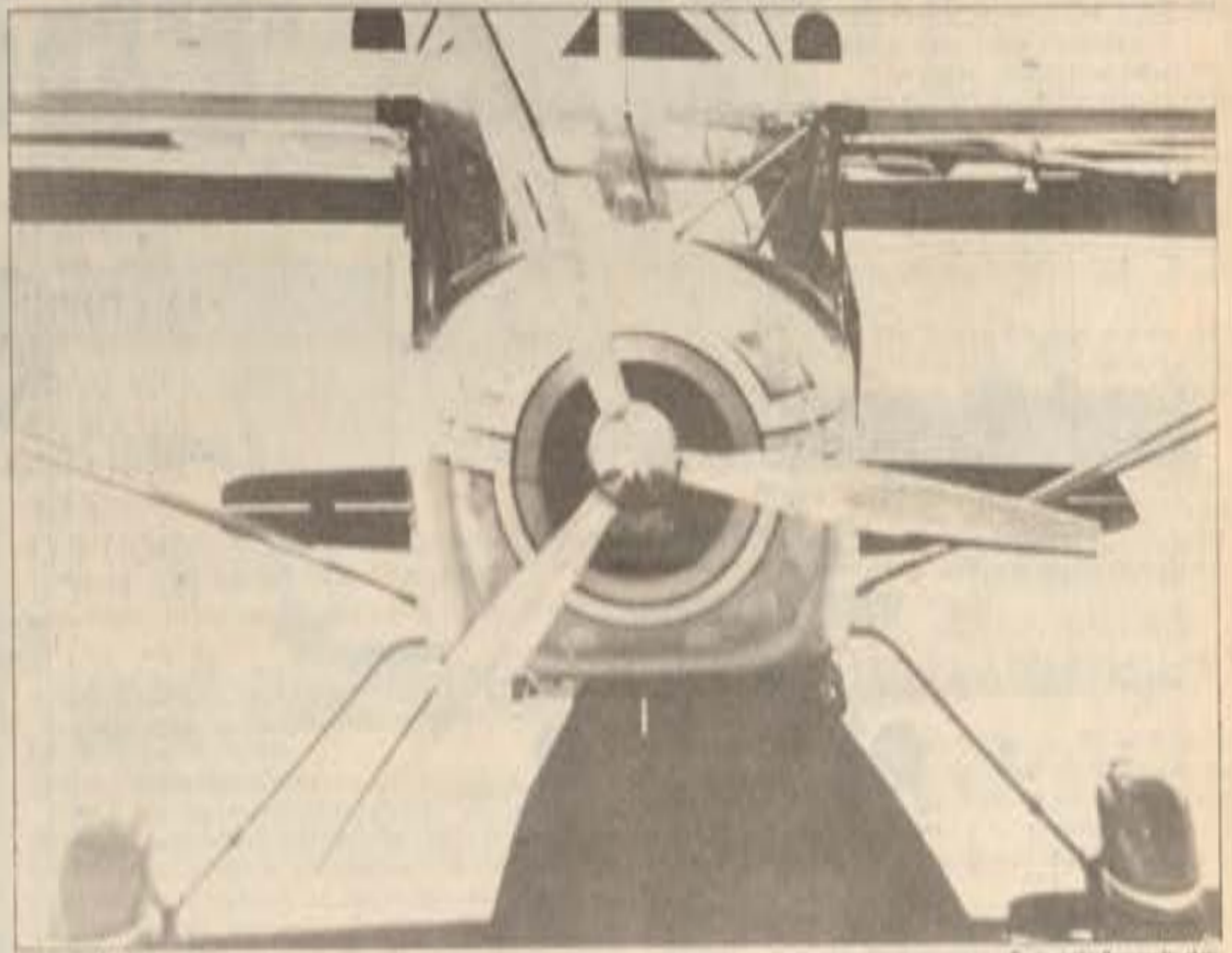
The next morning all of the pilots and enthusiasts turned out at McCall for short take-off, flour bombing, and precision landing competitions. The flying competitions marked the end of the Fly-In program and time for everyone to go their separate ways and head for home.

Said Dan Denney, "Considering we'd only planned for about 40 people and got 169, I guess we'd have to call the event a big success."

It's really a thrill to see so many finished airplanes in one place, and so many people who are enthused about the aircraft." The Denney Aerocraft estimates that approximately 400 Kitfoxes have already made it to flight lines around the globe.

"Considering we'd only planned for about 40 people and got 169, I guess we'd have to call the event a big success."

Dan Denney



Foxy kits...

Eleven privately owned Denney Aerocraft Kitfox aircraft were joined by three other factory owned aircraft for a two-and-a-half day celebration of sport flying at the first annual Kitfox Fly-In. Denney Aerocraft reports that 400 Kitfoxes are flying world-wide.

F-117A and Blue Angels to perform at airshow

by John McDermott
Staff Writer

This weekend, October 13th and 14th, Naval Air Station Jacksonville is having its 50th Anniversary open house and airshow.

The airshow will feature the Blue Angels and an F-117 Stealth Fighter will also be on static display.

This airshow is expected to be the largest in the southeast this year.

Other flight performers will include World War II through modern military aircraft, the Holiday Inn

Aerobatic Team, a wingwalking demonstration and fifty parachutists. There will also be a large static display with all types of aircraft. Admission to the airshow and parking is free, with preferred parking available for two dollars.

The gates will open at 8 a.m. with flying starting at 10 a.m. and lasting until 4 p.m. Saturday and Sunday. No coolers will be allowed in the viewing area.

N.A.S. Jacksonville is located off of I-295 on the St. John's River in Jacksonville.

This airshow is expected to be the largest in the southeast this year.



Expansion...

Eight new gates come to Orlando International Airport with the opening of Delta's latest hub.

by John McDermott
Staff Writer

Delta Airlines recently opened its new 500,000 square foot flight center and 45,000 square foot cargo terminal at Orlando International Airport. Both are part of a \$700 million expansion program to provide passengers and shippers convenience from Orlando to international and domestic des-

Delta opens flight/cargo center

tinations.

The 11 story terminal expansion will triple Delta's ticket counters, and will feature an expanded baggage claim area supported by a state-of-the-art automated baggage sorting and delivery system. The landside expansion has an eight story atrium with a large skybridge filled with a variety of tropical birds. A high speed elevated mover capable of handling thousand of passengers an hour connects the landside facility with the Flight Center. The Flight Center is a 140,000 square foot hub with a glass and steel skylight dome, that encloses \$2 million worth of interior landscaping.

Also located here is Delta's largest hospitality facility, the Crown Room Club. Three concourses with eight gates each are connected to the Flight Center. Included in the tower part of the Flight Center is a 15 gate commuter area for COMAIR, Delta's regional carrier.

Delta is Orlando's largest airline, and has served Orlando for 31 years. In the last several years, Delta

has more than doubled its service there, with airport growth going from six million passengers in 1981 to 17.8 million now. The other part of Delta's expansion, the cargo area is expected to increase Delta's share of the cargo market. It includes facilities for guaranteed overnight small package delivery, and virtually any type of cargo.

Bringing together all of the ramp and gate operations for Delta is its largest control tower.

The tower is 100 feet tall and is used to coordinate aircraft loading, fueling, catering, and ramp movement.

Currently Delta has the youngest aircraft fleet in the world with 436 aircraft with an average age of 8.6 years.

Delta has orders and options on 502 new aircraft valued at \$23 billion. Some of the new Delta aircraft are the MD-11, which will start delivery in November, and the Boeing 767-300ER.

This fleet of aircraft contributes to a dispatch rate greater than 99%.

Lockheed Diverter helps pilots in trouble

by Hoyt E. Brown
Aeronautics Editor

Here is a scenario for all of you future airline pilots to consider: a commercial airline flight is headed across the country when a flight attendant tells the pilots they have a medical emergency and that they need to land immediately.

But there are scattered, severe storms in the area that have closed many of the nearest airports.

The pilot then quickly inputs a few commands into the computer next to him and Diverter, a prototype of which was developed at Lockheed Aeronautical Systems Company, quickly recommends the nearest open landing site that can accommodate the special needs, displays a color map to the new destination and gives the pilot the reasons for that destination being chosen.

The Diverter project, recently completed for its sponsor, NASA Langley Research Center, was the two-year research program to develop cockpit technology that uses artificial intelligence (AI) concepts to aid aircraft pilots who experience in-flight problems requiring them to divert from their intended flight path.

LASC program manager George

Sexton said, "Diverter weighs all alternatives in a matter of seconds and recommends a decision and a rationale. It can also assess an air traffic controller's recommendations or a pilot's decision, but the pilot in command remains the final authority."

Diverter is made up of a processor with software employing AI concepts and programming methods, an on-board data base, pilot-vehicle interface and a real-time data link with ground stations.

Using knowledge pioneered in Pilot's Associate, another Lockheed AI program, the Diverter software integrates data from various sources and rapidly gives the information to the pilot on request.

The flow of information is intended to improve the pilot's situation awareness and reduce flight crew workload, thereby providing an opportunity for safer operation of the airplane during an emergency.

The on-board data base can be programmed to suit the needs of the

customer and may include information about route structures and schedules, and other carrier-specific policies. The system will also contain physical and geographical information about the area of operation (airfield facilities, runway length, proximity to hospitals, availability of certain emergency equipment, terrain, etc.).

Once in the air, the data link communications will allow the Diverter to continuously monitor changing weather and airfield conditions along

the intended flight path, then assimilate that information with data base and with updated flight status information.

When turned on, Diverter displays both graphic navigation information and a hybrid menu display for text. The touch-screen graphic display presents the aircraft crew with position, alternate destination, weather cells, jet routes and other pertinent data.

The real-time integration of data al-

When turned on, Diverter displays both graphic navigation information and a hybrid menu display for text.



Emergency navigator...

The Diverter Project, recently completed for its sponsor, NASA Langley Research Center, was a two-year research program to develop cockpit technology that uses artificial intelligence (AI) in an emergency situation.



Night Hornet...

McDonnell Douglas has begun delivery of the F/A-18D Night Attack Hornet to the U.S. Marine Corps.

Marines and Canadians get new Hornet equipment

by John McDermott
Staff Writer

McDonnell Douglas has begun delivery of the F/A-18D Night Attack Hornet to the U.S. Marine Corps. The new version of the F-18 is replacing all Marine Corps A-6 Intruders and the remaining RF-4's used for photo reconnaissance.

The F/A-18D is a two seat aircraft with new systems such as a forward looking infrared navigation sensor, color digital moving map, and special cockpit lighting for use with night

vision goggles. Another feature of this aircraft is a camera package for reconnaissance missions. The camera system is mounted on a pallet that can

replace the 20mm gun in the nose. The new Hornets will replace the West Coast squadrons A-6's at M.C.A.S. El Toro CA, first, and then East Coast squadrons at Cherry Point, N.C., with conversion to be completed by 1995. One of the reasons for replacing the Marine Corps A-6's is to give them to the Navy since the A-6 fleet is growing smaller as fatigue

lives are reached, and the Marine Corps desire to decrease the inventory of aircraft types.

In other Hornet developments Harris Corp. has introduced a fully integrated test and maintenance system for the APG-65 radar, called ADAPT.

An off-shoot of ADAPT technology called PATS for Portable Adaptive Test System has been sold to the Canadians for use on their CF-18's. The PATS is used to support the aircraft on deployment and significantly increases mission readiness in the field.

The system integrates three test operations in a single man portable box.

The Hughes APG-65 radar is a multi-mode radar for air to air and air to ground targets.

The Hughes APG-65 radar is a multi-mode radar for air to air and air to ground targets.

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Student astronauts train

by Roland Houle
Space Technology Writer

For anyone interested in getting hands-on experience with astronaut training, Space Camp is a great place to start. The facility in Titusville, Florida is specifically designed to give interested persons training as astronauts, primarily space shuttle astronauts.

The first and largest Space Camp complex is in Huntsville, Alabama. However, the Titusville complex although smaller, is within miles of the Kennedy Space Center. Also, part of this complex is an Astronaut Hall of Fame, dedicated to the original seven Project Mercury astronauts.

While geared towards elementary students, Space Camp in Titusville also has programs for educators and college freshman. The private non-profit foundation charges a fee for the camp that can range up to ten days in length.

A tour of the facility will present a quick look at the Space Camp program, along with the use of their simulation equipment. Another tour is also available of the Astronaut Hall of Fame.

Space Camp was a dream of Dr. Werner Van Braun's that has been developed over the years. The Titusville location was built as a joint project of the Mercury Seven Foundation and the Space Camp Foundation.

The simulation equipment is intended to provide users with as close a feeling to the real thing as possible with the gravity of Earth.

Some of the simulators include a moon walking

simulator, a Manned Maneuvering Unit simulator and a triple axis chair. This simulator imitates the feelings an early astronaut would receive if his capsule were tumbling out of control.

The Space Camp floor is dominated by a near full scale mockup of the forward module of the Space Shuttle *Discovery*. This mockup, in conjunction with a mission control simulator, offers participants with an opportunity to partake in a practice mission from prelaunch, to in-orbit operations, to landing.

The second half of the Space Camp complex is the Astronaut Hall of Fame. This museum gives a brief look at the history of the original Mercury Seven Astronauts.

The authentic artifacts in the museum range from patches to a Holiday Inn registration card signed by the seven astronauts. Plus, the actual Mercury space capsule, *Sigma 7*, in which Walter Schirra orbited the Earth six times, doubling the flight time in space, is in the center of the Hall of Fame.

In addition, there are films on each of the astronauts lives and their accomplishments in the space program as well as a brief history of the beginning of the space race.

Finally, the Hall of Fame concludes with a short film on the original seven astronauts. The film highlights all of the "firsts" of the early American space program.

Although not as large as the Huntsville Space Camp, the Titusville Space Camp offers a great deal. All the visitors are not space buffs, but all the visitors will come away with a more interesting view on the space program and a great deal of knowledge.



NASA photo

Atlantis is set back

by Marianne Michaels
Space Technology Editor

The Space Shuttle *Atlantis* suffered a setback last week when a large tool was mistakenly left in the engine compartment.

A NASA technician who was working in the main engine compartment, while *Atlantis* was in the Orbiter Processing Facility (OPF), inadvertently left a 70 pound tool in one of the main engine compartments.

The Space Shuttle was rolled over from the OPF to the Vehicle Assembly Building on Oct. 2.

The tool was discovered when *Atlantis* was being lifted to be mated with the External Tank. The tool was heard by NASA workers as it damaged several parts in the engine compartment.

The Space Shuttle *Atlantis* was scheduled to be rolled out to Launch Pad 39-A yesterday morning, but was delayed 24 hours due to tropical storm clouds.

Meanwhile the Space Shuttle *Columbia* was rolled from Launch Pad 39-A to Launch Pad 39-B, so that technicians can begin testing the tanks for possible leaks.

Going up...

When *Atlantis* was hoisted up to be mated to the External Tank, in the same way *Discovery* is in this photo, a tool damaged internal parts of the main engine compartment.

NASA plans heavy lift launch vehicle

by Marianne Michaels
Space Technology Editor

NASA is in the process of designing a cargo version of the space shuttle which will give the U.S. a much needed heavy lift launch vehicle. The Shuttle-C, as it is called, will be an unmanned rocket using the existing hardware from the space shuttle. The space shuttle can launch 25 ton payloads as compared with the 50-75 ton limit of the proposed Shuttle-C.

Shuttle-C's payload capacity will vary with the option of having two or three engines on the Shuttle-C. The range is from 100,000 pounds with two engines to 170,000 pounds with three engines.

Since the space shuttle is so heavy the payload can only weigh 50,000 pounds. The space shuttle lifts into orbit about 230,000 pounds including its own weight and crew.

The Shuttle-C's increased payload weight is a result of no life support systems nor any re-entry systems being that it does return to Earth. The Shuttle-C will offer many advantages from an economic standpoint by using the current space shuttle hardware along with its facilities.

The Shuttle-C consists of two sections, the aft fuselage holding the propulsion devices and the payload carrier. A

second cost effective piece of equipment will be the Solid Rocket Boosters that were used before the *Challenger* incident. Since the Solid Rocket Boosters cannot be used for manned spaceflight due to the O-ring flaws, but they can be used on the Shuttle-C because of the reduced safety parameters.

The Shuttle-C would greatly enhance the U.S. lift capability by cutting the assembly time in half for developing the Space Station *Freedom*. The Shuttle-C would be scheduled to fly two to three missions a year. This will keep the assembly lines open resulting in reduced costs.

The launch and ascent phase will be similar to a space shuttle flight. The two engine Shuttle-C version would fire its engines for 620 seconds while its three engine flight would last for 520 seconds. There would be no abort options meaning the payload would have to reach a successful orbit the first time.

After SRB separation the payload shroud is jettisoned while the nose is jettisoned after main engine cutoff. The Orbital Maneuvering System pods will insert the Shuttle-C into orbit. After the deployment of the payload, the Shuttle-C will re-enter the Earth's atmosphere and burn up over the ocean.

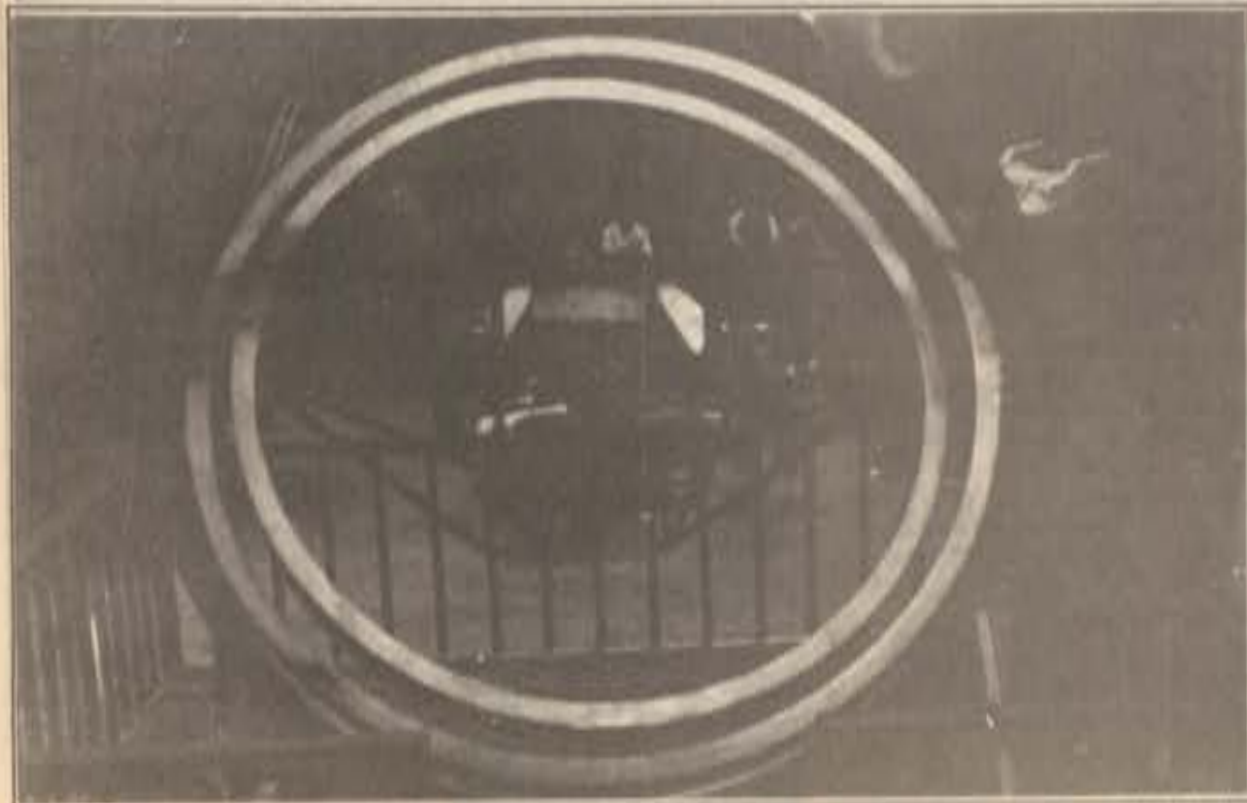


photo by Roland Houle

Dizzy?...

Embry-Riddle Aerospace Society member Joshua Mussaf spins in Space Camp's triple axis simulator designed to imitate a tumbling space capsule.

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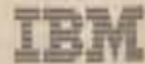
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Hewlett Packard leaps forward with the HP48SX

by Jaap van Ryn
Data-Technology writer

Over the summer, Hewlett Packard introduced perhaps one of the most powerful hand held Scientific calculators. The new HP48SX is a one of a kind machine with its many unbelievable features. The distinctive size of the HP48SX, 3.2 inches by 7.1 inches, leaves room for a large super-twist technology LCD that literally makes heads turn to watch the machine in action. Hewlett Packard did not forget about the need for expansion either. The two card slots, serial wire and infra red communication link puts the HP48SX in touch with a wide variety of peripherals.

The most significant improvement is the HP Equation Writer function that enables the user to enter any equation just like it would appear on paper. The text book style equations produced are much easier to understand and edit for the user. All standard scientific functions are supported including differentiation and integration. The 49 keys give easy access with the most frequently used keys such as SIN, COS, X² etc., centrally located on the face of the calculator.

The HP48SX has more than 2,100 functions that are easily accessible through the 59 user-friendly menus. The power comes out of the whopping 256K ROM on board and 32K RAM, which can be expanded to 256K with optional memory cards. The RAM cards can be customized and then transferred to EPROM cards for permanent

storage. The custom menu lets the user create separate menus for those frequently used functions or programs.

The serial interface allows the calculator to connect to other HP48SX calculators and computers. Through software emulation these computers allow the user to transfer programs, graphs or data for manipulation in other software packages. There is even a function that allows the HP48SX to function as a dedicated math co-processor, allowing complicated functions to be sent to the HP48SX while freeing up the host computer.

The only drawback to first time users might be the RPN, which stands for Reversed Polish Notation. But for someone who has had any experience with HP calculators will be ready to tackle the power built into this machine. The review mode allows for easy stack manipulation making long calculations even easier. The matrix editor makes using matrices a breeze since the editor looks similar to a conventional spreadsheet program. This machine also keeps track of time and date allowing date arithmetic along with the alarm functions. The unit management system allows easy control of units even throughout long and complicated calculations. With 148 units built in, the unit management system makes unit conversion between English and Metric standards a snap.

The plot function has been greatly improved allowing for various different types of plots. The graphs produced can be in the form of functions, conic, polar or parabolic plots. In statistics the data can be graphed as truth, bar, histogram or scatter plots. The equations that are plotted can be easily analyzed to give local maximum or minimum values through the solver function. The plots can then be stored for later viewing.

Second party suppliers have already started to make many extras available for this machine. The external floppy disc drive uses 3.5 inch high density (1.44MB) disks which can be used for data storage or retrieval of data or programs. Several application cards are available ranging from Mechanical Engineering cards to Survey cards. The Mechanical Application package includes more than 350 equations in statics, dynamics, fluids, thermodynamics, power generation and more. The Electrical Engineering package has equations for the analysis of electrical fundamentals, network analysis, digital signal processing or electromagnetic fields. The Chemical Applications package contains a full Periodic Table with 30 properties per element and can calculate theoretical yields and limiting reagents. There is even an HP41CV emulator card that turn the HP48SX into a total HP41CV environment calculator. For people who like to kill some time once in a while there is even a game card that plays Blackjack, Roulette, Slots or Video Poker with animated displays.

This calculator leads the way even when compared to such new calculators as Sharp's PC-E500 scientific hand-held computer. The HP48SX uses standard AAA batteries so the need for those awkward sized hard-to-find expensive batteries has been eliminated. The HP48SX was designed with the engineer in mind, not the back pocket

of company officials since every feature is thoroughly laid out with concrete reasoning and logic behind every key stroke. The HP48SX will remain a leader in the calculator industry until some major scientific breakthrough that will revolutionize the whole industry.



Its got the power.. The HP 48SX gives students needed power.

The most significant improvement is the HP Equation Writer function that enables the user to enter any equation just like it would appear on paper.

Interplay turns out a good chess game

by Jason Simon
Data-Technology Editor

Since the beginning of the personal computer age, there have been many chess programs written for the pseudo armchair Grandmaster. These programs have been constantly upgraded to allow for the expanded capabilities of the home system. The latest release is Interplay's *Checkmate*.

After the program loads, the chess board appears on the screen. The first thing the player must do is get past the program's copy protection. In order to play the game, the player must enter into the computer a chess move, picked at random by the computer, from a list at the end of the owner's manual.

There are several nice features that set this game apart from the rest. The first is the difficulty settings. The computer can be programmed to play at a strong level, which can then be set to represent either an average human, or the 2000 plus chess rating this

program can carry. Or, if the player isn't quite up to the challenge of the beat, he can select a weak opponent. When a weak opponent is selected, a menu comes on the screen which tells the player the different player/animals he can play against. The ratings range from orangutan, the lowest, to gorilla, the highest, with many settings in between.

Other features include the ability to view and review play since the game remembers all moves made since the beginning of the game. Learning, which allows the computer to store moves it considers strong and thinking which allows the computer to think about what move it wants to play next while the human player takes his turn. These features can be turned on and off at will.

Another feature is called "my grade." When selected this feature abandons the current game and presents the player with a series of chess problems. The ultimate goal is to allow the player to figure out what his grade is when compared to other players.

Checkmate also has an opening library. This library is a database of sequential moves that the game will consider during the opening moves of play. The opening library contains over 300,000 moves which allows *Checkmate* to execute opening moves quickly, but allows the computer to avoid opening traps.

The user can decide how *Checkmate* will consider these opening moves. The opening library pull down menu allows the user to force *Checkmate* into

choosing moves by strength, popularity or random. Random is the default setting in this game, unless the player decides otherwise.

There are several sets of chess pieces that come with this game. The sets include the normal chess pieces, a futuristic set for those who wish to play with a strange, and sometimes hard to play set and a babydoll set, for those who like baby dolls.

A feature worth mentioning is the addition of the ability to make pieces. In the Amiga version, if the player has the painting program *Deluxe Paint* Three the player can load the game into a disk drive and create his own pieces from scratch. This is ideal for the person who doesn't really like the several sets of pieces that come with the simulation.

Overall Interplay's *Checkmate* proves to be an outstanding chess game. This game is currently available for the Amiga and Atari ST. The MS-Dos version is scheduled for release on October 15.

Other features include the ability to view and review play since the game remembers all moves made since the beginning of the game.



Your move... Interplay's new chess game, *Checkmate*, proves to be one of the most challenging chess games around.

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Calvin and Hobbes

by Bill Waterson

Panel 1: Calvin: "HI MOM! I'VE GOT MY OWN TV SHOW!" Mom: "THAT'S NICE."

Panel 2: Calvin: "HE'S CAAALVIN! AMAZING, GREAT CAAALVIN! OH, HE'S THE ONE THAT YOU'D LIKE TO MEET! HE'S THE ONE WHO JUST CAN'T BE BEAT! HE'S CAAALVIN! LA DA TA DA DAAAA!"

Panel 3: Calvin: "THANK YOU! THANK YOU! BOY, WHAT AN AUDIENCE! THANK YOU! PLEASE! HA HA! NO, REALLY, SIT DOWN! THANK YOU! THANK YOU!"

Panel 4: Calvin: "I'M CHANGING THE CHANNEL. OK?" Mom: "SORRY, I'M ON ALL THE NETWORKS."

Panel 5: Calvin: "WHERE'S YOUR TV SCREEN?" Hobbes: "MY FALL LINEUP GOT CANCELED."

Panel 6: Calvin: "DAD SAID ONE TV IN THE HOUSE WAS BAD ENOUGH AND HE PREFERRED THE ONE WITH THE VOLUME CONTROL."

Panel 7: Calvin: "MAYBE YOU SHOULD GO CABLE."

Panel 8: Calvin: "I'VE GOT AN IDEA FOR A SIT-COM CALLED 'FATHER KNOWS ZILCH'."

Panel 9: Calvin: "WHAT A RIP-OFF! THEY SAY IF YOU CONNECT THESE DOTS YOU GET A PICTURE, BUT LOOK! I DID IT AND IT'S JUST A BIG MESS!" Hobbes: "I THINK YOU'RE SUPPOSE TO CONNECT THEM IN THE ORDER THAT THEY'RE NUMBERED."

Panel 10: Calvin: "OH."

Panel 11: Calvin: "EVERYTHING'S GOTTA HAVE RULES, RULES, RULES!"

Panel 12: Calvin: "33... 27... 18..." Hobbes: "HIKE! AUGH!"

Panel 13: Calvin: "IT'S CLEAR I'LL NEVER HAVE A CAREER IN SPORTS UNTIL I LEARN TO SUPPRESS MY SURVIVAL INSTINCT."

Panel 14: Calvin: "TOUGH TOWN!"

Panel 15: Calvin: "WHAT THIS GAME NEEDS ARE NEGOTIATED SETTLEMENTS."

Panel 16: Calvin: "HOW COME YOU'RE THE ONE WHO GOES TO WORK, AND NOT MOM?" Hobbes: "WELL, YOUR MOM USED TO GO TO WORK, BUT ONCE YOU CAME ALONG, SOMEONE HAD TO STAY HOME."

Panel 17: Calvin: "YOUR MOM'S JOB HAD A LOT OF STRESS AND AGGRAVATION SEE..." Hobbes: "...AND SHE WANTED TO QUIT?"

Panel 18: Calvin: "HEY!" Hobbes: "NO, SHE'D GOTTEN USED TO IT, SO WE FIGURED SHE SHOULD BE THE ONE TO..."

Far Side

by Gary Larson

Panel 1: "The glass is half full!"

Panel 2: "The glass is half empty."

Panel 3: "Half full... No wait! Half empty... No wait! What was the question?"

Panel 4: "Hey, I ordered a cheeseburger!"

Panel 5: "Step back, Loretta! ... It's a red-hot poker!"

Panel 6: "The four basic personality types"

Panel 7: "When imprinting studies go awry"

Panel 8: "Danook shows off his Swiss Army Rock."

Panel 9: "Each time the click beetle righted itself, Kyle would flip it over again — until something went dreadfully wrong."

Panel 10: "Fish funerals"

Mister Boffo

by Joe Martin

Panel 1: "MORE PROOF THAT NOT EVERYTHING NAMED 'CLIPCAKE' IS CUTE AND CUDDLY"

Panel 2: "PURGATORY, THE BASILY DAYS BEFORE ALL THE BUGS WERE WORKED OUT"

Panel 3: "NEW FATHERS UNCLEAR ON THE CONCEPT"

Panel 4: "BETSY! COME IN HERE QUICK... THE KIDS COVERED IN MUD!!"

Mother Goose and Grimm

by Mike Peters

Panel 1: "YOU DON'T UNDERSTAND, ATILA... THE QUEEN VACUUM IS ONLY GESTATING RIGHT NOW."

Panel 2: "IN A WEEK THERE WILL BE THOUSANDS OF HUNGRY LITTLE VACUUM LARVA ALL OVER THE FLOOR SPINNING THEIR TINY COCOONS INTO VACUUM BAGS..."

Panel 3: "...AND SOON THEY'LL MUTATE INTO LITTLE DUST BUSTERS, AND EVENTUALLY INTO FULL-SIZE VACUUMS..."

Panel 4: "I SAW IT ON NATIONAL GEOGRAPHIC."

Panel 5: "WHERE DO YOU COME UP WITH THESE THINGS?"

Panel 6: "I GUESS THESE THINGS TAKE TIME."

Panel 7: "GRIMM, YOU'VE GOT TO GET OVER THIS FEAR OF VACUUMS. SEE? THEY'RE PERFECTLY HARMLESS."

Panel 8: "GRIMM... WHY ARE WE DOING THIS?"

Panel 9: "AS LONG AS THERE'S ONE VACUUM LEFT IN THE WORLD, NO DOG WILL BE SAFE."

Panel 10: "...HE WENT THAT WAY."

Notices

Senior information concerning graduation

All seniors must fill out a degree completion form if they are anticipating a December 15, 1990, graduation. The deadline to apply is Friday, October 12, 1990, by 4 p.m.

If you plan to attend the ceremony you will also need to complete the Ceremony Attendance Form.

Student Activities is accepting applications for those Seniors anticipating April '91 degree completion. Come to the Registration and Records Office and fill out an application to receive a "Preliminary Evaluation". We will try to have one sent to you before Advanced Registration for Spring '91 later this semester.

Counseling Center offering program

The Counseling Center is offering a five week group program on self hypnosis. The group will meet for 2 hours per week during October 22-November 19. Topics such as ego building, stress management, eliminating negative habits, addressed through self hypnosis. If you are interested, make an appointment for a short interview in the Counseling Center during the week of October 15-19. Group size limited.

Safety Department to sponsor seminar

The Safety Department is sponsoring a personal safety seminar entitled "Prevention is The Key" on October 25, 1990, at 1:30 pm, in R-109. The seminar will be presented by Crime Services, an Atlanta based organization specializing in home security and personal safety. Everyone is invited to attend.

Survey

(continued from page A1)

percent gave an F. The final grade was a C-

Like many other facilities on campus, sometimes students have to stand in lines which refers to the next question. "How is your wait time in line?" About 20 percent gave a B, 30 percent a C, 30 percent a D, and 20 percent an F. The final grade came out to be a C-

A question about variety was asked. "Do you like the selection?" Only 10 percent gave a B, while 60 percent gave a C, and 30 percent-F. The final grade was a C-

"How do you rate the service?" was a question asked. The response for this one was 50 percent C, 40 percent was a D, 10%-F. The final grade was also a C-

Some concern has been given over the size of the meals. The question

"What do you think about price related to proportion served?" was asked. Around 20 percent gave a C, 40 percent gave a D, and 40 percent gave an F. The final grade was a D-

Another question we asked was "How would you rate the quality of the food?" 30 percent gave a B, 30 percent a C, 30 percent a D, and 10 percent gave an F. The final grade was a C-

Economy has an effect on what students think. So the question "How would you rate the prices compared to other cafeteria services?" was asked. About 50 percent gave a C, 30 percent a D, 20 percent an F. The final grade was a C-

The last question asked was "What do you think about Morrison's management?" Around 20 percent gave a B, 40 percent a C, and 40 percent an F.

The final grade was a C-



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