Winged Victory
A Century of Flight

Pennsylvania College of Technology
The dawn of America's second century of flight is an astonishing milestone. The fact that Pennsylvania College of Technology and its predecessors participated in 70 of those first 100 years truly is a cause for celebration.

Our institution has a proud and remarkable history, and the aviation program is one of its oldest success stories. (Along with our similarly long-running automotive curriculum, we have transportation covered!) That story is related in these pages and was shared with students, alumni and friends at a centennial gathering in mid-December.

Marking the path are a trailblazing woman and a fearless wilderness flier, an assorted cast of dreamers, and a much-appreciated sampling of corporate partners with insight and generous donors with foresight. Through it all runs the thread of tradition, represented by our dedicated instructors (several licensed pilots among them) and students attracted both to the boundless wonders of flight and the serious responsibilities on the ground.

Perhaps aviation holds the same promise for them as it did for Charles Lindbergh, who once wrote, “Science, freedom, beauty, adventure: What more could you ask from life?”

Our spacious Lumley Aviation Center – equipped with up-to-date electronics systems and a fleet of general-aviation, corporate and military training aircraft – offers the perfect environment for teaching and learning. Graduates of our four aviation-related majors leave here with the hands-on skills they require, the textbook reasoning behind them, and, most importantly, the solid academic base on which to build a worthwhile career.

From the Wright brothers’ stirring conquest of the air over Kitty Hawk to tomorrow’s intergalactic voyages, their story is our story. Our aviation program is proud to join in this nation’s high-flying success.
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Fly Me to the Moon

Maybe it was a youngster’s taste for Tang – seriously now, who wouldn’t want a space-age powdered substitute for real orange juice! – that fueled my boyhood dream to be an astronaut. Perhaps it was the whole space-age promise of the day. One thing’s for sure: Ever since Scott Carpenter rode Aurora 7 three times around the Earth on my fifth birthday, “up there” was where I wished to travel.

A family vacation to Illinois took me through John Glenn’s Ohio hometown, where the “Welcome to Zanesville” signs sported a miniature wooden cutout of his Friendship 7 space capsule. I was allowed to stay up past 10 on that magical July night when Neil Armstrong and Edwin “Buzz” Aldrin descended to the moon’s surface, parking their wingless Eagle “in peace for all mankind.” My buddies and I launched rockets in the school yard and covered our dressers with plastic models of the lunar module and other spacecraft.

I remember the Life magazine shots of that Apollo landing, “Old Glory” reflected in an astronaut’s visor. The helmet was mysterious and cool; the suit so very crisp and clean. Buck Rogers and Flash Gordon would have nothin’ on me.

The living-room couch was the perfect width for me and my crew, sitting backward and upside-down with our legs over the headrest, counting down the “T-minus” ticks to liftoff and pulling back our cheeks to simulate the g-forces at work. With the naiveté of small-town boys, we were unaware of the rigorous preparations that culminated at that Cape Canaveral launch tower. If a chimp and a dog can do it, we thought, how hard could it be?

As the years went on, I developed a “count me out” understanding of the meticulous training – the poking and prodding and spinning that would-be space travelers endure. My mind also turned to the flight disasters that punctuated my life, a ready rationale for running the other way: a Mohawk airliner crash in my hometown, the Challenger explosion while I was on jury duty, Lockerbie. TWA Flight 800. Sept. 11, 2001. The Columbia’s fiery freefall last February.

Preparation of this issue of One College Avenue thankfully has restored my vision and renewed my desire to be airborne. I’ve been looking through the wrong end of the telescope, concentrating on the romance of space travel and dwelling anxiously on those relatively infrequent times when things go wrong.

My envy of astronauts and pilots for the sheer prestige of their literally lofty positions has given way to a newfound appreciation of the hours wrapped up in all aspects of flight, the safety-conscious work ethic involved in sending tons of metal and humanity into the air. Students in Pennsylvania College of Technology’s aviation-related programs – as well as every other endeavor at the institution – know that their skills speak for them.

It comes too late for a NASA career, but I’ll have no qualms the next time I hand over my boarding pass outside a passenger plane. And instead of sending a scrap of paper to the cockpit, asking whether I can meet the captain, I’ll address my note to the capable professionals on the ground who triple-checked the wiring and gave that landing-gear bolt an extra-snug turn.

Tom Wilson, Editor
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Contrary to the statistics and fueled by news reports that scream “disaster,” the fear of flying consistently is among the Top 10 phobias of adults. Pennsylvania College of Technology is doing its part to ease concern, producing knowledgeable students willing to stake their reputations on the safety of the aircraft under their wing.

James E. Doebler and Brett A. Reasner, associate professors in the College’s nationally recognized aviation program – both alumni, as well as past recipients of the institution’s Master Teacher award – recently addressed safety and other industry issues in an appearance on the “Penn College and You” public-affairs television series.

While air disasters understandably command public attention, Reasner said the public’s panic is born more of that “strange sound under their seat” than on actual numbers.

“It’s a natural thing because you don’t have control, and a lot of people don’t understand what makes a plane fly,” he said. “Statistically, one of the safest ways to get from Point A to Point B is in an airplane. A lot of these planes have several redundant systems. If something happens to one, there (are) several backups.”

Functional upkeep of those systems is the role of the maintenance technician. Students in aviation majors at Penn College’s School of Transportation Technology learn the physics of flight – the combination of drag, thrust, lift and weight that allows a plane to rise (and stay) off the ground – and they understand that pilots will rely heavily on their expertise in the workplace.

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Aviators comprise less than 5 percent of the industry payroll, statistics indicate. Although many may envy the stereotypical pilot “strolling through the airport with the shades on,” the qualified and conscientious support team on the ground is essential.

Just a few minutes in the cockpit of a Cessna 172 with Doebler proves how true that is. This is a world of instrumentation: altimeters, air-speed indicators, artificial horizons, directional gyros and gauges that measure everything from oil pressure to cylinder-head temperature. All these need to be clearly understood when it counts, where the rubber meets the runway.

“(Technicians) need to be able to relate what . . . the airplane is doing when there is something wrong,” explained Reasner, who began his career in aircraft maintenance before joining Penn College’s faculty. “They can take what the pilot tells them, know what it is supposed to actually be doing, start the analytical process of problem-solving, and hopefully do a little troubleshooting to come up with a conclusion. You feel that you earned your paycheck that day.”

Such personal and professional satisfaction – the timely solution of a problem that allows an aircraft to safely reach its destination – is among the job’s benefits, Reasner said. It is work that demands an obvious maturity from its practitioners.

“It’s serious business,” said Doebler, a 36-year veteran and one of Reasner’s former instructors. “You’re held responsible, not only morally, but legally. You’re held responsible for what you do – or don’t do – on the aircraft.”

“There’s an old saying, ‘If a person’s name is on the roll, their heart’s in the work,’” Reasner echoed. “We sign for everything we do. When we fix something on the airplane, we actually sign our name that we did it correctly.”

It’s an awesome responsibility, with lives and reputations on that dotted line. This responsibility is reflected in the determination of today’s students, many of whom select a baccalaureate degree: two years of maintenance instruction, followed by two more of aviation electronics.

“Aircraft have gotten more complicated now, which requires more skill out of the maintenance technician,” Doebler observed. “Our training has increased in electronics in the past 10-15 years. We’re getting a different caliber of student (who is) taking harder work, not only to learn the maintenance of the aircraft, but also to pick up the electronics part of it. It usually takes about four years before they accomplish that.”

As expected, math and the sciences are necessities in the technician’s curricular tool bag. Intensive hands-on labor, four hours in the lab for every two spent in the classroom, is the hallmark of the program. Dedication, coupled with the instructors’ drive to keep current with the expectations of a volatile industry, helps College graduates find work in an often-fickle economy.

“The ’70s were probably some of the best years, what we call the ‘heyday,’” Doebler recalled. “The industry has
always been (one) of feast and famine. It’s like a roller-coaster ride – sometimes, you’re at the top of the hill; sometimes, you’re at the bottom.”

The tragedy of Sept. 11, 2001, only added to the uncertainty. With their combined five decades’ experience, however, Doebler and Reasner are optimistic that skilled graduates will find viable employment.

“Six or seven years ago, it was difficult,” Doebler said. “Then, in the past few years, graduates were getting jobs. It’s pretty steady right now – the employers that are taking most of our students are the regional airlines.” Starting salaries are in the mid-$30,000 range, and the sky’s the limit advancement-wise for graduates willing to move to a metropolitan airline hub, Reasner added.

“Most of our students have a tendency to love aviation and really love the way airplanes fly,” he said. “There’s a lot of interesting things that go into getting an airplane off the ground, and the different systems we get to work with. Modern aircraft are very technologically advanced, so, if you enjoy working with high technology, it’s a challenging career.”

In the midst of progress, Doebler is quick to add, an appreciation of history is in order – keeping one’s feet on the ground as the planes zoom overhead. Students recently completed a 1/3-scale model of the Wright brothers’ original airplane, unveiled as part of a centennial celebration of powered flight held at the Lumley Aviation Center in December. (See cover photo.)

Why would Pennsylvania’s premier technical college pause in its cutting-edge march to look back 100 years? “To see where our roots are,” Doebler readily answered. “To get back to the basics and see where aviation really came from. Sometimes, we forget about the past because we’re too worried about the future.”

As alumni and Master Teachers, Doebler and Reasner find time in their classrooms for both.
Ben Franklin’s Shock Propels Move to Deep Space

by David S. Richards, associate professor of physics

If today is a typical winter day, you more than likely received a mild shock while brushing your hair, getting out of your car or taking off your coat this morning. Frictional forces were going to work before you were, stripping millions of electrons from their comfortable beds and forcing them to jump off your body to an unsuspecting doorknob, car handle, desk or co-worker. Electric charges have been going through this routine for millennia now.

In 1750, Benjamin Franklin’s curiosity and ingenuity came together as he constructed an apparatus capable of separating and storing more and more of the “mysterious electric fluid.” His experimentations with static electricity became increasingly more elaborate until, one December afternoon, he tried to kill a turkey using his electrical device. Unfortunately for Franklin, his hands accidentally touched the charged conductors, resulting in a shock that he described as “a universal blow from head to foot throughout the body, it was followed by a violent trembling in the trunk . . . I did not see the flash . . . nor did I hear the crack, though my by-standers say it was a loud one.”

Little did Franklin realize that, by trying to electrocute a turkey with static electricity, he actually was testing a prototype rocket engine for the future (although the bystanders may have deduced that electricity can propel an object through space). The idea of using electric charges to propel spacecraft throughout the universe is now a reality. Space probes are flying around our solar system employing the same basic phenomenon that Franklin investigated 250 years ago.

The technology behind most rockets used during the past 40 years is similar to a typical combustion engine. Fuel is injected into a chamber and ignited to produce a force. In the case of a rocket engine, the walls apply a force on the exploding gases and the exploding gases apply a force back on the chamber walls, propelling the rocket in the opposite direction of the moving exhaust.

An innovative line of rocket engines currently being designed and used by NASA relies on the electrical forces between charges to create a thrust instead of the chemical combustion of fuel. Charged particles (called ions) are ejected from the spacecraft at speeds exceeding 100,000 kilometers per hour. These “ion engines” work by first stripping electrons away from the atoms that make up the fuel, xenon gas in most cases. The positively

EDITOR’S NOTE: NASA would like to test and use several prototype engines in the near future. The design and physics behind the workings of these propulsion systems is investigated in The Science of Spaceflight (SCI160) class, offered at Pennsylvania College of Technology during spring semesters. The course was developed by the author during a summer fellowship at NASA’s Marshall Space Flight Center in 1995, and has been continually updated through National Science Foundation programs at the Jet Propulsion Laboratory in Pasadena, Calif., and the Kennedy Space Center in Cape Canaveral, Fla.
charged xenon atoms are accelerated toward a high-voltage metal grid and are forced out the back end of the engine. Once through the nozzle, electrons are introduced into the streaming exhaust to neutralize the gas, keeping the atoms from being attracted back toward the spaceship.

The concept here is to eject atoms that have extremely small mass at very high speeds, resulting in a relatively small force on a large spacecraft. (For example, if you were standing on a very slick sheet of ice and threw a small rock, you would start to slowly move in the direction opposite that of your throw). Similarly, the exiting xenon atoms provide continuous nudges to the engine as they push off the inner wall and exit into space.

In 1999, NASA launched Deep Space 1, the first probe to use an ion engine in space. A Delta II chemical rocket launched the probe above the earth’s atmosphere, freeing the payload from the impeding air. The ion engine then was engaged, taking the probe to its targets of asteroid Braille and comet Borrelly. The Deep Space 1 engine ejected a mere three milligrams of xenon per second, providing continuous thrust over a 20-month period, steadily accelerating the probe to a speed of 13,000 km/hr. A typical chemical rocket could accelerate the probe to this speed in a matter of minutes, but would require 10 times more fuel to do so.

Patience is more than a virtue here – ion engines are much more efficient than combustion engines and are proving to be very reliable. Since there are no moving parts, there is a reduced risk of failure and less engine wear over long periods of constant operation. One engine being tested at NASA’s Jet Propulsion Laboratory recently passed an unprecedented 30,352 hours of continuous use.

The energy needed to create ion propulsion can come from several sources. Solar panels can be used for probes that don’t stray too far from the sun, but, for deep-space missions, nuclear generators must be used. NASA continues to develop ion drives for future missions, hoping one day to send a probe to Jupiter’s moon Europa in search of life in the liquid oceans beneath its icy crust.

So should Penn College automotive students switch their majors to electrical technologies? Not quite yet. Ion propulsion is not ready to be used for terrestrial transportation. The force exerted by these engines is very small and only works well when there are minimal retarding forces (i.e. air drag and friction) acting on the vehicle. Road rage would rise to new levels if drivers had to wait days to reach a cruising speed of 55 mph!
The Blackbird That Roared

by Thomas E. Ask, assistant professor, HVAC and refrigeration

EDITOR’S NOTE: The author, with a background as a mechanical engineer and engineering manager, studied the SR-71 Blackbird’s design for his master’s thesis. He introduces system design to Penn College’s HVAC and Computer-Aided Product Design students, and says the Blackbird helps illustrate how to tackle complex projects.

The human element of the Blackbird design is nearly

In 1962, a radically sleek and powerful black airplane was unveiled: a titanium jet that could outrace the sun, fly from New York to London in less than two hours and achieve a near-space altitude of over 85,000 feet. The plane, called the Blackbird, could hurl two pilots across the planet unlike any airplane ever made. It was the last gasp of extreme-performance airplanes before the rise of space technology. But that last gasp was an impressive one. The SR-71 Blackbird achieved altitude and speed records that still stand for a production airplane.

The plane could fly at an incredible Mach 3.3 or 2,000-mph speed. The heat generated at that speed would scorch the plane’s windshield and cause the titanium skin to wrinkle – which, understandably, scared the first test pilots! The fuels, lubricants, tires and nearly everything related to the design had to be considered from scratch to handle extreme temperatures and pressures.

The Blackbird burned fuel at a rate of 4,000 pounds per hour and, therefore, was designed as a flying fuel tank. Even with huge tanks, the plane required frequent in-flight
refueling – the first one was soon after the Blackbird got off the ground! The paint color that led to the Blackbird name was added to increase the efficiency of heat transfer of the skin. Black did not provide any visual camouflage because the SR-71 still looked lighter than the surrounding sky. That is because the airplane traveled at near-space altitudes so the background color was nearly that of outer space – even darker than the Blackbird. The paint also contained ferrite particles that would absorb radiation. That feature, along with the fuselage shape and the 15-degree canted tails, made it the first plane to include stealth features.

Although the plane could chase down the sun and zip across continents, it did have problems. The fuel tanks leaked when the airplane was on the ground, starting the engines required an exotic chemical reaction and the engines suddenly could stop during flight. Moreover, the airplane routinely required a fleet of fuel-tanker airplanes for its normal operation. Everything from the fuel to the ejection system was customized and exotic. All of these associated expenses brought the Blackbird’s operational cost to over $30,000 per hour.

The Blackbird family consisted of three slightly different airplane designs, referred to as the A-12, YF-12, and, finally, the SR-71. The A-12 was developed as reconnaissance (or, euphemistically, as “seeker of truth”) aircraft for the Central Intelligence Agency in response to the increasing vulnerability of the U-2 airplane. The YF-12 was designed to intercept and shoot down Soviet bombers.

The human element of the Blackbird design is nearly as interesting as its performance. The initial design of the Blackbird was done by only nine engineers jammed into a corner of an old bomber factory at Lockheed Martin’s Skunk Works facility. As the project advanced, the designers worked with back-to-back desks where “privacy surrendered to incessant kibitzing, teasing, brainstorming and harassment.” They methodically worked their way through a wide range of problems, from the machining of the titanium to the design of the landing wheels. The designers and builders also were encumbered with the secrecy of their work, which they had to maintain with vendors and outside colleagues.

The SR-71 was active in reconnaissance and high-altitude research until the fleet was retired in 1990. Although three SR-71s were brought out of retirement in 1994, their usefulness has diminished due to the advancement of satellites and uninhabited aircraft. Both technologies can spy more cheaply than the SR-71. Some defense experts still want the SR-71 in service because it can quickly be dispatched to obtain reconnaissance information almost anywhere in the world. But it is too expensive – its time has come and gone, leaving a beautiful plane and impressive legacy.

As we celebrate the 100th anniversary of flight, we appreciate that Wilbur and Orville Wright asked the right questions about what made an airplane fly. They asked how to control the contraption and focused their design efforts in that area. Their contemporaries, such as Samuel Langley, were better funded than traditionally educated engineers, but asked the wrong questions. Langley burned up a fortune of research grants to develop a good engine without considering flight control; his attempt at powered flight only nine days before the Wright brothers ended immediately after launch with a broken wing and a crash.

Nearly 60 years after the Wright brothers demonstrated the power of common sense and good judgment, a small group of designers secretly crafted a technological marvel, demonstrating the human ability to achieve lofty goals – even those of the Mach 3 sort.

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Enrollment at Pennsylvania College of Technology established another record during Fall 2003. The total enrollment of 6,255 was the largest in the institution’s history and represented a 4.9-percent increase over Fall 2002.

Enrollment of students in bachelor-degree programs rose 5.5 percent to 2,183, representing 35 percent of all enrollments at Penn College.

“We are gratified that so many students have chosen Penn College as the place to continue their education and prepare for meaningful careers,” said Dr. Davie Jane Gilmour, president of the College. “We are also mindful that such growth poses new challenges. With the opening this fall of College Avenue Labs and Rose Street Apartments, the institution is better positioned to meet those challenges, and we continue to prepare diligently for future growth.”

Record Enrollment, New Facilities Mark Fall Semester

College Avenue Labs

The former HON Industries Inc. manufacturing plant, just west of Main Campus, was rededicated as an instructional facility named College Avenue Labs. The College acquired the 104,000-gross-square-foot building in 2001, as the result of a gift-purchase arrangement initiated by HON officials after the company announced plans to close the Williamsport plant.

“It was an unprecedented opportunity for us to take an exceptional industrial and warehouse facility, located immediately adjacent to our campus, and convert it into an instructional facility that will prepare a new generation of workers for jobs here in Northcentral Pennsylvania and around the world,” Dr. Gilmour said.

“Each of the program areas impacted by the move into the College Avenue Labs (Collision Repair, Automated Manufacturing and Civil Engineering Technology) has experienced growth in recent years and has the potential for continued growth in the future,” the president said. “Because we have more instructional space available, we can begin to accept more students who wish to focus their studies on these growing career fields. We expect to enroll an additional 100 students each year, thanks to the addition of this facility.”

Rose Street Apartments

Penn College students seeking on-campus housing now have a fourth option from which to choose – the 370-bed Rose Street Apartments opened in the fall, bringing the total number of on-campus beds to more than 1,400. Murray Associates Architects of Harrisburg designed the facility, which features two four-story buildings providing 130,000 square feet of space.

“Many students and parents tell us that College-owned-and-operated housing represents the best choice for them,” Dr. Gilmour said. “With the enrollment growth we have experienced – particularly from outside our Northcentral Pennsylvania core recruiting area – quality housing has become a vital consideration, whether it is offered by us or the many local landlords upon whom the College depends.”

More comprehensive articles are available on the Internet at
www.pct.edu/pctoday/news/students/enrollment0903.htm
www.pct.edu/pctoday/news/dedications/CAL0803.htm
www.pct.edu/pctoday/news/dedications/RoseStreetApartments0803.htm

Officially opening College Avenue Labs are, from left, Dr. William J. Martin, senior vice president; Dr. Davie Jane Gilmour, College president; and Walter D. Nyman, director of general services.

Rose Street Apartments offer spacious, functional interiors.
College Can Be “Cashless Campus” Under Debit-Card Plan

Pennsylvania College of Technology students now are able to use their identification cards to pay for purchases at dining units, the College Store, vending machines and laundry rooms on campus, as well as commercial establishments nearby.

With a “Wildcat Plus Plan” activated on their ID cards, students even can pay for parking fines issued by Penn College Police and rental videos at the Busch Campus Center.

Food Services and Information Technology Services at the College collaborated on an extensive network of card-reader locations for the first phase of the Wildcat Plus initiative, which was launched for the Fall 2003 semester.

With an activated card, a student can “swipe” his or her purchases at the College Store, at beverage and snack vending machines anywhere on campus, at laundry rooms in residence halls, and at copy machines.

Students also can use their cards at any Food Services dining unit, including the main cafeteria (the Susquehanna Room), a sit-down restaurant (the Bistro), two convenience stores (the Wildcat Express and West Side), snack bars (Nature’s Cove, Penn Central and the International Café), and The CoffeeHouse. The card also may be used at the College’s fine-dining restaurant, Le Jeune Chef.

Off campus, students can use the Wildcat Plus Card at restaurants adjoining campus: Burger King, Sheetz, Wendy’s and the 1100 West Café.

Wildcat Plus Plans can be activated at www.pct.edu/plusplan/.

Once funds are deposited in a student’s account, the Wildcat Plus Card functions as a debit card: Funds are deducted as purchases are made. Students can check their account balances, see transaction histories and view a list of participating locations on the Wildcat Plus Web site.

“...The Wildcat Plus Plan expands the services available to our student body and complements our current meal-plan offerings nicely by giving commuter students access to food and services while traveling to and from campus,” said Linda A. Sweely, director of food services at Penn College.

“While separate from a meal plan, the Wildcat Plus Plan makes Penn College virtually a ‘cashless campus’ for students by having all of these services available to them with just a swipe of their ID cards.”

Golf, Cross Country Teams Win State Championships

All seven Wildcat sports teams saw playoff action this past fall – and the golf and cross country squads brought home Pennsylvania Collegiate Athletic Association titles.

“We did it all, and we did it our way, too,” said fourth-year golf Coach Chet Schuman, after his team finished atop the field of 52 golfers from 18 Pennsylvania colleges to win the state championship in a two-day event at Penn National Golf Course in Fayetteville.

Matt Haile, a sophomore who played high school golf at Shikellamy High School in Sunbury, put together rounds of 74-76 to claim the state’s top individual honors. Christian Scheller, North Pocono, finished third; Jeff Kerr II, Bloomsburg, was fifth; and Brandon Smith, Wellsboro, finished 11th. Haile, Scheller and Kerr received all-state PCAA honors, and Smith was named to the all-conference team for 2003.

“Matt is probably one of the most consistent, steadiest players in the entire league. And he has tremendous demeanor. There were golfers and coaches from other schools who were rooting for him,” the coach said.

Schuman, the College’s director of admissions, was named PCAA “Coach of the Year.” His team’s win added to a number of unprecedented accomplishments last year: completing the regular season and the Eastern Pennsylvania Collegiate Conference with a perfect 37-0 record, and winning the EPCC tournament for the first time.

The men’s cross country team lived up to Coach Mike Paulhamus’ preseason predictions by capturing the PCCA championship at The Pennsylvania State University’s Blue Course.

Wildcat Paul Merces, a sophomore from Seabright, N.J., took the individual men’s championship after covering the 5.2-mile course in 29 minutes and 15 seconds.

“Everything just went amazingly according to plan,” said Paulhamus, who was named state “Coach of the Year” for the second time in his four seasons at the helm. He last was honored in 2001, when Penn College also won the men’s state championship.

Commenting on the College’s third individual champ in as many years, he said, “Paul was very dedicated this season. I’ve seen him out there on days that he didn’t have to run, and he was running hard and far. He made this a goal for himself and it paid off big-time. He was clearly the top runner in the league.”

Running in a group is important in cross country, and the fact that Wildcats William Dillingham (Northern Lebanon), John Foltz (Lewiston), Dan Arminavage (Annville-Cleona) and Nate Sayre (Wellsboro) finished third, fourth, fifth and sixth, respectively, played an important part in Penn College’s capturing its team title, the coach added.

Penn College’s other five varsity athletic teams – baseball, women’s volleyball and cross country, and men’s and women’s soccer – all advanced to the EPCC playoffs.
there is no place in the country where students can learn about piston engines as close to the source as they can with us,” says Thomas D. Inman, an assistant professor of aviation electronics at Pennsylvania College of Technology.

Penn College’s long-standing connection to the manufacturer of the Lycoming aircraft engine – an association that dates to the birth of our aviation program – offers a nutshell version of an institutional tradition: industry-standard education on operationally sound equipment.

“It’s the longest relationship between an aviation school and a manufacturer like that,” Inman says. The College’s curriculum has its roots in a Lycoming apprenticeship program, which retrained metal-trades workers specifically to work on airplane engines.

As Inman reports in “Seven Decades of Penn College Aviation,” a multimedia presentation recently updated for presentation at December’s centennial celebration, the program dates to 1933 – placing it among the longest-running in the United States.

Elsewhere in the world that decade, the Taylor Cub (a forerunner of the Piper Cub) made its first flight, British aviatrix Amy Johnson flew solo from England to Australia, and Dr. Robert H. Goddard launched a rocket from Roswell, N.M., that traveled 2,000 feet aloft at a speed of 500 mph. And, in downtown Williamsport, Pa., the quest for airborne exploration also took hold.

“We’re pretty old,” Inman notes. “We’ve been doing this as long as anybody.” The College’s first brush with aeronautical education predates that of many other national all-stars, including Western Michigan University (1939) and Purdue University (begun in the 1940s).

The Williamsport Technical Institute’s initial engine operation was housed in the Cochran, Payne and McCormick Bank building on the southeast corner of Fourth and William streets. This was just one of the mysteries the professor solved during his historical treasure hunt. (“If you ever donate to the archives,” he pleads with an exasperated voice of experience, “please date it!”)
Inman undertook his research in the fall of 2002, and said it wasn’t long before he informally renamed the project, “Tom, What Did You Get Yourself Into Now?” By poring through library microfilm and archived documents – many of which unfortunately were vague and undated – talking with co-workers and chasing down the answers to nagging questions (just “Where was the McCormick Building,” for instance), Inman has swept away the dust of time and uncovered the buried stories.

The engine program eventually moved onto campus, with coverall-clad students sharing space with automotive instruction in what now are Penn College’s Machining and Electrical Technologies Centers.

“By 1941, we had a licensed repair station, something we hold to this day,” Inman recounts. “We were doing adult training for the war . . . teaching high-school boys in a 120-hour pre-induction course.” There also was a five-year aviation program, including an 1,800-hour mechanics course that resulted in a Civil Aviation Authority license – the precursor to today’s Federal Aviation Administration certification.

That year also produced the first class of W.T.I. aviation graduates. Aviation instruction had begun in 1938, before W.T.I. was formally established.

“Did I say ‘boys?’” Inman asks. For among the notable early students at W.T.I. was the late Edna Day Musser, who began as a high school student in 1939 and “broke the mold” as the aviation program’s first woman graduate. Her talents were legendary: In 1942, The Williamsport Sun wrote that she was “pacing the boys in the class all of the way and sometimes outdoing them.” Her influence was genetic: Her son, Craig A., is a part-time aviation instructor at Penn College.

“Even to this day, we’re looking for more females to be part of the program,” Inman says. “I’m a big supporter of getting women and underrepresented populations into the business. There’s no reason there shouldn’t be a lot more women in this field.”

During those early years, instructors accepted work from private owners of aircraft. And, in a marked change from the present-day program, more than daydreams took wing. Not only were students trained to fix the planes, he says, they also learned to fly them.

The training was enhanced by the number of spare parts that found their way into the program, evidence of Williamsport Technical Institute’s pre-eminence in the field.

“During those years, you had a very difficult time getting . . . anything that didn’t contribute directly to fighting the war,” Inman relates. “That spoke well of the Institute that we could get these parts for our students to work on.”

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It was during World War II that the program moved to the airport in Montoursville, occupying a 21,000-square-foot building that cost $50,000. Paved runways were years away – the facility offered “nothing more than a large grassy area where airplanes could land” – but the basic layout is much like it exists today: three classrooms linked off the main hangar. The original plan was for the program to operate the airline terminal and air-traffic control tower, a scuttled proposal that would have made W.T.I. the only high-school program in the country involved in actual airport operations!

The postwar period produced perhaps the program’s “most notable grad” – Don Sheldon, an Alaskan bush pilot who was featured in Life magazine and was the subject of “Wager With the Wind,” author James Greiner’s book about his breathtaking exploits.

“The things he did in Alaska as a bush pilot would boggle the mind,” Inman notes. “To practice for this, he and Eugene Musser (husband of Edna Day Musser, and Craig’s father) would fly up Loyalsock Creek at water level between the trees – just for practice. If you did that now, I think you’d find a state police officer waiting for you when you got back to the airport.”

The book harrowingly recreates many of his adventures, including the rescue of military personnel from Devil’s Canyon of Alaska’s Susitna River:

“As the plane backed into the first of the combers, I felt it lurch heavily fore and aft. It was like a damned roller coaster. The water was rolling up higher than my wing tips, beating at the struts, and I could barely see because of the spray of water on the windows. All of a sudden the engine began to sputter and choke, and I knew it was getting wet down pretty good. If it had quit, I’d have been a goner, but it didn’t.”

Aside from Sheldon’s heroics in the far northwest, the period was one of business-as-usual back at the airport. Inman’s research into the 1950s-1980s uncovered a period of unremarkable, but steady activity, the deceptive quiet of classrooms quietly fulfilling their mission.

“We went on about our work. Instructors taught. Students learned and graduated,” Inman explains. But it was nothing compared to “The Renaissance” that would follow. It was a rebirth, he mentions with irony, which occurred with a painful cutback: discontinuation of the “flying club.”

“I’ll be the first to tell you I’d love to still do pilot training; I’d love to do a lot of flying,” he concedes, then explains why ceasing that operation was an unsung benefit to the College.

“I think that point was somewhat significant, whether we intended it or not,” he says. “We might not have been able to spend the money on a $5 million building had we still had a flight program that was taking up resources.” That magnificent building is the Lumley Aviation Center, completed in 1992.
and encompassing 50,000 square feet (including an 11,000-square-foot hangar) at the Williamsport Regional Airport.

The center’s opening in 1993 highlighted a period of unprecedented change, which began with the end of the high-school program and the addition of Avionics (aviation electronics) in 1991. The Aviation Maintenance Technology program, a hybrid of aviation maintenance and avionics, began in 1995. It’s a far cry from earlier facilities, where conditions offered less-than-ideal instructional space.

“We had 170 broken windows; the birds loved us,” Inman says about the previous airport facility. “Now, we’re more than twice the size of that old building and have a $1 million avionics lab – the coolest room in the whole College.”

Inman’s animated presentation springs even further to life when he speaks of the planes on which College students have trained over the decades.

“We start with our dream – here’s what we’d like to have – then you look at the budget and you see what’s for sale,” he says. But sometimes, “lightning strikes,” and the serendipitous collision of budget and availability supplies students with golden opportunities. Consider these aircraft that have landed at the local facility:

- The Piper PT1 – Built as a prototype for the Army and Navy, the aircraft was decidedly nose-heavy and raised sufficient “balance issues” to render its production as unacceptable to the Armed Forces. The plane was sold to instructor Frank Pannebaker, then twice resold in California, before returning to the area for exhibit in the Piper Museum in Lock Haven. The plane had a welded steel frame, a fabric cover and wooden wings – which Penn College students painstakingly restored this past fall.
- The “Long Special” – A student-built “formula racer” that reached a top speed of 190 mph. “Which is kind of interesting,” Inman notes. “They built a race plane in the 40s and (we built) a biplane in the 21st century. (It’s) a thoroughly modern biplane, but a biplane nonetheless.” (See cover photo)

- The “Eager Beaver” – A B-17 bomber retired from combat duty and sold in 1946 to W.T.I. as an instructional tool for returning veterans and other students training for work in the civilian aeronautics trade. The price tag was $350, Inman recalls, about half the price of a new Pontiac at the time. “Bombers were built to the same standards as transport aircraft, so having a B-17 was like having an airliner.” Most of the plane was scrapped in 1952 – “We used it and used it and used it . . . and used it right up,” Inman explains. “We got as much as we could out of it, and all that was left” was the nose art depicting a cartoon beaver and bombs representing each raid. At the request of surviving members of

continued next page
its squadron, the College donated the nosepiece to the Mighty 8th Air Force Museum in Savannah, Ga.

- A Consolidated Convair, perhaps the standard bearer for commuter-type aviation in the ‘60s. “We trained a lot of students with it,” Inman says. “But, over the years, it had degraded, so it was sold for $10,000, cut up and carted off in pieces.”
- A T39 Rockwell Sabreliner, donated by the Air Force and redecorated in “Wildcat garb.” The military’s preservative covering on the plane required extensive hand-sanding by students, recalls Inman. He adds that Paul Newman and “Star Trek: The Next Generation’s” Lt. Worf (actor Michael Dorn, actually) fly identical planes.
- The A6-E Intruder, a newer Navy warplane received in 1997. “It is quite operable (even though the College is forbidden by liability from flying it),” the resident historian comments. “We fire it up, fold the wings and unfold them.”
- Among the College’s “newest birds”: A Rockwell Turbo Commander 680, a business aircraft; and the Velocity, an all-composite-construction airplane.

Does the abundance of vintage aircraft mean a lack of current technologies? Certainly not, says Inman. The physics of flight have not changed, he explains, and older aircraft have systems and structure comparable to more-modern planes.

What has changed, he says, are the planes’ electronics and subsystems. Today’s aircraft rely heavily on avionics systems that were not dreamt of in 1933, when engines were all of the piston type and airframes mostly were steel-framed and covered with fabric.

“In the 21st century, ‘engine and airframe technology’ refers to much more. The piston-engine technology has changed to include electronic controls and fuel-injection systems,” Inman says. Students now must learn about turbine engines – also unheard-of in the ‘30s.

Airframes of today range from the tube frame and fabric coverings to carbon fiber and other advanced composite materials.

“Avionics boxes, electronics, the state-of-the-art subsystems – that’s where airplanes are changing the most,” Inman adds, assuring, “We can keep up with those.”

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Visit our web site at www.pct.edu/schools/tt/aviation/ for details.
Norbert Kotzer, toolmaking technology, has been employed in sales by Zep Manufacturing Co. for 43 years (and has no plans to retire). He exercises six days a week: hunting, fishing and participating in other sports – including skiing slalom and giant slalom for teams sponsored by PPL’s Susquehanna Steam Electric Station and Mack Trucks. He and his wife, Nancy, live in West Hazleton.

Carlton W. Fry, toolmaking technology (and the “baby brother” of former tool design instructor Samuel Fry), is retired after a career as a machinist. He and his wife, Beverly, live in Allenwood.

Edward Nolan Sr., mechanical drafting, is retired after a long career as a draftsman for Pullman Power Products in Williamsport and ACI in Renovo. He and his wife, Anna Mae, live in Williamsport and are the parents of nine children. Five of them – Edward Jr., Jamie, Theresa Scoppa, Matthew and the late Jennifer Wittmer – graduated from either Williamsport Area Community College or Penn College.

Leonard Cecco, toolmaking technology, retired in 2003. He and his wife, Shirley, reside in Elysburg.

Dominic J. Covolo, toolmaking technology, is retired and living with his wife, Sallie, in Galt, Calif., after a career as a machinist that led him from Williamsport to Cleveland to California. He concentrates on fishing these days, spending time on his houseboat and traveling in a Volkswagen camper.

William R. Gamber, toolmaking technology, is chairman of the board and CEO of Dutch Gold Honey, Lancaster. (www.dutchgoldhoney.com), the nation’s largest independent packer of specialty honey. Dutch Gold Honey was founded by Gamber’s parents in their kitchen in 1946; in 1957, his father, Ralph, invented what has become a well-known household fixture: the Honeybear container. Gamber joined the family business in 1967. Since then, Dutch Gold Honey has expanded to include several smaller divisions, including Gamber Container Inc. of Lancaster, and McClure’s Honey and Maple Products, of Littleton, N.H. Gamber resides in Lancaster with his wife, Kitty.

Gary S. Hile, aviation technology, lives in Centre Hall with his wife, Brenda. He operates D-VII Aviation Services in Centre Hall (www.d7aviation.net), doing all aspects of airframe restoration including fabric work. Hile also operates a custom woodworking business.

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Carl Reece, toolmaking technology, is retired after a career with Sprout-Waldron in Muncy. He and his wife live on Creekside Farm in Moreland County, Lycoming County.

Philip W. Schrack, tool design technician, lives in Manassas, Va., with his wife, Sharon. He retired from Atlantic Research Corp., in 1999, after a long career that included engineering and management positions. He says the education he received at Williamsport Technical Institute put me places I would have never been able to go, offering as an example the year he spent working for Atlantic Research in Turkey. Schrack is a past District Governor for the Lions Club, and a lifetime member of the Society of Manufacturing Engineers.

Thomas Church, electronics technology, continued his education with a bachelor's degree in accounting from Texas Wesleyan University. He is the credit manager for a western-clothing company. He and his wife, Linda, live in Fort Worth, Texas.

Austin S. Coryell, electronics technology, lives in Centennial, Colo., with his wife, Rose. A key figure in the establishment and expansion of cable telecommunications in much of the United States, he retired after a long career. Coryell is a charter member of the Society of Cable Telecommunications Engineers and was inducted into its Hall of Fame in 1999.

Charles A. Grieb, architectural drafting, is a registered architect living in Lock Haven. He is the managing principal of Charles Grieb Architects (www.greibarchitect.com).

William H. Stiles, automotive technology, lives in York with his wife, Patricia. He has a long career in auto racing. In 1965, he built the altered-wheelbase Dodge driven by Dave Strickler, which won the first National Hot Rod Association national event for altered-wheelbase cars. In 1966, he teamed with Jere Stahl to win every NHRA national event that year. Stiles' own racing accomplishments include winning the NHRA All-Star Super Stock Circuit Championship in 1969 and class winner at numerous NHRA National Events. His company, Stiles Performance, specializes in race-car magnetos that are supplied to many top race teams nationwide. He also is a principal sponsor of the Annual York US 30 Musclecar Madness dragway event (www.yorkus30.com).

William Krainak, mechanical drafting, worked his way to supervisor of the drafting department during a 28-year career with M.W. Kellogg/Pullman Power Products. Retired, he lives in Williamsport.

William B. Allegar, heavy construction equipment operator and serviceman, and his wife, Ruth Ann, live in the Benton area. Bill is a union pipe welder, something he has been doing since shortly after leaving Williamsport Technical Institute, thanks to the welding instruction he received while he was a student.

Twin brothers Gary Lee Berlin, mechanical drafting, and Larry Lee Berlin, diesel mechanics, have established themselves as leaders in their fields. Gary Berlin, who lives in Manheim, is vice president of Norter Industries Inc., the leading manufacturer of commercial humidification technology (www.humidify.com). Gary is considered one of the world's leading authorities in industrial humidification. Larry Berlin is the training director for Engine City Technical Institute (www.enginecitytech.com), operated by Mack Boring and Parts in Union, N.J. Mack Boring and Parts is the world's largest distributor of Yanmar Electronic Marine Diesel Engines, with about 300 dealers around the United States. Larry says it's his job to train the dealers, customers, boat builders and the U.S. military on Yanmar and Isuzu marine and industrial engines.

John “Jack” Heydon, mechanical drafting, a drafting/programmer supervision quality-control engineer, is in his 30th year of employment with AMP/Tyco Electronics Corp. He and his wife, Carole, reside near Falls.

Mardean “Mardy” Kratzer, technical illustration, is retired after a long career with AMP Inc. (now Tyco Electronics Corp.) He and his wife, Shirley, reside in Harrisburg.

Bruce Lengel, technical illustration, is retired from AMP Inc. He held several positions with AMP over the years, including technical illustrator, technical writer, patent-trademark analysts and packaging engineer. He and his wife, Barbara, live in Annville.

Paul A. Nee, tool design, lives in Myerstown with his wife, Georgene. He is the manager of quality for Doema Door Controls in Reamstown. He also is the author of the book, ISO 9000 in Construction, considered to be the ultimate handbook for engineers, architects, contractors, specifications workers and hardware managers who need to deliver products and services at a consistently high level of quality. Nee says he especially appreciates the guidance he received from former Tool Design instructor Samuel C. Fry.

John Jenakovich, industrial electronics and instrumentation, is retired from AMP Inc., where he served as a senior test engineer. He and his wife, Sharyn, reside near Huntingdon.

Francis Faulisi, mechanical drafting, is the owner and president of GCS, an environmental health and safety consulting firm in St Louis. He resides in St. Peters, Mo., with his wife, Elizabeth.

Timothy L. Rush, computer science, resides in Newport and is senior systems analyst for Tyco Electronics.

Danny Lee Binford, tool design & individual studies, is a product designer for Danaber Tool Group. The company produces the Craftsman Hand Tools for Sears Inc. Binford resides in Mooresville, N.C.

John William Brickman, carpentry & building construction technology, is owner of Brickman Building and Remodeling and resides in Middletown.

James L. Myers, Jr., construction carpentry, is a grounds technician for Amarillo Independent School District and resides in Amarillo, Texas.

David Allen Rhine, civil engineering technology, lives in Tuscon, Arizona and is president/owner of Aztec Land Surveying.

Glenn E. Lichtenwalner, architectural technology, has been named senior vice president and principal of the W2A Design Group in Allentown. In more than 20 years as a project architect, he has worked on a number of projects, including the award-winning renovations to Lehigh University’s Taylor Gymnasium, East Stroudsburg University’s Zimmar-Liljenstein Student Services Center, the Mack Truck Engineering Development and Test Center, the Student Enrollment Center at Northampton Community College and Bucknell University’s Hunt Hall.
Mark P. McCay, automotive technology, is vice president of Deco-Dence, L.L.C., a company that imports original 1930s art deco furnishings, restores them and sells them mostly to private clients on the East and West Coasts. McCay, who resides in Dallas, Texas, is active in community projects and occasionally rents out any of his eight classic cars for commercials and photo shoots.

Rae Ann Leslie (Younger) Everetts, office administration-executive, is an order entry clerk for Springs Window Fashions and resides in Montgomery.

Jennifer M. Richards, early childhood education, is director and curriculum coordinator at Resurrection Early Childhood Center. Richards, who lives in Muncy, is a member of the National Association for the Education of Young Children and the Central Susquehanna Association for the Education of Young Children. A number of newspaper articles have featured her center favorably.

Michael A. Counsil, machine tool technology, is head lathe machinist at Lemco Tool Corp. and is self-employed part-time. He resides in Williamsport and is a LURE Coursing equipment manufacturer. (www.maplescreekracing.com)

Pamela L. Koenig, clerical studies, is a secretary for CSC Concrete and resides in Kent.

Jeffrey D. Gipe, urban forestry, is a groundskeeper at Franklin & Marshall College and resides in Lancaster.

New to the Job on 9/11, Aviation Alumnus Now a “Go-To Guy”

After being sent home his second day on the job – Sept. 11, 2001 – Scott J. Alexander now runs the gauntlet of daily duties as an aviation safety inspector at the Federal Aviation Administration’s district office in Allegheny County.

“My main job is safety,” Alexander says. “My biggest message to the field mechanics is, ‘Do it in accordance with the book, and write down what you do.’ ”

Linked to Williamsport Area Community College since he was a high school student in the ’70s, he “had no desire to fly; I always wanted to be a mechanic.” Even from the ground, Alexander has high praise for his alma mater: “A lot of the best people I’ve seen in the field come from W.A.C.C. or Penn College. It’s a great institution that keeps putting out a great product.”
Dr. Asekh K. Das, professor of computer science, presented papers at two international conferences in Orlando, Fla., during the summer. At the Seventh World Multiconference on Systemics, Cybernetics and Informatics, Dr. Das presented “UML for Fuzzy Ontology Engineering.” At the International Conference on Computer, Communication and Control Technologies, he presented “An Enquiry into Ubiquitous Computing Architecture from Human Functioning Space.” The latter was co-authored with Robert A. Belles, coordinator of specialty labs; and Michael E. Rae, the College’s manager of network applications. Both are Penn College alumni.

Dr. Roy A. Fletcher, assistant professor, business administration/banking and finance, advised Penn College’s first-ever student team to compete in the 2004 American Express Planning Invitational. The students analyzed a client profile, and submitted their comprehensive financial plan to determine whether and how a fictitious family can meet life goals through the proper management of their financial resources.

Dr. Irwin H. Siegel, associate professor of business administration/business law, presented a paper entitled “Understanding Expatriate Success Without Applying the Success Factors: An Asian-American Manager’s Experience in Mexico” at the 2003 Conference on Emerging Issues in Business & Technology, held Oct. 30-Nov. 1 in Myrtle Beach, S.C.

Dr. Dennis R. Williams, associate professor, business administration, adviser to the Phi Beta Lambda chapter, mentored several competitive Penn College teams that placed first or second regionally last spring and competed in Future Business Leaders of America/Phi Beta Lambda national competitions in Dallas, Texas. Dr. Williams was chosen as “Adviser of the Year” at the state conference.

Dr. Philip H. Henning, associate professor, electrical technology, presented a paper at the Sept. 25 conference for the Chartered Institution of Building Services Engineers and the American Society of Heating, Refrigerating and Air-Conditioning Engineers Inc., held in Edinburgh, Scotland. The paper was entitled “Creating a New BS Program in Building Automation Technology at the Pennsylvania College of Technology: An Industry and Academic Cooperative Effort.” Dr. Henning’s 13 years of experience with ASHRAE recently resulted in his advancement from associate member to member, and he has been faculty adviser to the organization’s Penn College chapter since its founding in 1991.

Penn College and Caterpillar Inc. presented the first “Pathfinder to Excellence Faculty Award” to Kenneth C. Kuhns, assistant professor, electrical technology/occupations. The honor, expected to be awarded annually, is given in recognition of a faculty member who has developed effective teaching techniques, enhanced learning materials, possesses a keen sensitivity to student needs and maintains high academic standards. Students in the Diesel Equipment Technology programs had the opportunity to vote for the award winner, as did faculty and staff. Kuhns was selected for his outstanding work with the fledgling Electric Power Generation Technology major.

Patricia J. Martin, clinical director, Occupational Therapy Assistant program, was appointed to the Accreditation Council for Occupational Therapy Education.

William C. Butler, former dean, posthumously was honored with the Pioneer Award by the Pennsylvania Association for Sustainable Agriculture.

Peter Hellermann, general manager of Le Jeune Chef Restaurant, was selected as a judge for the “Best Sommelier in America” competition, hosted by the American Sommelier Association and held at New York’s Waldorf-Astoria.

Robert M. Vaughn, assistant professor, welding, was elected to the American Welding Society Education Committee.
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