fly paper

February 2020
EAA CHAPTER 377

EAA—Our mission: To grow participation in aviation by sharing the spirit of aviation.

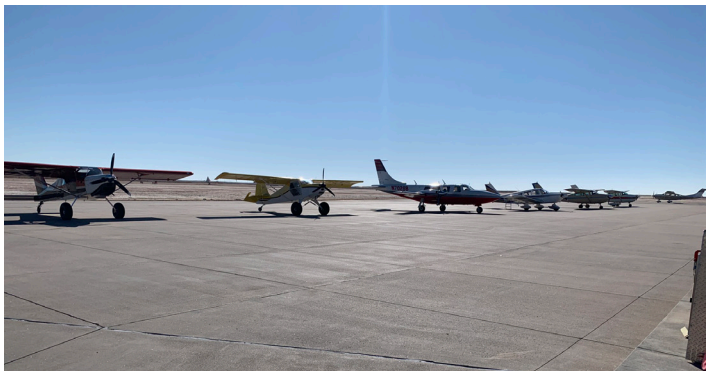
LAST MONTH

From Matt Rome, Vice President

Saturday January 11th turned out to be a great day for a fly-in at KHQG. With the air temperature around freezing and the winds calm it was absolutely beautiful. I wouldn't know what the rate of climb would have been in my Cessna 182 since I drove but I'm betting somewhere around 2,000 feet per minute. We had a great turn out. There were several people that flew in and several people that drove in. The total head count was around 30 and we had 8 aircraft. All in all, it was fantastic day.

I couldn't have made the day possible without everyone that helped and showed up. We are very fortunate to have a great facility at KHQG. The heated hangar is important when having a fly-in, in the middle of January. My wife, Maddie did a great job decorating and cooking. Also, Erick and Debbie Nordling made a fantastic soup along with my mother and father, Dave and Lori Rome and my mother-in-law and father-in-law, Martin and Davonna Daharsh. Also, a big thanks to everyone that brought sides, they were all great. If someone left hungry it was their own fault.

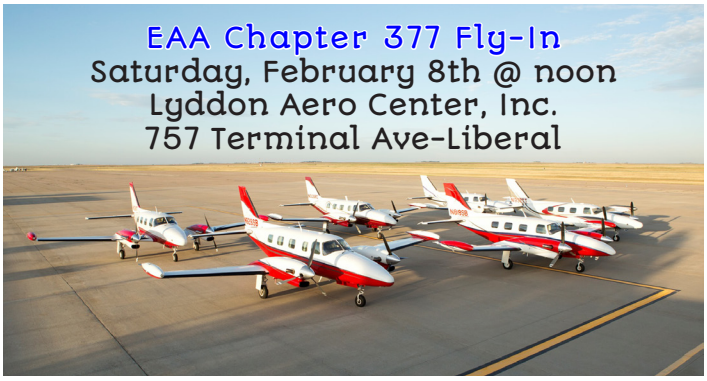
I think everyone enjoyed the great show from Bud Pinkston in his Piranha. We had some new aircraft this year at KHQG but not necessarily new to the club. Bill Lyddon in his Aerostar, Wayne Melanson in his Cherokee 180, John Smith in his Cessna 206, Darren Buck in his Cessna 182, and finally a couple neat little bush planes that are owned by Brian Shirley and Shane Bangerter. I really appreciate everyone that showed up and fellowshipped with us. I hope to be able to do it for many years to come.



THIS MONTH

Saturday, February 8
Noon potluck at KLBL
Liberal, KS

CTAF/UNICOM—122.8
WX AWOS-3PT—118.375 (620-624-1221)
Runway 17/35—7105 x 100 ft.
Runway 4/22—5000 x 75 ft.
Lyddon Aero Center UNICOM 122.80
620-624-1646
toll-free 1-800-659-1646
Please bring a side dish to share.



F . Y . I .

Chapter 377 normally meets on the second Saturday of each month. "Meetings" are normally fly-ins to different member airports, with a potluck at noon and short meeting following. December is the Club Christmas Party. Contact any of the officers listed to confirm meeting date and place. Anyone interested in recreational flying or building is encouraged to attend.

FLY PAPER is published monthly, normally mailed a week before each meeting/fly-in.

Annual membership in Chapter 377 includes one year subscription to FLY PAPER. Send $15 ($7.50 after July 1) to Sherry Brandvik, Treasurer,

Readers are encouraged to contribute articles, photos, etc. by submitting them to the Editor/Publisher.
Deadline for the March 2020 issue is March 6.

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Treasurer/Secretary—Randal Loder, rloder@ssbscott.com Work Phone: 620-872-7224 Ext. 231, Mobile: 620-214-3877 508 S College St, Scott City, KS 67871

COMING UP...

8 February—Liberal, KS. Lyddon Aero Center. Contact Bill or Steve Lyddon.620-624-1646.

14 March—Crott's Aviation, Dodge City, KS. Contact Raeanna (800-475-3553)

11 April—Elkhart, KS. Bill Cotter 936-499-8042

23 May—Air Fair. Lakin/Kearny Co(36k) EAA Young Eagles 5/22. Contact Jeff Morgan 620-355-9302

13 June—Buffalo, OK. Mike & Chyrll Miller 620-388-3364

11 July—Sublette, KS Marshall Watson 620-675-8342

8 August (Breakfast at 9am)—Hooker, OK (045) Contact Mark Davis 620-482-0354.

12 September—Mid America Air Museum, Liberal. Bob Immell 620-624-5263

3 October—Syracuse Hamilton Co.(3K3) Classic Antique fly in.

Steve Phillips 620-384-5835. ***PLEASE NOTE THIS IS THE FIRST SATURDAY OF OCTOBER***

7 November—Stain Reiss Farms near Plains, KS 620-629-3604 37.27N,-100.72W, 7.5 miles west of Plains Ks,HY160 ***PLEASE NOTE THIS IS THE FIRST SATURDAY OF NOVEMBER***

12 December Christmas party—SFEC Scott City(KTQK) Liz Vulgamore 620-874-8325

PONCA CITY, OK
1ST SATURDAY FLY-IN BREAKFAST
Ponca City Airport
7 to 10a.m.
Contact: (580) 767-0470.

Lost & Found

Did you leave your sweater at our Christmas Party in Scott City?
If you did, please contact Ben McNary at 970-402-6799 or Liz Vulgamore at 620-874-8325.

FOR SALE

LOOKING FOR A PROJECT?
RV-4 PROJECT FOR SALE
Tail, wings, and fuselage kits assembled , all interior , and most exterior surfaces primed with vari prime. All work done by licensed A&P/IA. Asking $14,000. (Current prices of unassembled kits from Vans, tail kit- 1445.00 , wings-6175.00 , fuselage 4465.00) Includes plans, drawings, and misc hardware. Contact **ED ADAMS** at Aircraft Services PH 620-275-5535. home 620-276-3931 after 6pm or edadamsap@gmail.com .

ANOTHER ISSUE

THANKS TO: AOPA, Ben McNary, Bill Cotter, David Givens, FAASafety.Gov, Mark Robidoux—PilotWorkshops, Matt & Maddie Rome, Mark Davis, Mitch Counce, Paul Fiebich, Randal Loder, Scot Sudmann, Sherry Niederkorn, Todd Crist, Tom Auerbach, Wayne Melanson.

2020 DUES

There is a preaddressed envelope attached to this issue of your newsletter. Your label reflects the year your membership is current. If it says 2020, you do not owe dues. If you send extra money above annual dues, please tell the Treasurer RANDAL LODER your intentions: extra donation, extra year, etc. Also, please include your email address-pretty please??? Also, whether you opt for a printed copy or an email version. The more people we can get to receive FLY PAPER via email rather than a printed copy, the more $$$ our club saves, and the more labor and paper is saved. THANK YOU!!!

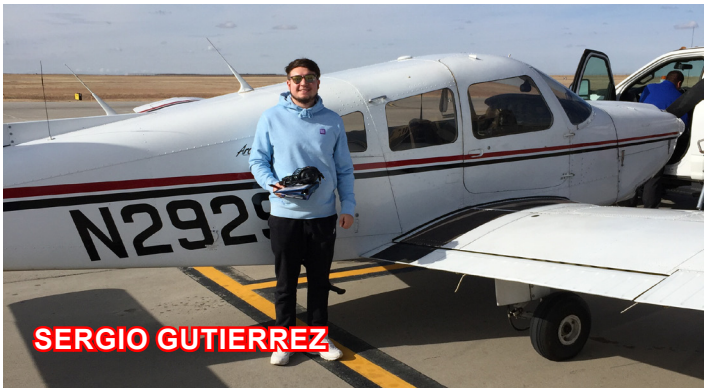
HEARD IN THE HANGAR

One of the most satisfying things our chapter does, in my opinion, is netowrking with others that ends in helping someone further their own or others success in aviation. This recently happened when **MITCH COUNCE** contacted **MARY SHORTRIDGE,** introducing Sherry Niederkorn over the phone. Unaware of Young Eagle credits expiration, **BILL COTTER** contacted numerous people at chapter headquarters and was able to transfer our credits to help out four kids. Sherry promises a photo for a future edition of FLY PAPER. Bravo, everyone! (Especially our Young Eagle pilots that made the credits happen)

"My name is SHERRY NIEDERKORN and I am a Co-Chair (along with my husband Tim) for the Youth Committee at EAA Chapter 5 in Middlefield, Ohio. We recently held a Summer Youth Aviation Camp at 7G8 where we met 4 young persons who were exceptionally interested in learning to become a pilot. Our Chapter has decided to sponsor these 4 campers to the EAA Air Academy Camp 2020 in Oshkosh this summer and we'd like to ask for your help.

We have some Young Eagles credits that we can use, but it would be helpful to our Chapter if we had more credits to reduce the cost of this endeavor. After your Chapter decides if you are sending any of your local students to camp, I was wondering if you might be willing to donate any extra, left-over, unused Young Eagles credits to EAA Chapter 5. Since unused credits will expire anyway, I would hate for the credits to go to waste, when we have some youngsters who could benefit from their use.

FOLLOW UP: This will definitely help our Chapter. Please relay our gratitude to President Bill Cotter and Chapter 377. We really appreciate it! The four young candidates (3 boys & 1 girl) are thrilled to have been chosen by our Chapter to attend the Air Academy Camps in Oshkosh. They did so well at our local camp and I am very excited for them to continue their studies in Aviation."



GET WELL SOON, LARRY MAGRI!

Larry took a spill and is recovering at the hospital in Liberal. Lets hope he is back on his feet in time for Lyddon's gathering Saturday. Thanks to Wayne Melanson and Mark Davis for letting us know.

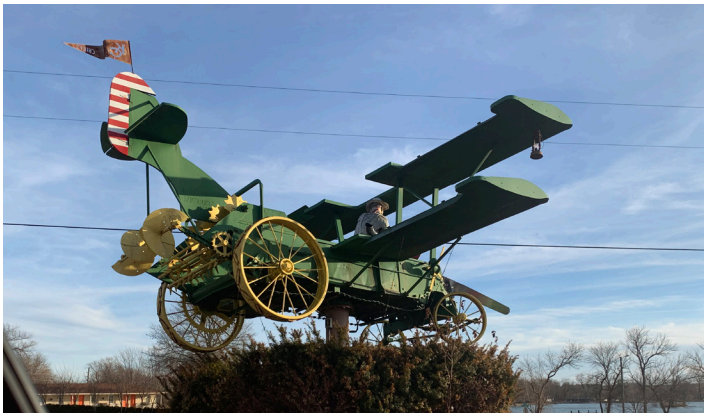
Photo from David Givens

From https://earthsky.org/earth/kelvin-helmholzt-clouds

Kelvin-Helmholtz clouds look like breaking ocean waves, with the rolling eddies seen at the top of the cloud layers. The eddies are usually evenly spaced, making the clouds easily identifiable.

Kelvin-Helmholtz clouds are named for Lord Kelvin and Hermann von Helmholtz, who studied the physics of the instability that leads to this type of cloud formation. A Kelvin-Helmholtz instability forms where there's a velocity difference across the interface between two fluids: for example, wind blowing over water. You'll often see the characteristic wave structure in this type of cloud when two different layers of air in our atmosphere are moving at different speeds. The upper layers of air are moving at higher speeds and will often scoop the top of the cloud layer into these wave-like rolling structures. The clouds often form on windy days, when there's a difference in densities of the air, for example, during a temperature inversion. They're often good indicators of atmospheric instability and the presence of turbulence for aircraft.

It's widely believed that these waves in the sky inspired the swirls in van Gogh's masterpiece Starry Night.

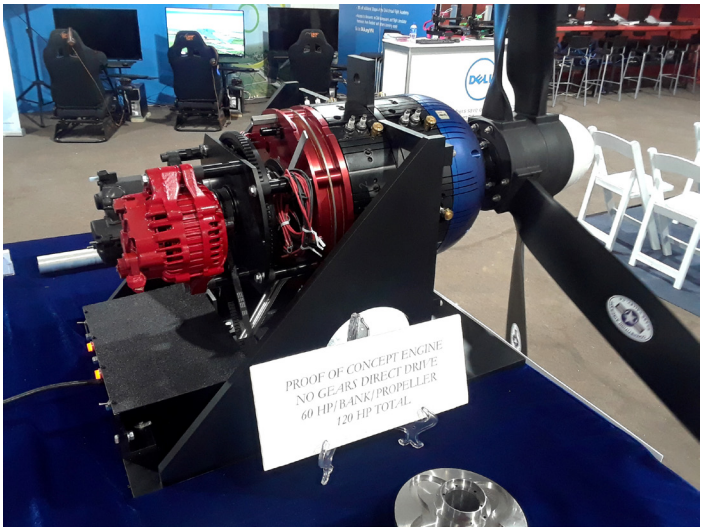


TODD CRIST photographed this "homebuilt" in Carthage, MO. There were more than a few hours invested in this project...

SCOT SUDMANN, CFII is currently working with two Private Pilot students at KGCK. **SERGIO GUTIERREZ** works as a lineman at Saker Aviation at KGCK. Below is **JAYSON LAMBERT** from Holcomb. Best of luck, guys, and we will look forward to hearing that the checkride is complete!

INNOVATION SHOWCASE AT AIRVENTURE 2019

By Paul D. Fiebich



Look closely at the power plant shown above. What is your guess: Electric motor? Rotary engine as in Wankel? Turbine? Two-stroke hybred? If you selected any of the above, you would be wrong on all counts. The answer is a 12-cylinder 4-stroker and in this example, turning counter-rotating props. More information on this later.

This year I prowled the AirVenture grounds searching out new things in aviation suitable to us little guys or what might be coming down the "runway" for the big guys that could trickle down to us. Most of my attention was directed to the Innovation Showcase located near the NASA tent and the EAA Blue Barn.

Innovation Showcase was initiated in 2015 as a venue providing opportunities for innovators wishing to display their ideas, prototypes, and actual working demonstrators without having to incur the usual vendor fees. EAA does not endorse any of these displayed aircraft, they are only providing entrepreneurs an opportunity for exposure. From an application list of over 150 innovators, about two dozen companies having real market potential to impact general and recreational aviation were selected. This year, TransportUP was the sponsor starting the week with a reservation-only breakfast followed by a Power Point describing the future of what now is called Urban Air Mobility.

UAM's goal is to invest and manufacture short-haul air taxis and personal commuter aircraft. Understandably, while exploring this goal, many known (and likely many unknown) related issues need to be addressed. You will be hearing more about UAM in many upcoming aviation magazines. UAMs and Artificial Intelligence (AI) will be to the 2020's what plastics was to the movie The Graduate.

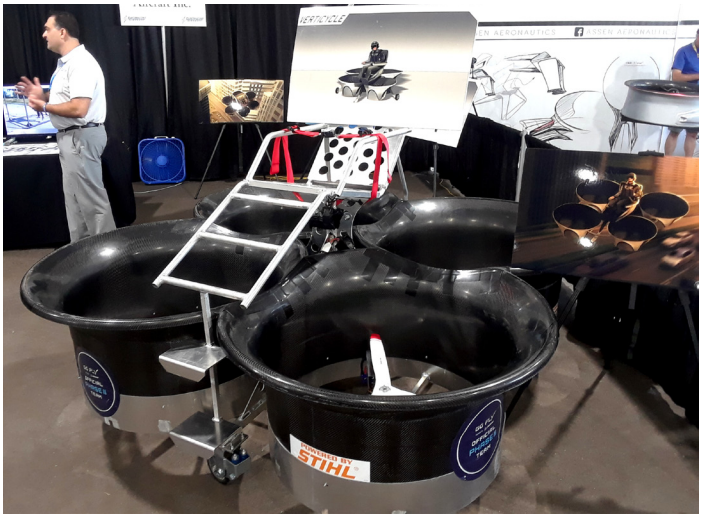
Now, back to the lead photo and opening question. What you see is called a four-stroke Radial Exponential Engine. It can be made with one or two 6-cylinder air or water-cooled banks of pistons. Each bank produces 60 HP; the 1-1/2" diameter pistons have dual ignition and two (yes two) power strokes per revolution while each bank drives one of the contra-rotating propellers. The engine can run on either bank alone, essentially, this is similar to having a twin-engine airplane. It's promoted as being Fail-Safe.

Although the stated applications are for private aircraft, cars, motorcycles, stationary power generators, etc., can you imagine how it could affect the LSA and Ultralight market? Let's keep our eye on this technology! Contact Frank Ardezzone at **www.exponentialengine.com** for more information.

I often refer to flying my EXPERIMENTAL AirBike as it being a "motorcycle in the sky," well; Assen Aeronautics has an experimental Vertical Take Off and landing (eVTOL) aircraft that is actually ridden like a motorcycle. Its lift comes from three ducted fans powered by a unique hybrid gas engine/electric generator combination that fits under the seat. This has to be the ultimate example of motorcycle riding in three-dimensional space.

Named the H1 Explorer, it fits within the Ultralight category and can fly for 20 minutes on its 57 kW electric motors/batteries. Recharging time is 40 minutes. Predicted flight time using the twin two-stroke gasoline engines alone is 55 minutes. Check out their website at http://assen.aero/. The full size example on display at AirVenture 2019 has been flown using an R/C controller.

Another company, Electric Jet Aircraft, calls their eVTOL the Verticycle. This Ultralight uses four ducted fans, each powered by a 25 kW motor providing 784 pounds of thrust. The pilot sits in a type of reclining chair framework while using a manual controller to maneuver the aircraft and change altitude. The Verticycle can carry a 200 pound pilot at speeds in excess of 35 mph for 30 minutes.



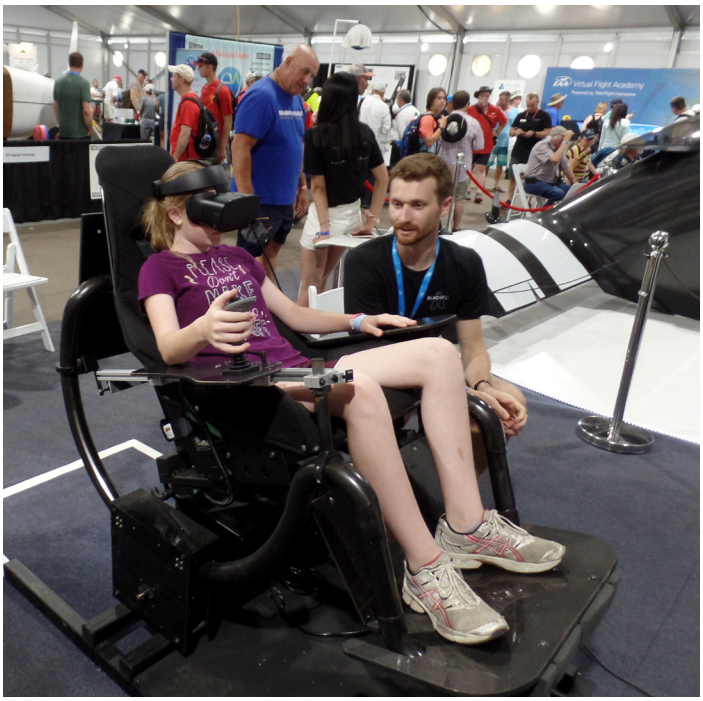
The company is also working on various models of platform-type eVTOLs. The Verticycle is a proof of concept machine intended as a stepping-stone for advanced multi-passenger personal short range UAMs. More information is available at https://electricjetaircraft.com/. Founder Pete Bitar is shown in the photos.

Opener's BLACKFLY was on display again this year. Its Part 103 epoxy-impregnated Carbon Fiber structure is powered by eight tractor-mounted propellers driven by individual electric motors and their custom controllers. The motors are mounted on the leading edges of the tandem fixed wings, their angle of attack is variable with motor speed via an R/C controller stick. The current model is designed to carry one 250 pound pilot at speeds up to 62 mph with for up to 20 minutes.

My grandchildren, Olivia (age 11) and Brenin (age 13) had an experience in the BLACKFLY simulator. Their reactions were that it was "fun, it went the way you pointed the stick, and the simulator seat moved the same way the plane did giving a real feeling of flying." They said the flying learning curve is "immediate, any kid could fly it." I believe that to be

a good endorsement. For more information, go to this link: **https://www.opener.aero/.**

Another version of this tandem wing style multi motor



type aircraft is was on display this year. The Airbus version called Vahana is a research platform that has flown in excess of 100 mph, has 38 kWh batteries, 8 45 kW motors attached to the leading edges of the tilting wings. It carries one person, has tilt wings and is self-piloted. Find more information at this link: **https://evtol.news/aircraft/a3-by-airbus/.**

We all understand the wing warping process the Wright Brothers used to control banking with their 1903 Wright Flyer. Did we ever think it would become a "new" way to control light aircraft? This is an example of how an old method can be revived because of structural technology. Explore Flight explains "Modular units made of fiber composite materials, are arranged in lattice-based pattern that can flex and adapt." The displayed wing was operated (warped) using an R/C controller and servos.

Another personal air vehicle is the Zeva Zero (Zero-emissions electric vertical aircraft) designed exclusively to compete in the Boeing GoFly competition. It is a personal point-to-point electric powered vertical takeoff aircraft having a wing-body propelled by eight pod-mounted motors. The pilot flies the craft in a prone position similar to the way the Wrights did. It is predicted to have a 50 mile range at speeds up to 160 MPH. More information is available at **https://www.zevaaero.com/.**

A different approach to STOL is taken by David Ullman, Emeritus Professor at Oregon State University, and Ideal Estol LLC. That being; work with the wing's coefficient of lift for STOL rather than attempting vertical takeoff. He trades VTOL power consumption in favor of significantly reduced conventional take off distance and landing roll out.

To do this he incorporates numerous ducted electric fans at the wing's leading edges to blow "speeding air" over the wing. This converts horizontal propeller propulsion to lift. The faster the air over the wing travels, the greater the lift coefficient; independent of air speed. This is called Distributive Electric Propulsion. He is concerned with the speed of the air rather than the airspeed of forward motion.

Although not a new concept, it is worth considering now in view of the technological advancements in electric motors and batteries. The applications range from ultralights to UAM vehicles and ultimately GA and commercial aircraft. The videos, demonstration model, and charts, at his booth were impressive. For more information contact David at ullman@davidullman.com. Perhaps some R/C modelers will attempt to duplicate David's efforts with their electric aircraft.

Not all the innovations dealt with hardware, EFX Applied Technology has a patented software system developed to produce a safety warning system called Interactive Personal Alert Systems (iPAS) for personnel working around operating aircraft. The system uses daylight readable laser images projected on surfaces to visually warn workers of pending danger. The images change in intensity, display frequency, and imagery as one encroaches further into the danger source.

Initially applied to aircraft operations, it could be applied to anything where the potential for personal injury is possible; manufacturing machinery, carnival rides, school busses, aircraft carriers, helicopters, train stations, etc. The booth's display was definitely interactive. A slowly spinning propeller simulated an aircraft propeller; a danger area was projected on the ground defining the danger zone. As one moved closer to and into the danger zone, the imagery changed, thus warning the intruder of impending injury or death. More information on this system is available at http://efxappliedtech.com/.

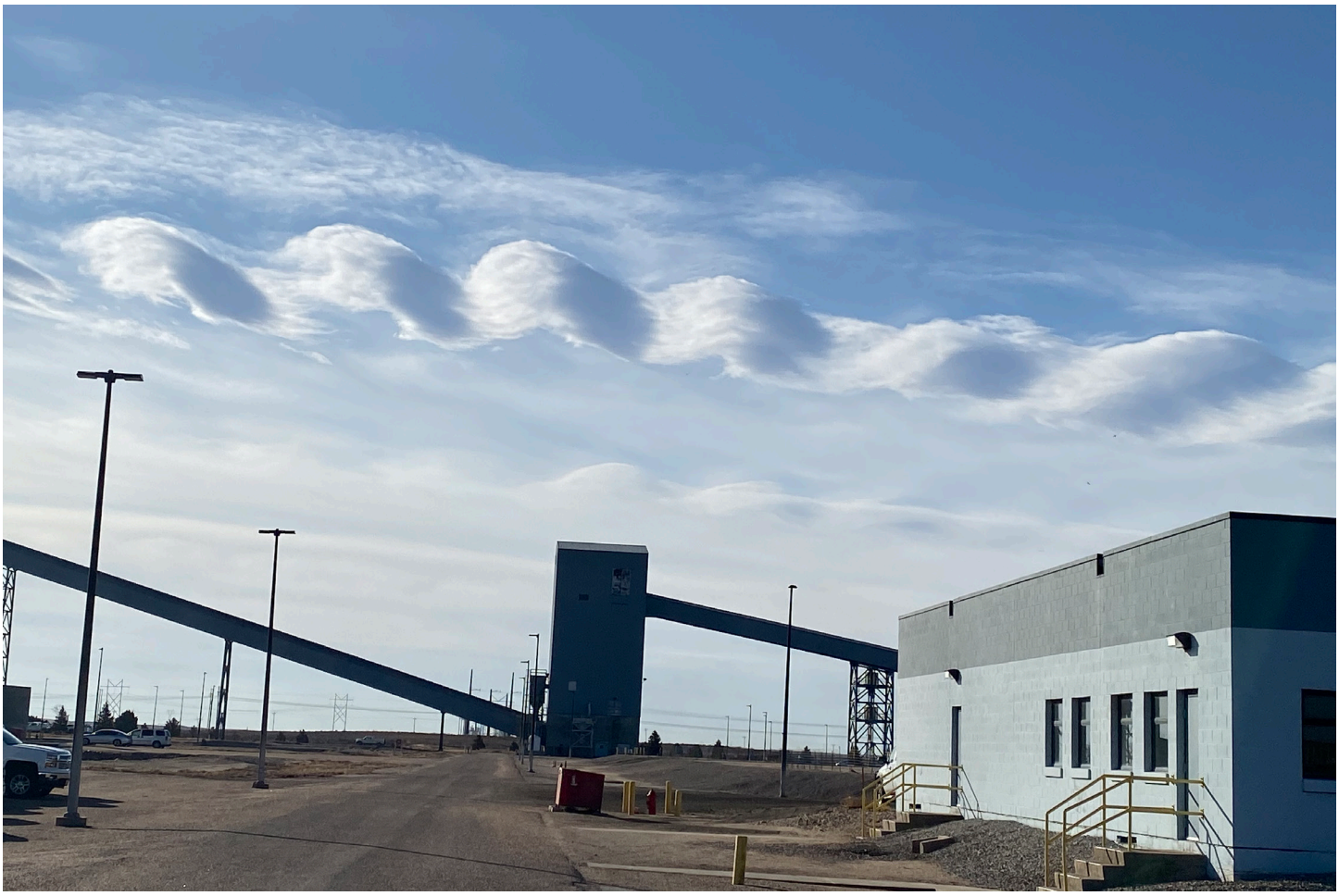
A pilot safety feature was presented by Feel Flight Grip changes the "seat of the pants" flying to the grip of the hand. Realizing sense of touch signals reach our brain faster than visual or auditory signals, Feel Flight Grip incorporates aircraft attitudes into the aircraft's hand grip or to the yoke. Those being Slip Indicator (left & right), Stall Warning, Best Angle of Climb, and Best Rate of Climb.

The aircraft's attitude signals are transmitted to the flight grip then to the pilot's hand via projecting buttons that vibrate. Testing has shown the learning curve needed to respond to these stimuli is almost natural and intuitive. Pilots who have trained using the Feel Flight Grip are receptive to installing the system on their planes. Flight schools find this system improves the rate at which students learn to recognize aircraft attitude and then quickly adjust to control the aircraft. Transition from a training environment back to the original system is quick and is stated to actually improve that pilot's control inputs using the aircraft's original system. We all want to be better pilots; this system is already in production and is definitely doing that.

AirVenture 2019 opened my eyes to innovations that in previous years, I gave only superficial attention to. I spent hours in the innovation booths this year speaking with the vendors, gathering information, and being awed the progress that only years earlier was only in the concept stages. These and other innovations addressed a wide range of applications, some will have immediate impact of the little guys; others apply to the larger GA aircraft. Understandably, even those that are beyond our aircraft, there will be a trickle-down effect that we will eventually see. For more information contact **http://feelflight.com/**

Innovations covered in this article reflect only a few of those on display; I strongly encourage you to go visit each link provided where you will find more photos and informative text. Next time you attend AirVenture, plan to spend considerable time in Gateway Park where the Innovation Showcase is located. Its time will be well spent; your own innovative mind will go into high gear.

Paul D. Fiebich is a free-lance writer frequently contributing to aviation magazines, he can be reached via e-mail at **fiebichpv@aol.com**, his webpage **airbikeace.org**, or his The AirBike Ace facebook page.



DAVID GIVENS took this photo south of Holcomb, KS last month. He reports that he thinks they are Kelvin–Helmholtz instability.

EAA CHAPTER 377
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