



An early JN-1 "Jenny" aeroplane in flight at the old Lancaster Air Port.

*Flying Adventures
in Lancaster
1924 to 1934*

By Edward J. Terry, Jr.

*M*y first interest in aircraft, I suppose, goes back to 1924 when I was a four year old boy in Philadelphia. I have a vivid memory of seeing World War I planes flying over the city in "V" formation in threes. At the time I thought it to be one big aircraft in the shape of a "vee." Later we moved to Lancaster, Pennsylvania, and my first encounter with an aircraft on the ground was about 1924. At the time a pilot named Roy Musselman had set up a field to fly out of at the Lancaster Country Club along the New Holland Pike. This field proved to be a favorite place for barnstormers to stop, as well as to fly out of for a few days. To get back to my first encounter, flying in those days

was done only in good weather as you might expect. This ruled out winter flying, so wings were removed, and, in Roy's case, the aircraft—mostly surplus JN4 Curtiss biplanes—were stored in the lower level of the Eden Garage, a few miles northeast of the Country Club. My father was a rural mail carrier, and I rode with him on the mail route that included Eden. With a little persuasion my father was talked into taking me close enough to look over the JN4s. I would guess that Roy Musselman's air venture was the first for these parts.

More flying got under way when the Behmer brothers set up a field just east of the Oregon Pike on what was the Gunning Club. This was between the present Route 30 By-pass and Pleasure Road. The runway, which was a grass strip, ran north and south, and the only building concerned with flying was an old chicken house. Inside the chicken house were stored a few spare parts, a fifty gallon gas drum with a hand

John Behmer, brother of Robert and Ivan Behmer, standing in front of Robert's plane in 1922. (Photo courtesy of Martha Xakellis, his niece)



pump for dispensing gasoline, a funnel with chamois strainer, a five gallon can with pouring spout, five gallons of castor oil, a little acetone dope and some cotton fabric. In a pinch the sleeve of your shirt could be used for a patch. The Behmer brothers, Robert, John, and Ivan, used the field for flying which held plenty of interest for a person like me. I spent all the time I could manage on evenings and weekends watching the planes because a safe take-off and landing was a feat in itself.

The planes consisted of an LWF, the largest one there; a few Curtiss JN4s; a Thomas Morse Scout; and an Avero. The big LWF had a single cockpit for the pilot in the rear, and a three place cockpit up front, two seats side by side and a third middle front. It was powered by a Hisso engine. The Curtiss JN4s were powered with the old faithful Curtiss 0 x 5 engines of 90 horsepower, 500 inch displacement, and 1425 revolutions per minute if everything was up to par. This engine had a few bad features. The lower end was fine and held up real well, but on the top end, the valves would warp in about 50 hours unless you side-slipped too much to kill landing speed—then the cool air would hit the overhead valves and warp the stems. That required a valve job which was not too convenient because the 0 x 5 sported a one-piece cylinder known as the Curtiss headless. Next to cause trouble was the Berling single magneto which wasn't bad in cool weather but it could not take the heat. It was buried between the two banks of cylinders which gave off 160 degree (F) heat. Next in order was the Zenith carburetor, with the extra long intake lines. I always thought this built-in still made its own moisture which settled in the four brass jets in the carburetor which was hung low about two feet below the intake manifolds. This set-up required the mechanic to remove and blow out the jet orifices before each flight, after a shut-down—or take the chance of the right or left bank going dead on take off. The worst of the 0 x 5s dirty tricks was to go dead as you got airborne.

Ralph Haines owned the Thomas Morse Scout. This was a Rhone Rotary engine powered at 80 horsepower and was classed as one gallon of oil to five gallons of fuel, a single place World War I surplus plane. He did most of the stunting as well as the chute jumping. In those days the chute was tied to the outer wing strut stuffed in a canvas bag; this required the jumper to climb out on the wing and fasten up the chute, and then jumping, pulling the chute out of the bag, and uttering a long prayer.

Another fellow on the scene was an 18-year old, Roy Geltz, who had an Avero, Hall Scott powered, with a skid like a ski between the wheels to prevent a nose over landing. You may recall seeing it as a



Several planes racing at the old Manheim Pike Lancaster Air Port in the 1920s.

picture of Happy Holligan, the comic strip character, painted on each side of the fuselage. This plane was purchased by Roy from its resting place tied to a tree in the Quarryville area. On closer inspection Roy found the wings "had had it," but after some scouting around he found a good set of wings in a farmer's tobacco shed. This put him in the air shortly after finishing a few hours dual instruction, and taking on a partner, a fellow named Frey. This first flight proved too much for the Avero. Roy said it would not gain altitude on take-off, so Roy had the choice of hitting a house or a telephone pole. At 4:30 p.m., July 27, 1924, the Avero plowed into the side of the house, causing total destruction of the Avero, and many dollars damage to the house, besides scaring the wits out of a 24-year old girl in her bedroom and alone in the house. The plane crashed through the south wall, bounced off, and fell to the ground tail first, the fuselage top (made from sheet plywood) crumbling. A passenger named Rudy, Mr. Frey, the partner, and Roy were not injured. Frey would not help pay for the extensive damages to the house so Roy had to pay for the repairs himself. At the time he was a body repairman and painter at the Lancaster Cadillac agency on East Mifflin Street, and Roy, fortunately, took home a nice paycheck. He was born in 1906, and his flying career began when he was 18. After Behmer was killed in a crash, his brother gave up the flying business, and the planes were stored in the front yard of what is now the old Oregon Manor house. They sat there until all were stripped or sold. Roy ceased flying, and later in the 1930s he ran a small body shop in a

two-car garage at the corner of East Fulton and North Ann streets. The flying fever never left him, and if you are old enough to remember it, the only home-built airplane available in kit form was the Heather Parasol—\$299.00 complete parts but less engine. Roy's fever came to a head so he purchased the material and got started on the project. First he built the fuselage. Having full-sized plans, the sides of the fuselage were laid out on a 4' by 16' piece of plywood. Outline of the sides were drawn on the plywood by tracing off the prints direct to size. Then nails were driven into the plywood, either side of the lines of the longerons and the tubing was cut to size. Diagonal braces were cut to length and a fishmouth fit was shaped to fit each member to the longerons, and so on 'till all the pieces of the complete side were fitted. Then came the first mistake. All welds were made complete at each truss to longerons, and the results were a twisted warped mess of chrome molly tubing. Such a mess you would not believe! With a little experience in welding up a fuselage, we struggled on and it was a long job heating and straightening out the fuselage when all the welding was finished. We did not know that factories such as Waco, Travel Air, Swallow, and Laird had welding jigs to work with, nor did we realize they also spotwelded pieces together before welding all the pieces into the complete unit. The only other mistake in constructing the Heath was the ribstitching. We stitched the fabric every six inches with a mattress needle, but when it was flying, just barely, the fabric ballooned away from the wing ribs and destroyed the airfoil—a standard Clark (Y) foil. The fabric was restitched every three inches this time, and that corrected the problem, but trying to get the plane airborne was frustrating instead of fun. Now to go back to a finished aircraft less engine, the fun began. The only good engine available then was a Bristol Cherub priced at \$3,000.00. It was rated at 32 horsepower. This was for the rich only!

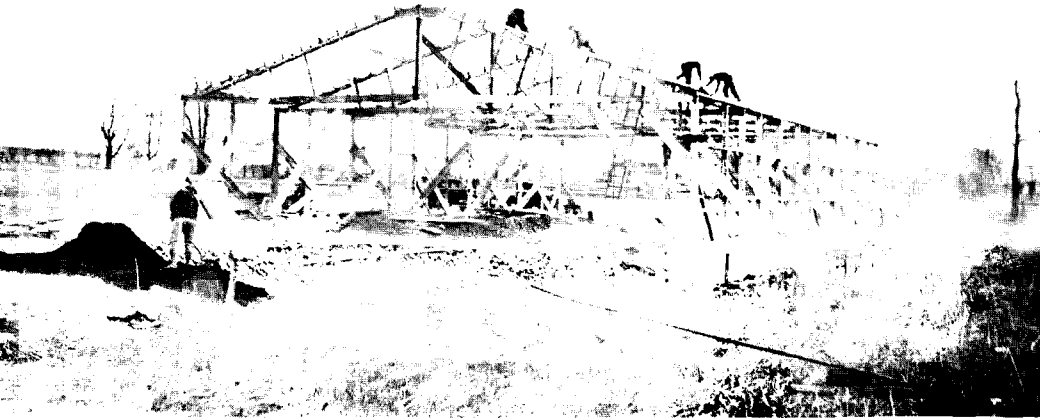
Sensenich brothers, Mart and Harry, had been running ads in the *Popular Mechanics Magazine* for years, selling ice boat engines and propellers. The propellers were hand-carved, and their engines were Henderson motorcycle engines converted, which Edward Heath also sold complete or conversion parts. Mart Sensenich was approached for an engine. The first ran so hot it would not get the Parasol off the ground. Modified with spools with fins to cool the valves, it was tried, and managed to get up 25 feet, full throttle, and landed at the same throttle setting! More work on cooling and timing, and the third installation it flew—barely. It was full throttle up and down, and when the engine got too hot you had to come down wherever it was possible, because it had the gliding angle of a brick privy with a cement block roof! During this period, flying was governed by the Pennsylvania

Bureau of Aeronautics and the Federal Bureau of Aeronautics—with conflicting rules. Pennsylvania said you could not fly an unlicensed aircraft—period. The Feds said an unlicensed person could fly an unlicensed plane any place but from a licensed field. Every time Roy had a forced landing the PAA was there to keep him grounded, so Roy had to wait until they went home, then fly it back to the Manheim Pike field. The only member of the PAA that I can remember is J. Shelley Charles; he flew an Alexandra Eaglerock, Kinner powered, and did air show work on the side.

Roy then purchased a C2 Aeronca engine, and he and Roy Peris converted it to a mid-wing, the same as Edward Heath raced. This set up a really good plane for the times. It wound up in the Franklin & Marshall College museum for awhile, and then a fellow purchased it, and the last I heard it was flying upstate. Edward Heath's Church Mid-Wing with a Bristol 32 HP Cherub engine—named the Baby Bullet—would turn in a winning time of 110 miles per hour regularly, and Roy's Mid-Wing with its 36 H.P. Aeronca was no slouch.

*D*uring the 1924 era of flying in Lancaster County, Harry Jones was flying out of the old walnut farm near Mylin's Corner south of Lancaster. Harry was not related to Jesse Jones, longtime airport manager. Harry and a friend named Huber had aerial circus ideas in their heads. Huber wanted to do wing walking but never got up enough nerve. Jesse Jones at the time had his JN4 stored in what was called the hanger at Willow Street. Huber tied himself up after setting a small fire in the hanger, and claimed he was attacked, tied up, and then the attackers set fire to the shed. Jesse Jones did not appreciate the threat to his plane, and had a private detective do an investigation. The truth came out, and the idea of an aerial circus ended. Not long after this Harry Jones was killed in a crack-up in Jesse's JN4. Also flying out of the Parkesburg area were two fellows named Elisha McQuiggan and John Hall. Their last Aero-related move was to sell two Aero Marines new in the crates to Carl Ort of York, Pa. Carl had the largest aircraft supply house in the East. His place of business burned about 1945, and lost in the fire was a World War I Standard, Hall Scott-powered. These craft were called "flying coffins" during the war. Hall Scott engines sported side draft carburetors and were noted for backfiring through the carburetors and catching fire. The plane was all plywood except the wing and tail covering, so it came to a fitting end and burned well.

Further east of Lancaster was the home base of Jesse Jones who we tended to confuse with Harry Jones, no relation. Jesse by now



Building a hanger at the air port along the Manheim Pike in 1927.

had a Pitcairn ore wing craft with an 0 x 5 Curtiss engine. This was a very early Pitcairn that looked much like a JN4. All efforts to make an aircraft around this time seemed to resemble the JN4 with its steel tube-braced fuselage.

To get things in perspective we return to Lancaster. In 1925 the Shrine Club engaged a promoter named Sky Jack to put on an air show at the old gunning club on the Oregon Pike. At the last minute they found out the Sky Jack did not fly or have planes to put on a show. In desperation they contacted Jesse at his Pughtown field, and tried to convince him to do the show. Their offer was a percentage of the gate. Jess turned this down, so finally they told him he could keep all he took in, and he accepted and saved the day for the Shriners. This is how Jesse Jones became interested in Lancaster. Then they had to find a field from which to operate. This is how Jess and Elmer Esbenshade got together, and started a field on the Manheim Pike north of Lancaster city. This field, later to be called Lancaster Air Ways, Inc., was parallel to the Manheim Pike. Elmer's farm home was on the west side of the pike and the air field was on the east side. Today many small and large businesses occupy the site. A battery shop (1273 Manheim Pike) presently is housed in one of the former hangers. Elmer's farm was split by the pike, but owing to some strange legal quirk he held title to the pike where it crossed his farmland. On occasion he proved to the Pennsylvania State Police that he did own the pike. It seems Elmer had an old Chevie

coupe that he drove around his farm and it never had tags on it, so the police would stop Elmer to arrest him. Then Elmer would tell the officer, "Young man, you are making a big mistake," to which the policeman would reply, "We'll see!" Eventually the police would come back and apologize to Elmer, and all would have a good laugh.

Jesse Jones had a Pitcairn ore wing, as we mentioned before, a Model T Ford station wagon, and a mechanic named Zeigler—Zigg for short. Elmer had the field and the money. This was a break, for the Model T was unloaded and parked by the white tobacco shed at the far end of the field. It contained spare parts, a prop, oil, gas cans, and a funnel with chamois strainer. Later on, Gulf NoNox was painted on the lower wing panels, and for his advertising plug, the Gulf dealer would deliver 52 gallons at a time to Elmer's field. When this gas was gone, Elmer would purchase Amoco Hi-Test no lead gasoline, which decreased the power by 50 to 100 rpm. On 1250 to 1300 rpm you could get in and out on a good day. So you sacrificed 100 or so rpm, and if the day was not too hot and the pasture not too short you could get in and out. Later, battery-powered light bulbs were added to the NoNox sign on the lower wings, and that probably makes Jesse the pioneer in that type of advertising.

Jesse left Lancaster County that fall and returned the summer of 1926. After some super salesmanship, Elmer was persuaded a hanger was the order of the day, and this was built. Lancaster Air Ways, Inc. was formed. Next cinders were spread for a roadway and parking area, and a cable and post fence similar to cable guard rails was installed. As we spread the cinders with rakes, assisted by Richard Beckley, he made the remark that in a few years this was going to be a big airport. In its day it was. Elmer removed the white tobacco shed at the west end of the pasture, closed over a sinkhole with slatting, and added the other half of the pasture to the landing strip, making the field at least one-third larger. Then a 100-foot circle made of white sand was put in the east side of the field. Keeping the weeds hoed in this circle was a job that lasted all summer! Around this time we painted a huge sign on the roof of the hanger, "LANCASTER AIRPORT."

Earlier the Advance Air Craft Co. came out with their first successful plane, the Waco 9. One was purchased. It was a two-place job, under-powered but not bad if the day was not too hot. In late 1926 or early 1927 Advance Air Craft Co. brought out the Waco 10 powered by the 0 x 5 engine. It was a three-place plane. A lot of fellows learned to fly in that Waco 10. To name a few:

Charles Hastings, Richard Beckley, Stanley Keck, Richard Bomberger, G. Wesley Myers, and George Ritnour. Instruction in those days was handled by a book of coupons costing \$500.00, and perforated into \$25 coupons. One coupon at \$25 got you one hour of dual instruction with Jesse at first, and later with Charles Hastings. G. Wesley Myers borrowed \$2,000.00 from his father to learn to fly. He learned to fly but he was afraid to solo. Charles Hastings, his instructor, was sure of Myers' ability, so he took three joy sticks, and on a dual instruction flight about 1,000 feet over the field, he got Myers' attention and proceeded to throw out the extra joy stick, and pointed for Myers to land the plane. He did on one wheel rather hard and broke a cabane wire, but he did get it down. To the best of my memory this was Myers' last flight. He was angry and never came back. He told me later it took until 1960 to pay back his father, so you can imagine the financial scene in which Lancaster Air Ways, Inc. was growing which it did steadily.

With the field a bit longer it lured a fellow named Rosco Turner who was touring the country in a huge aircraft called the "Flying Cigar Store." This name was derived from the glass showcase on either side of the fuselage in which boxes of cigars were displayed. This plane was a two wing cabin biplane, with Liberty engine and built by Sikorsky. The pilot sat in a rear open cockpit to feel the wind, and the passenger compartment was enclosed as planes are today. To start the Liberty a boot of canvas which was attached to a long rope was slid over the propellers, and after priming the usual way, the boot was slid over the prop, and a few hands were recruited to run and pull the rope in order to turn over the engine. They didn't start too hard so it was a satisfactory way of starting; otherwise, it would have taken a ten-foot tall man to reach the prop in order to start it. Turner hauled passengers for a week or so, and on the day he was scheduled to leave, the wind was blowing from a direction which required us to cut down a tree at the far end of the field. With this done, he left. In later years Rosco became a famous racing pilot, and his most famous win was in a Laird Special. At the National Air Races, Cleveland, Ohio, 1938 Thompson Trophy Race, Rosco, waxed moustache and all, a distinguished looking dapper gentleman, was still around. He died about 1981.

The next student to solo and later to be rated as an instructor was a young fellow named Rupert Herr. This brought the pilot roster at Lancaster Air Ways, Inc. to four: Jones, Hastings, Herr and Beckley. By October 1929 Lancaster Air Ways, Inc. had growing pains, and through sheer courage, another field was started at Bethlehem. Rupert Herr was named chief pilot and instructor, with Mervin



A WACO-10 plane with its trophies at the old Lancaster Air Port in 1928.

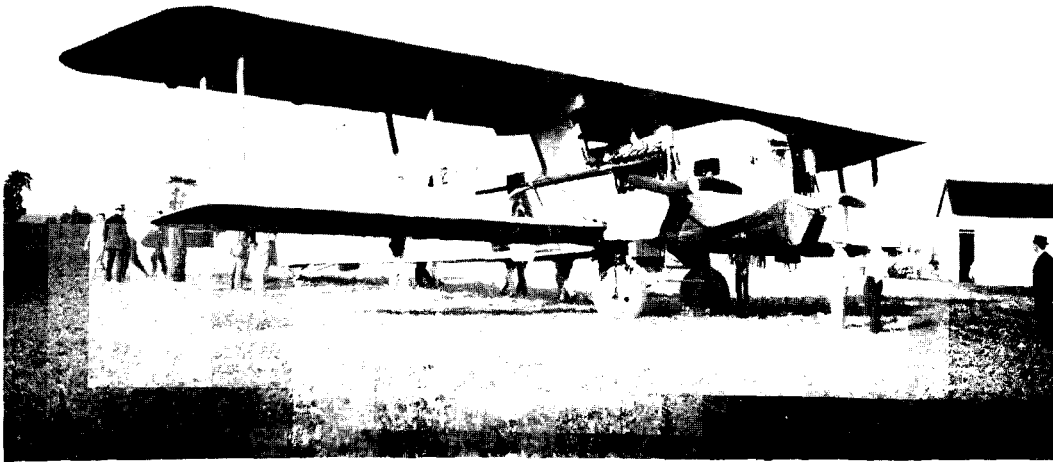
Caldwell as the mechanic. In those days you were licensed by the Pennsylvania State Aeronautical Association. The operation in Bethlehem went well as could be expected with money as tight as it was. The stock market crashed in October, 1929. A new fellow, Chick Soul, was put on the payroll, and a girl named Ellen was employed as secretary for Lancaster Air Ways, Inc. Later they went together for several years.

Meanwhile the D.H. Gypsy Moth hit the market, and a new one was purchased. Chick and Jess had strong feelings as to which plane—the Gypsy Moth or the Waco—was the better plane. With Jess in the Moth and Chick in the Waco 10, the two flyers got into a stunting contest out over the Fruitville Pike and after a series of squirrel cage loops, the contest came out a draw. One of the last maneuvers I witnessed was trying to loop each other with the Waco in a final loop in which the wheels just cleared the ground before they headed for the home field. By now Lancaster Air Ways, Inc. had two Waco 10s, a Waco 9, a D.H. Gypsy Moth, and the old faithful Pitcairn Ore Wing. Who should arrive one day but a tall, lanky ex-motorcycle racer, Pat Brooks. His speciality was promotion which he did well. Saturday and Sunday passenger hauling went well right up to the time when the going rate was three cents a pound, so it was necessary to have a drug store-type scales to weigh passengers in order to arrive at a fare. Around this time the term “airport bum” originated. The “bums” around then were Bob Gansel, Rodney Clark, Monty Mont-

Myers. About this time William "Bill" Greek arrived with a JN4 in pieces. He had a "female angel" to finance his venture. He could not fly but he had an office in the Coho Building, and was listed as "Greek's Flying Service. The JN4 was rigged and put back of the hanger. We spent a whole summer trying to start it with no success. It sat there until it was stripped of all usable parts. When the beacon was installed, the JN4 was buried right where it sat, and is still there, right in back of the old original hanger!

Lancaster Air Ways, Inc. made its final move. The Coatesville Airport was established and opened up with a dedication air meet, races, balloon strafing, bomb dropping, and the money feat: passenger hauling. There was a hanger the same size (75' by 100') as the one in Lancaster but it had an arched roof and was about five feet longer. All the local pilots were there with their mounts as well as the planes of Lancaster Air Ways, Inc. Richard Beckley was named the manager and pilot of this field. His assistant was Rodney Clark who was not a licensed mechanic but he filled the bill. Pilots to participate in these racing events besides the local pilots were Tony Little, factory representative for Monocoup and Warner Engine Co.; Hops Gilbert; Jonnie Hopkins; and Freddie (Fearless) Lund. Tony's plane was a clipped wing Monocoup with a Warner Scrab engine, and was considered tops in its field. Lund's mount was the new Waco taper wing designed by none other than Charles Myers, designer of the then popular Waco 10. This taper wing was powered with the then popular but expensive Wright nine-cylinder J5 Whirlwind; Lund went on to prove that this was the best Acro mount in existence at the time. His Acro show was unbelievable. His next air show was in Florida where he was killed in a crack-up. On the same day Lund cracked-up, Richard Beckley in one of the Waco 10s taxied into a boundary light, and tore off a prop, right lower wind panel and right stabilizer.

It was necessary to get the planes back to Lancaster, and so we removed a wing panel, prop and stabilizer off a Waco 10 stored at Lancaster, took them down to the Coatesville field, and assembled them on the damaged Waco. It was lots of work, but if you knew Elmer, it was worth it. After all my free work for Lancaster Air Ways, I was about to get my first free ride. I don't know who promoted it, but I was invited to use the front cockpit as Charles Hastings flew the repaired bird back to Lancaster. We had a good flight to Lancaster in the cool of the evening, arriving just before dusk. Charles decided to buzz his girl friend's home in East Petersburg, and after a few passes over their orchard we returned to the Manheim Pike Airport and made my first nearly dark landing. Amen.



Roscoe Turner's Sikorsky, the "Flying Cigar Store," in 1928.

As I remember, that was my first and only free ride I ever received. As an official airport "bum" I did many jobs, some good, some bad!

Among the jobs I did were washing oil off the cowlings, wings, belly, wind shields, and cleaning up after a passenger got sick in flight. Other chores were holding wings for ground turning (no brakes), hand starting, gassing up (hand pump fuel from 52 gallon drums to five gallon cans, and then pouring the fuel through a funnel made from a five gallon can with a bottom outlet pipe and a chamois stretched inside to strain out water and dirt), loading tails on dollies, and pushing planes in and out of the hanger. It was a lot of work straining five gallons of gas. Later on we were to have an underground facility with electric pump and a hose installed in a pit out in the service area. We also washed planes (if you never washed a biplane you have no idea how much area one has), changing oil, and pumping up tires with a hand pump.

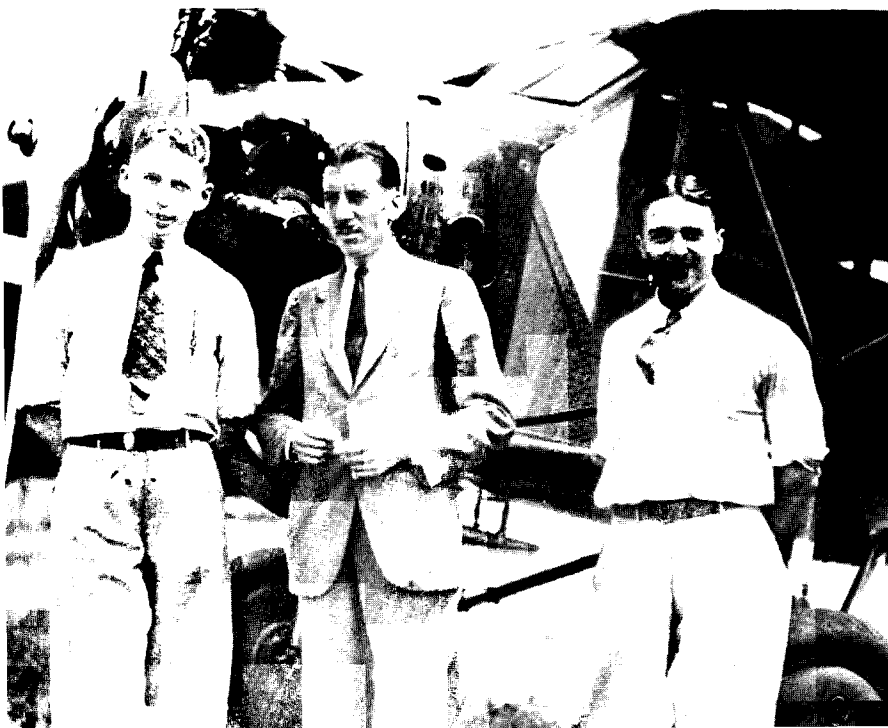
Cold weather always was an added chore. The 0 x 5 engines were water-cooled, and used heavy oil. To fly in the cold weather you would pull the cowling—a two-man job because cowls of a 0 x 5 Waco 10 were huge and in two pieces—then a canvas boot which was made for this purpose was fastened around the engine, and was tapered down to the size of a round kerosene heater. This was the source of portable heating in those days. It would heat up the engine and oil and water as well as heat water to put in the radiator which hung horizontal off the bottom of the center section of the top wing panel. Gassing up a bird that gave one hour on eight gallons of gas required a lot of gassing up in a week.

Getting back to that damaged Coatesville Waco, the lower wing panel was repaired in the shop located on the left rear side of the hanger. The leading edge was replaced as well as a few ribs and two or three intermediate ribs, the panel was "trued up," and the recovering was started. Roy Peris was the mechanic at this time. The wing boot was sewed by Mrs. Peris, and was installed by Roy and whoever wanted to work "for free," including me. Nitrate dope was the vehicle used then, and on a muggy day this was known to "blush," which was neither desired nor acceptable. But we were not as smart as mechanics were to be later. We did not know that if water was sprayed on the fabric first it would shrink up really snug, then when dope was applied not as many coats were required. We started with thin coats of dope and after the first two or three coats the fabric was looser than originally. Many coats were needed, with lots of heat furnished by a pot belly stove. Around this time Ed Wynn was promoting Texaco gasoline, and Texaco gave out Ed Wynn fireman hats. The raincoat of that time was the popular yellow slicker. State law required a fire axe to be in the shop area, and this was hung on the wall. All shops had brooms, of course. I "got high" from smelling the fumes from the dope—like today's glue sniffers—and I donned the fireman's hat, put on the yellow slicker, grabbed the fire axe and mounted a broom handle riding around the shop on a broom. Just as I was about ready to chop into the Waco wing panel Bob Gansel and Roy Peris stopped me.

Sometime in this era Lancaster Air Ways, Inc. had a fare to Philadelphia. Who the brave man was I don't remember, but I can say that anyone who ventured on a trip in the summer of this distance would cause us to bet they would not make it. On this flight the pilot was Richard Beckley, with his Waco 10, 0 x 5 Curtis engine, and one magneto. The magneto was the weak spot in an 0 x 5, because on a hot day the varnish on the armature of the magneto would heat up and drag, causing the key to shear on the magneto drive. This is what we bet on. Richard and his fare donned their Follmer Clogg parachutes (back packs with a reserve chute on your belly), climbed aboard, and left. The bet usually was for a dinner, which meant an airport dinner of a Coke and a candy bar. Well, we got the familiar call from a pasture near Downingtown. It seems after the 0 x 5 quit, the field selected had a fine wire fence right in the middle. That took care of the prop, lower wing and tail feathers. The Bertz Trucking Co. was on call, so after the necessary arrangements were made we headed for the Downingtown area. On arrival we removed the wing panels and stowed them in the truck and roped the tail skid to the tail gate of the van-type truck.

Landing gears were not aligned or intended for long trips on a highway. Wheels were slid on a tubing axle stub, and required frequent applications of axle grease which we were prepared to do. Aircraft tires had no tread and were smooth with very little rubber thickness. We would wrap the tires with strip burlap collected from tire stores. (New auto tires in those days always were wrapped in burlap strips just as good new tires are wrapped in paper strips today.) A new Waco had spoke wheels similar to a modern motorcycle and aluminum discs on each side of the wheels. This was to reduce drag in flight. The discs were removed, and burlap stripping was wrapped around the rim and tires in layers to keep the tires from wearing out. I sat in the cockpit and rode all the way to Lancaster, watching the burlap wear through as well as the outer layers of rubber on the tires. You can figure the Waco with the oleo struts which retracted when the wings were removed put the wheels in a position the same as if the plane was airborne—wheels were toed in on the bottom and at best were not aligned too well; after all, they were meant for a 1,000-foot run at a time on grass, not macadam. We received our meal on good old Richard, and his brave fare continued to Philadelphia by train!

John Hopkins, Tony Little and Paul Schlotzhauer (left to right) at the old Lancaster Air Port about 1929.



The old way of shipping automobiles by railroad box car helped us. To keep the cars from shifting around inside the box cars three-cornered blocks shaped to fit the tires were used. These wheel blocks were then used as airplane wheel chocks. A rope was fastened to each, and that made it possible to pull chocks without getting tangled up with the propeller.

Then the American Eaglet came on the market. These were the "poor man's airplane." They were one and one-half place, with a two cylinder Lawrence 30 horsepower engine. They were sold for \$995.00. A three cylinder 40 horsepower Szekely went for \$1,295.00, and there was a nine cylinder 40 horsepower Salmson, made in France. This was the good one and a few were sold. The one that stands out in my memory is a Salmson Eaglet purchased by Earl Stauffer, founder and president of Penn Boiler and Burner Corp. His misfortunes you may find hard to believe but on one of his first solo flights, the Salmson Eaglet got away from him and nosed over, splintering the prop and bending the top longeron opposite the door. This one was not too strong and it buckled. Jess took a prop from a new Eaglet and replaced the damaged one, and then he used his feet to straighten out the top longeron, and Earl was back in the air in no time at all. But this was not Earl's day, because in the next landing he lost a wheel. It seems a cotter pin holding the wheel on the axle was worn through owing to the lack of a flat washer between the rotating wheel hub and the cotterpin. This put Earl right back up on his nose and another propeller bit the dust! Being a positive thinker, Jess was ready for him. After a little soothing conversation, and a trip to the shop, Jess approached the plane with a yardstick in one hand and a hack saw in the other. He trimmed off the splintered end of the prop, took a fast measurement from center of the hub out to the trimmed-off end, and then marked off the same distance on the unsplintered end. After being satisfied his calculations were correct he trimmed off the good end, winding up with two blades approximately the same length. Thinking this had solved all the problems, he soon was discovered Earl decided he had enough, so a trip was made into the shop. Here Jess gave a sales pitch that would be worthy of the Guinness Book of Records. The highlight of the talk was Jess telling Earl that in one summer he had "busted" a whole tobacco shed full of propellers. With the rest of the sales pitch fully considered Earl decided to continue his flying career.

On another occasion Jess had a close call on a Szekely-powered Eaglet. The Szekely was a scant 40 horsepower, and had been developed in Chicago and run around the back streets of that city on a four-wheel chassis—but had little air time. Like the later 40



From left to right at the old air port: Jesse Jones, Roscoe Turner and Samuel Knight. Knight was the head parachute man at Follmer, Clogg and Co. This photo was taken about 1929.

horsepower Continental, it was balky and when it failed to start you kept on priming, then turn in reverse, and try all over again until it fired up. I was at the controls on such an occasion, and everybody capable of pulling it through was working on it. I would say an hour elapsed, and by this time I was beginning to relax. As I remember, I had full rudder, stick forward, and about three-quarters full throttle, wheels were chocked, and suddenly the Szekely came to life, rolling up over the left wheel chock. Jess was running backwards, arms swinging, as if a swarm of bees were after him, with the Szekely coming right after him and heading for the office wing to the north side of the hanger. While it seemed like a lot of time, it was only seconds until I got the stick bellied, rudder straight, and throttle closed to idle. Jess was mad as a hornet but no one was hurt except for some pride.

The best air action I was fortunate to witness was a delivery of the two Salmson-powered Eaglets. Jess and Charles Hastings went to the factory to accept delivery of the new planes. A J3 Cub was tight on space, but the Eaglet was tighter. Jess and Charles picked up the Eaglets. Each was wearing a leather flying suit and a Follmer Clogg back parachute with emergency belly chute, so seat cushions were put

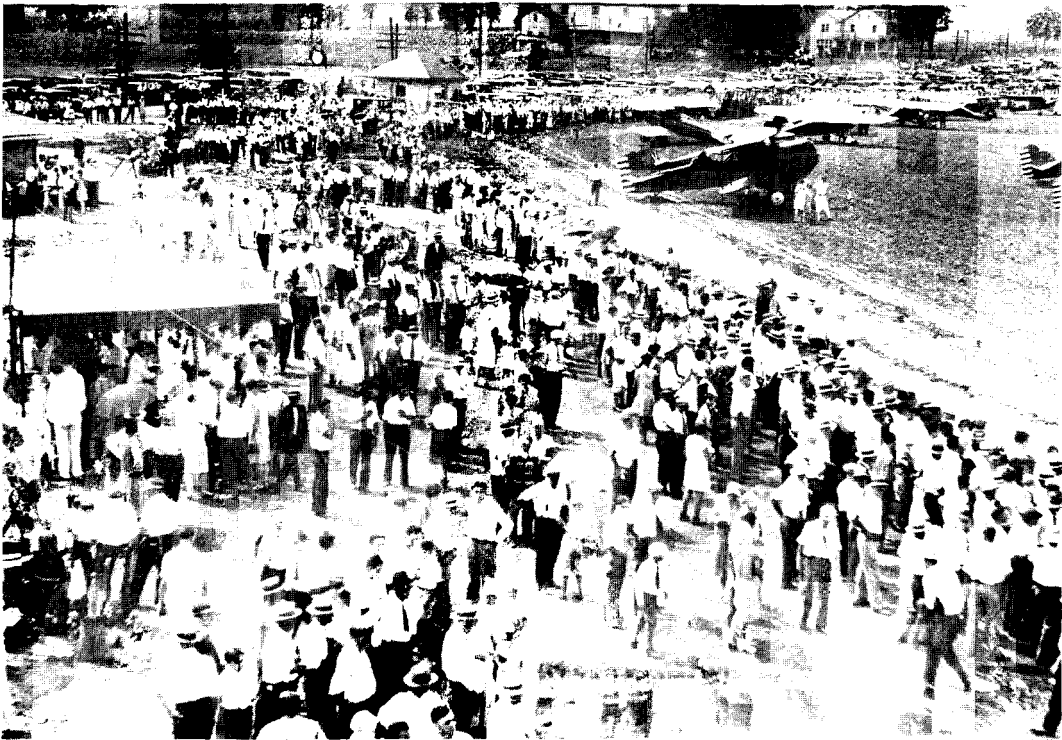
in the rear seat in order for them to get in. Jess was a small fellow but Charles was tall, and this made a full cockpit any way you looked at it. On their arrival at the old Manheim Pike airport, around dusk, they started out around Manheim to zoom the field, and we all were waiting. Those Salmsons buzzed like bees with clipped wings, and a more beautiful sight with buzzing Salmsons one could never witness. The Salmson had a nine cylinder radial engine, 40 horsepower, with a two-inch bore and two-inch stroke; they were made in France.



Aviators pose with Elmer Espenshade (far left) in 1929 at the old air port which was owned by Espenshade.

The parachutes were made by the Follmer Clogg Umbrella Co. of Lancaster. They were beginning to make a name for themselves in the parachute business. Many pilots owed their lives to this local product. Back in the beginning when the Waco 10 had a few hours on it a drawer slide was installed right beneath the rear cockpit. The

packed chute was fastened on a piece of plywood, and this was slid into the drawer guides. Also there was a World War I Bomb release hung between the landing gear. Two 100-pound lead weights molded into a "vee" shape were suspended from the bomb release hook, and a cable inside copper tubing was run to the rear cockpit, ending in a ring release handle. In flight a chute was fastened to the belly, and with the 200 pounds of weight swinging around under the landing gear, this did not make for good stability on take off, especially from a



Crowds gather to watch the "flying daredevils" at an air meet at the old Lancaster Air Port along the Manheim Pike about 1932. Elmer Espenshade's farm can be seen in upper center (now Calder Door Co.)

grass field. At a pre-determined altitude, give or take a few hundred feet inasmuch as altimeters were not too accurate in those days, the weight was released, and being hooked to risers it would tear loose from the plywood board, and the pilot chute would lead out, pulling the rest of the chute from the pack—and hopefully open. On many

occasions it did not, and for this we had a Fordson tractor to pull the lead weight out of the ground. As the chutes were improved, an employee, Sam Knight, would live test them. He was a heavy man, and a 28-foot chute did not let him down too easy. I guess my best memory of this phase of the old airport's activities was the day Sam lost his grip on the main chute release, and he was approximately 200 feet when he got the chute open. It split open a panel, cracked like a cannon and turned Sam's complexion snow white. This was Sam's last jump. He was too heavy for testing, and I guess he figured "why press your luck too far."

A new boy was selected, a young fellow named Larry Jones, no relation to Jesse. From then on Larry did all the live testing for Follmer Clogg. As the quality of chutes improved he went into exhibition jumping, and Larry made quite a few jumps. After a few broken ankles and several bad jumps as well as getting older, Larry quit and went back to flying. His mount was a Velie-powered Monocoup. In earlier chute jumping, a fellow from Reading, Sam Rittenhouse, was the most popular exhibition jumper in this area. In those days of only a plain 28-foot chute, spot jumping was more difficult than today. For target jumping from five or ten thousand feet, Sam Rittenhouse could not be beaten. My best memory of him was a jump at the old airport on the Manheim Pike. He came down just off the Fruitville Pike and his chute was snagged on the top of a telephone pole leaving him many feet off the ground. He just climbed up the pole and freed the chute, then hung on the telephone cable and dropped to the ground. This was high enough to stop anyone else, but not him. He is gone but not to be forgotten.

As we were nearing the Depression gradually, things were slowing down and money was getting tighter. Plane manufacturers were closing their doors, and some barely were able to hang on. Clyde Cessna and his son made a few hundred gliders. These were primary gliders and were launched from a straight line flight by a length of one-inch shock cord. Shock cord was used in the solid axle type landing gear, with three or four turns being wrapped around the axle and gear strut. Upon landing, the axle would move upward and absorb the shock. They broke at times so a piece of control cable was put loosely around the axle and the strut; this would keep the plane from going down the whole way. A long length of one-inch cord was used to launch the gliders. We would get four or five fellows on each end and hook the middle to a hook on the front of the skid of the glider. Three or four fellows would hold the tail, and then the cord would be stretched like a sling shot. When the tail hands were released, the glider would shoot up into the air at a pretty

good clip. But this was a little too tame, so a 500-foot length of 3/8 inch hemp rope was purchased. With one end hooked to the front of the glider's skid and the other end to the bumper of Paul Schlotzhauer's Chrysler coupe, we had a system for getting gliders up there. Jess made the demonstration flights. A problem existed whenever the rope became slack for any reason, because the hook fell off and you "were done."

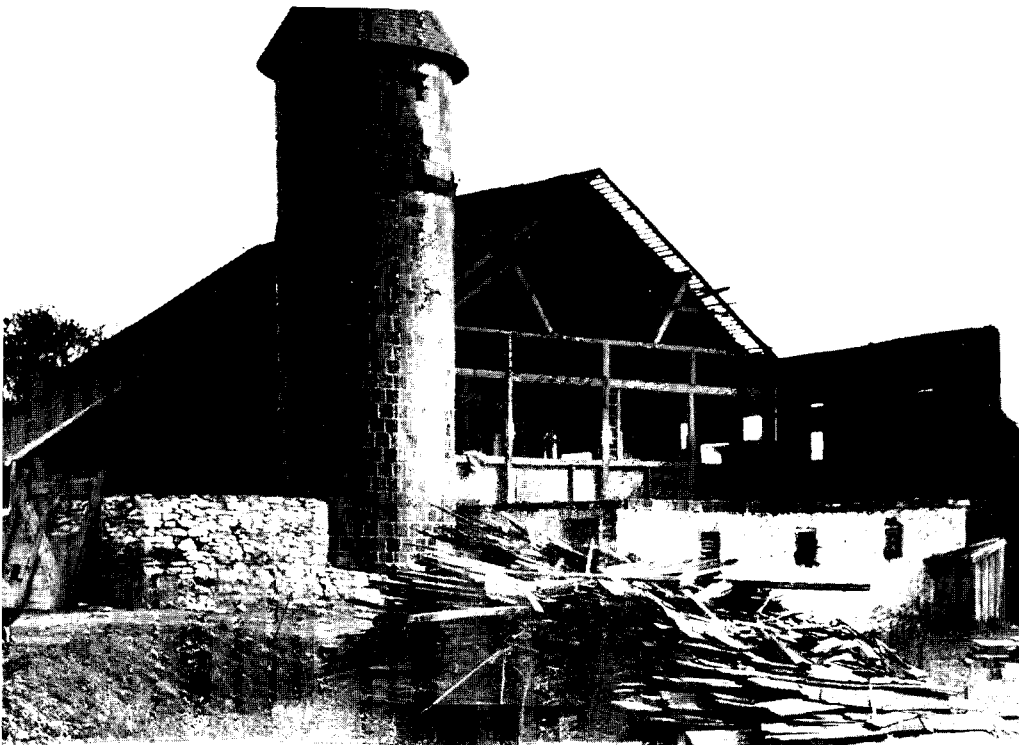
We at the Manheim Pike airport got the glider "bug," and we collected money from would-be members. Those I remember were Sam Fraim, two Rohrer brothers, a Mr. Findley, Roy Snavely, Mary Surbank, and me, all at \$50.00 each. There were others as social members and also Roy Geltz. The others had no intention of gliding; they were helping us along. A Detroit Gull glider was purchased. I do not remember the name of the manufacturer. Some primary instructions were given by Sam Fraim. He would sit in the rumble seat of Paul's Chrysler, and when the glider was fastened to the bumper with 50 feet of rope, Sam would "holler" instructions to the student in the glider through a megaphone. This went fairly well until one of the Rohrer boys was right over the car and was stalling. Sam yelled, "Push the stick forward." He did, and dove right into the ground. Unhurt, he unbuckled, took off for his car, and never came back. Now I was 15 years old at the time, and didn't weigh much. After Rohrer's experience, they decided to snub the stick with a rope in a position that you could not pull up much, and speed alone would lift you off. This worked well until I tried it, weighing about 98 pounds. We were airborne and going up, up, up. Because of my age and weight, I was allowed only to control the glider back of a car when it was being pulled in from a flight at a slow speed. I resented this because my \$50 was as good or better than some who were wrecking the glider, and did not even belong to the club. I even repaired the glider at my own expense after Roy Peris landed it 30 MPH sideways. The next incident happened after we put a World War I vintage bomb release below the hook on the skid. It was released by a length of control wire run in copper tubing from the bomb release to a ring beside the seat. With Sam Fraim at the controls, and with 500 feet of rope out, Sam pulled the release, the copper tubing buckled, and the rope didn't release. Fortunately, Sam held a transport pilot rating, and with skill he landed the glider while being tied to the rear bumper of the Chrysler coupe! It was a good show, but I don't think Sam thought so because he was white as a sheet and this was his last ride on the Gull.

Interest in gliding was waning, and one Sunday afternoon during the close of a local air show. Roy Geltz made a short flight. He

landed across from Elmer's house just as it started to rain. I guess Roy decided I was due for a ride, so he asked me if I wanted to take a flight. I got on, buckled up, and Roy took the wing tip and signaled Paul to go. I went up and up until the car ran out of field. The rope slackened and unhooked me still with the stick in my belly. The next thing I was in a stall. All I remember was when stalling, get the nose down, so down we went, across the Manheim Pike, under the power lines, and skid across the road, hitting a one foot square pole on center with the skid. The irony of it was the pole supported a sign advertising Harley motorcycles, B. Warren Henwood, dealer, and on the sign was a fat cop with his hand up, saying "STOP." I stopped. The left wing was down and slid along the macadam, damaging the tip. A telephone pole caught the left wing, damaging the leading edge as well as breaking the landing wires, but this was not the first time this was done. The club folded, and whatever happened to the Gull I don't know. I do know we were charged \$500.00 for a glider. When Jess came on the scene and saw that I was not hurt, he said, "G--D---, Terry, I am going to give you H---!" Amen. Nothing more was said.

Other glider activities around Lancaster in the 1930s were the start and never finish of a Northrup Secondary glider by Rodney Clark and the "free help." This project wound up in the rafters of the Coatesville Airport. A group of boys from Lancaster High School built a Northrup without success, and later they bought a secondary wing glider built by an engineer of the Martin Aircraft Company in Baltimore. This looked good, but after the boys assembled it, using erector set parts, Jess refused to test hop it. The boys included James DeHaven, Courtney Mook, and Cappy Hamaker. Those were the "Good 30s," no money but lots of time. Another gentleman of that era I recall was Walt Hallowell. He drove a Marmon touring car, and worked for Darmstaetters. He was a photo bug. Armed with his aerial Graflex camera, he spent all his spare time hiring airplanes and taking aerial pictures of farms which he then tried to sell to the farmers to help pay expenses. He used a bombardier's belt, and this would allow him to get halfway out of the cockpit, and scare the pilots half to death. He had many good pictures but his wife burned them all because he had a sideline of showing stag movies. She was embarrassed and burned all the photos including many historical pictures.

The old Lancaster airport was the scene of many happenings. When one soloed he would receive a nice pair of sterling silver wings with a red rose in the center between the spread wings, as well as becoming eligible for membership in the Royal Order of Yellow Dogs.



A barn is removed along the Lititz Pike in preparation for the new Lancaster Municipal Airport in 1934.

In this initiation ceremony the local pilot who was a Royal Yellow Dog had the privilege of doing "you know what" on the initiate's bare leg!

Lancaster Air Ways, Inc. persuaded the Gerhart Coffee Co. that they should have an airplane. Lindberg's flight across the ocean opened up a market for airplane sales. The plane manufacturers—Laird, Swallow, Waco, Travelair, Stinson, Bellanca, and Challenger to name a few—could not fill all the orders they received. The Mahoney aircraft at the old Ryan plant could have sold twice as many of the B1 Ryans as the sister ship of the Spirit of St. Louis. Gerhart Coffee Co. purchased one, and Jess went to the factory to pick it up. This had less wing than the original Ryan and more tail feathers, but it sold like wild fire, and Gerhart had one to prove it. To the best of my memory Jess was the only one to fly this beauty. When Pitcairn brought out the Autogyro, Hatton Wolf Ford Motor Co. was allowed to purchase one, and a number of the pilots of Lancaster Air Ways, Inc. were to fly it. The last to fly it was Richard Beckley, who "did it in." The Gerhart plane almost cracked up during a hot landing made by Jess from north to south. A high speed ground

loop saved him from going through the office shop wall. There was no damage other than some grass torn up.

All those pilots had cars, and to bring the times into focus, Jesse's two door Whippet had its starter button on the steering wheel. Charles Hasting's Kissel Roadster—a real sport car for the day—had racks on each rear fender to secure your golf bags. Richard Beckley had a two door Oakland for the family car. Chick Soul owned a 1928 Chevy Roadster. Roy Peris's car was a 1920 Model A Ford Roadster. At \$25.00 per week he drove it a long time. "Stiff Leg" Pat Brooks had a 1928 Model A Ford which Bob Gansel and I had the honor of doing a carbon and valve job on it without the benefit of "trick" Ford valve tools. We made our own which were very similar to those KD Manufacturing Co. still makes today.

Gas welding on aircraft tubing was new and qualified welders then were few. We were fortunate to have access to Ben Erbe whose welding shop was on Market Street just off West James Street. We would do all the welding when someone would "wipe off" a landing gear or break some part.

About the time Charles Hastings wrecked the D.H. Moth in the Conowingo area, a fellow named Morris Bowman, a graduate of the Lancaster Airport, was flying a D.H. Moth out of the Harrisburg Airport, he spun in on top of the Penn Harris Hotel in downtown Harrisburg. He was badly injured but recovered to fly again. I guess he still is flying! Charles Hastings quit flying, and was living on Morningside Drive until July 14, 1978 when he moved to Texas to live with his daughter. His most famous student, G. Wesley Myers, lives in Quarryville and is a retired representative of Nationwide Insurance. In his flying days he lived at home in Drumore Township and helped run his father's farm. J. P. Jones retired from the Koppers Propeller Division in 1962, and lives on Spring Valley Road in East Hempfield Township where he spends his time building and rebuilding airplanes of the era of the 1940s. At this writing he has finished and is flying a Taylor Craft, and is doing over an E8 Luscomb Silvir. Slow as things were in the aircraft business, he had a "first" here. An outfit named Pittsburgh Air Ways, Inc. started a passenger run utilizing a Travelair 5000 with stops wherever there was a fare. These stops included Lancaster, Bethlehem and Coatesville. This final name for the company was Air Ways, Inc. In order to signal a plane to stop at a field we had a large wooden "T" which was laid in a predetermined direction. Reverse meant no stop, right direction indicated stop. This was a "first," and while not many passengers were hauled, it was a start, and Commuter Air Lines doesn't have

anything to brag about when you consider what we had in the 1930s!

In those days my favorite time of the year was Air Meet time. This brought together a group of pilots second to none when you figure that a fellow had \$2,460.00 cash tied up in a Waco 10, and would chase a gas-filled toy balloon down to around two feet off the ground, and crack up all for a tank of gas or an oil change. You must admit they loved to fly and be recognized; this was the breed of pilots that attended air meets. As for the racing events,



The main hangar of the new Lancaster Municipal Airport under construction in 1934. Construction was completed in nine months.

here you were dealing with pilots that you did not know if they knew the maneuvers on rounding a pylon or how they would come out of a rounding maneuver. In a Waco or any open cockpit plane the visibility was good other than below your wing or dead in front, but pilots entered Monocoups, Ryans, Curtiss Robins, etc. These cabin planes had more blind spots than a wooden box with the lid on, so these pilots had it all hanging out when they raced with each other. In those days the man to beat was Tony Little. He flew a factory-

sponsored Monocoup with a 125 horsepower Warner Scrab engine, and it was fast for those times, and more so after a foot was removed from each wing tip. Then there were the bomb-dropping contests. Each pilot was given four filled flour sacks, after which each made a high speed pass at 80 mph over the target. Acrobatics for those pilots qualified, passenger hauling, and concluding with the grand finale—usually a delayed chute jump, the air meets ended with the helmet or straw hat being passed to take up a collection for the jumper. The nine or ten dollars collected was all he received.

To bring the era into focus, from 1925 up to and including the depression era a lot of different airplanes were put on the market. Designer for the Advance Air Craft Co., which changed its name to Waco in June, 1929, was founded Buck Weaver, and the name came from the initials of Weaver Air Craft Co., hence WACO. Sam Junkin was in charge of design for Waco, and he had just brought forth the Waco 9 when he passed away. About this time Charles Myers had wrecked his Myers Biplane which he intended to market in kit form. With the prototype "busted up," he moved into the slot of designer for Waco. They finished assembling those Waco 9 parts on hand, and then Myers started to design a follow up plane to the Waco 9—this would be the Waco 10. Waco 9 came out in April, 1925, and sold 30 units the first four months. In 1926 they sold 164 units. Total new planes built that year were 650, so Waco wasn't doing badly. The Waco 9 sold for \$2,500.00, and 280 were produced. Charles Myers had the Waco 10 ready for introduction in 1927 with production at five per day in Troy, Ohio. New plane production for 1927 was 1,000 units of which Waco sold 65 Waco 9s and 370 Waco 10s. The big thing on the Waco 10 were the oleo struts. These were a first for private planes and were the brainchild of Bud Schulenburg. Late in 1927 the Wright J5 was mounted on the Waco 10 nose and was labeled the Waco Sport ASO Model. There were a few earlier Waco planes built with the Wright J4 in 1929. Waco got the J5 as a standard engine model CSO. A 1927 Waco Taper Wing sold for \$8,525.00 but the J5 represented \$4,500.00 of the total price. In this era Lindy made his water trip in May, 1927, and the Alexandra Air Craft Co. in 1925 came out with the Alexandra Eagle Rock, first aircraft to challenge the big three: Laird, Waco, and Swallow. It was mostly a mountain craft, the long wing a weird looking craft, the biplane with lower wings two feet longer than the top one. Engines used were OX, Wright J5, Comet and Kinner. The Kinner was a good engine. It differed from conventional radials in that it had an individual camshaft for each of its five cylinders and was rated at 160 horsepower. This was the largest air frame builder in the USA

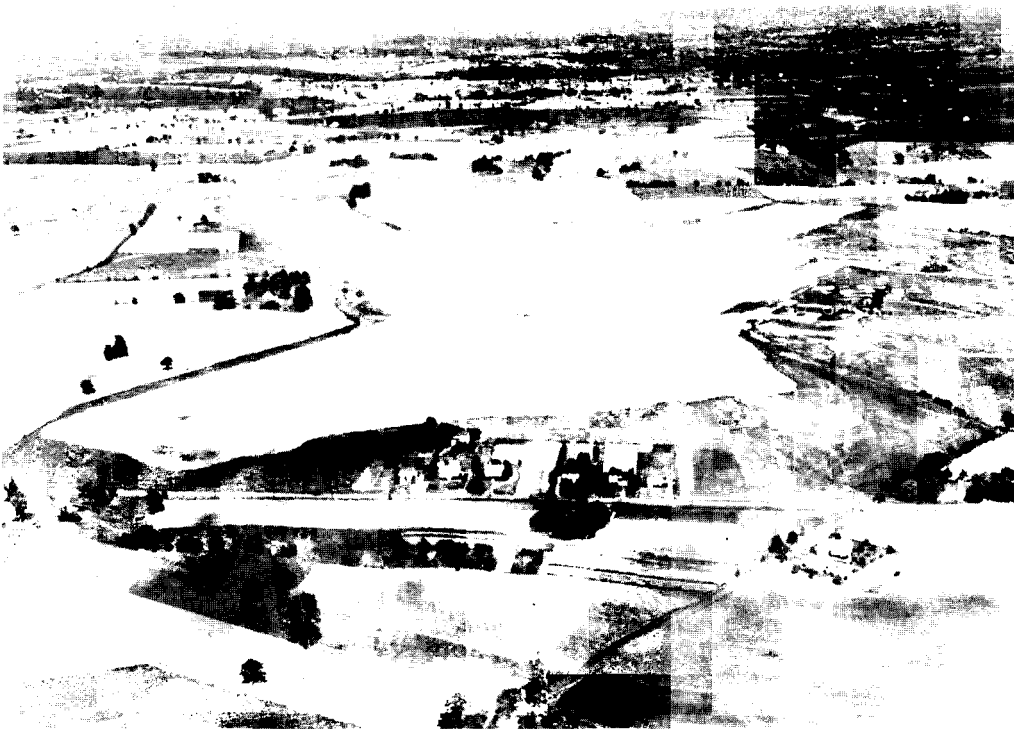
at the time. Al Mooney was active in 1927 as founder of Mooney Air Craft Co.; later he went with Lockheed. The year 1927 saw the Pitcairn Mail Wing and the Pitcairn Autogyro hit market. The Buhl Air Sedan of 1925, OX powered, as well as the Airstar; Spartan of Tulsa, Oklahoma; E. E. Porterfield's American Eaglet of Kansas City; and Kreider Reisner of Hagerstown, Maryland, also made their appearance at this time. The Low Wing Monoplane KR 3 place biplane of 1927 sold for \$2,240.00 less engine. This was a common practice around this time as the O x 5 was getting scarce.

In 1934 things started to wind down with Lancaster, Bethlehem, and Coatesville Air Ways, Inc. Jesse was more interested in a manager job at the new Lancaster Municipal Airport under construction on the Lititz Pike north of Neffsville. Federal-financed building was going on, and the airport authority or commission was formed to build the airport which got under way late in 1934, and was finished in nine months. The runways were grass because the tail dragger was still the thing and many of the aircraft had no brakes. The original hanger still continues in use although by now greatly expanded. The runways are now paved. The original lighting at the ends of the runways has been removed and has been replaced with runway marker lights. Night flying now is commonplace. Jesse went on to become the first manager, and Roy Peris filled in as engineering assistant on planning and construction. Jesse served as manager until 1943, and then he went with Koppers Company's Propeller Division, finishing up as corporate pilot for the Koppers Co. His plane was an Aero Commander during the 17 years of employment with Koppers. He then returned to Lancaster to retire. When Jesse left the Lancaster Air Ways, Inc. in 1934, the group flying out of the old field were left with no one to police the safety. During the wild year of 1934 operations a young fellow, Jason Moore, lost his life. Another fatality was Verge Marchetti. It seems Jason agreed to put on an air show for an Elizabethtown group to celebrate the 4th of July. Jason's plane was an early low winger West Brooks Sports Trainer, two place tandem, with a Cirrus engine. This engine was noted for cooling off on a landing approach and would not respond to full power in an emergency. On such an occasion during a trial landing at the air show site, Jason went through a fence, putting him in a spot as far as the air show went, so he talked Verge Marchetti into doing the show against Verge's better judgment. Verge's plane was a Lambert Monocoup, and was a bad plane to spin which was the final aero feat of the show. Well, Verge spun right into the macadam road in front of the railroad underpass at the entrance to the Elizabethtown Masonic Homes. Jason took this very hard as was evident when Verge's

casket was loaded on the train for shipment to the burial site. Jason had his plane repaired, and a short time later, with a student named Mary Surbank, on a landing approach, Mary came in low and Jason took the stick and put on full throttle. The engine stalled, and the plane spun right into the ground, ending his career and seriously injuring Mary.

The time was ripe for a new boy to pay Elmer Esbenshade his rent, so Arthur Lamparter, who had been flying and storing his Waco Cabin Biplane at the field, took over and formed the Lancaster Commercial Airport, with Arthur as manager, and Roy Peris the chief mechanic. This operation started November 31, 1935, and ended May 5, 1936. Rent money was not coming in. Roy Geltz then took over the operation. His early planes were his Heath Mid Wing and two Avero Avians. Around this time the Civilian Pilot Training Program (CPTP) was getting underway, so Roy purchased as many J3 Cubs as he could afford, and in conjunction with Professor Fred S. Klein of Franklin and Marshall College who taught the ground school while Roy was the flight instructor, things started to look up. At this time Jesse Jones had a program at the Municipal Airport, and Ernie Buehl was running a program at the Gettysburg Airport. The federal government laid it on the line for them: all three must join and operate out of the Municipal Airport. This was done, and a little later Jesse sold out to George Ritnour, a salesman for Hellman's Mayonnaise. Mechanics were Johnnie Massy for Ernie Buehl; Robert Futty for Jess, and later, George; and Ed Terry for Roy. Besides being mechanics our job was to see that our employer did not get the short end of the stick. We also patched up the J3 Cubs with their over-rated Lycomings and Franklins, the Taylor Crafts, and the N3N Biplanes. This went on till the program was phased out. In the meantime Roy was faithfully operating Elmer's airport with the original 75 foot by 100 foot hanger and two more built in the meantime, one of which today is the building housing Battery World. As time went on Roy's desire for his own airport came to a head, and he had enough money from his CPTP operation to purchase the land and build hangers at his chosen spot, the Garden Spot Air Park, along the 3400 block of the Columbia Pike, then known as the Lincoln Highway West. Roy operated this field until his death. He spent seven days a week operating the repair and instruction service, along with his wife and six Great Danes. After his death his wife, Ethel, ran it for a time, and then sold it to Henry Weber, the Mooney dealer. This entire operation came to an end in the 1960s, and the Leisure Lanes Bowling Alleys occupies part of the former airport.

The runways are deteriorating and the hanger's chimney is all that remains.



An aerial view of the Lancaster Municipal Airport about 1949. It has been greatly expanded and improved since that time.

To the best of my knowledge, the only fatalities that occurred were Bill Hart during Jesse's operation at Manheim Pike, the deaths of Verge Marchetti and Jason Moore during Jason's operation at the Manheim Pike Airport; and John Brassi in an N3N during the CPTP program at the Municipal Airport. The story goes that John fell asleep while instructing a student, and crashed near Manheim, killing John and injuring the student. One pilot also was killed at the Municipal Airport involving two planes colliding head-on during a take-off and landing.

About the Contributor

Ed Terry graduated from "airport bum" as a youngster to become a skilled and versatile mechanic. Largely self taught, he used his native intelligence and unusual mechanical aptitude to master the principles of internal combustion engines, marine engines, air conditioning and refrigeration, electrical equipment and just about anything that is mechanical. Despite being retired he still enjoys "puttering around" fixing things that refuse to work.