1942 - Mrs. Freed - War Years

MRS. FREED'S UNEXPECTED FLIGHT

One event which is worth recording was the unexpected flight of Mrs. Freed. As I remember it there was a club of 5 men in Moline, Illinois who owned an Ercoupe and it was the turn of one of these men, Mr. Freed, to fly the Ercoupe plane on a Sunday morning in November 1942.

He took his wife with him and flew down to Galesburg, Illinois which had a nice grass field with a hangar and some airplanes on it. They visited and looked around for a while, but when they were ready to go home, there was nobody easily available to spin the propeller. In those days the pre-war Ercoupes had no electric starters. He saw that his wife was seated and strapped in the right-hand seat, which in those days had incidentally no control wheel if she was not a pilot or a student pilot, and then he went around and started the engine by cranking the propeller. The engine was turning too fast to suit him and so he stepped to one side and called to his wife to close the throttle, "that knob in the lower center of the instrumental panel". Mrs. Freed was an automobile driver, but she knew nothing about airplanes other than that she had had a couple of rides with her husband. The automobiles in that day had hand throttles as well as foot throttles and you added power by pulling the throttle out. She therefore closed the airplane throttle by
pushing it all the way in. The engine roared at full power and the airplane shook a bit in the pulsations of the slipstream. Mrs. Freed thought the airplane might be creeping forward in a little in the grass and made a wild grab for the brake to pull it on tighter. The Ercoupe had a hand brake which you pulled out and then turned to lock. She merely unturned it, releasing the brake, and the plane jumped forward. It started accelerating toward the hangar, and Mrs. Freed reached over to the pilot's control wheel on the left side and turned it and managed to miss the hangar. This operation worked because with the Ercoupe the control wheel turned the nose wheel and steered the plane on the ground as well as in the air, which is not true with other airplanes. She then found herself headed toward a couple of airplanes, but managed to steer around them, also.

Finally, the airplane had nothing but the open field ahead of it and she sat back and relaxed a bit. But the airplane was still accelerating at full throttle and after a bit things felt different. She couldn't feel the ground rumble anymore. At this point she was still expecting her husband to do something to help her, although he had been knocked down as the airplane jumped ahead and the wing moved over him. The airplane kept going steadily higher and higher above the ground and finally she realized that she was really on her own, that her husband couldn't do anything to help her.
In those days the airplanes had no radios so she could get no help or instruction from the ground, even if she knew how to use the radio. The airplane must have been trimmed for the climbing speed and as she climbed higher and higher, she held a straight course by keeping her hand over on the control wheel on the left. She finally decided that if she was going to have to fly this airplane, she better get over into what she called "the driver's seat". So she unfastened her seat belt and moved over to the left-hand seat. Then she started examining things to see what the instruments and controls were.

By this time she was about 2000' high and still going away from Galesburg and the airport. She started to turn back toward the town, but when she turned the control wheel, the plane "tipped", as she called it, as it started into its bank. This alarmed her and she turned it right back straight. Finally she found that she could tip it just a little bit and make a wide gentle turn and for about 20 minutes she flew around the city of Galesburg and the airport at altitudes in the neighbourhood of 2000'. During this time she recognized some of the instruments, such as the altimeter and the airspeed indicator. She experimented with the throttle and tried flying with the throttle in various different positions. When she pulled it all the way back, things were very quiet, but she was afraid the airplane would
stall. Her idea of a stall was that of the automobile driver, that is she thought the engine might quit. So after that, she merely did all of her flying with the throttle in a more or less intermediate position.

As soon as she had made her first turn back toward the town and the airport, the people on the ground saw that she might possibly get back toward the field. Her husband immediately ordered a doctor and an ambulance in case of necessity and the airport operator put all the airplanes in the hangar and got the fire department out. She finally decided she would try for a landing. Fortunately she remembered that when her husband had approached an hour or so before he had passed over a certain farmhouse at approximately a certain altitude. She repeated that course as well as she could, always with partial throttle and came in for her final approach to a landing. After passing over about a third of the field, she touched down reasonably satisfactorily with a slight bounce, and rolled along for about possibly 300' and everything seemed all right; then she closed the throttle again by pushing it all the way forward. The plane zoomed ahead again and was soon going too fast to stop within the field. So she pulled back again on the control wheel and got up into the air again. She cleared the farmhouses at the end of the field and then made a number of circuits of the field at low altitude, deciding what to do. She finally decided to try to land again and
made another approach somewhat similar to the first one. This time she did not level off the flight path, but flew hard into the ground, bending the nose gear back and breaking the propeller, which was wood, and after a bounce or two the airplane slid to a stop.

With the propeller broken, the engine stopped and it did not matter what she did with the throttle. When she had moved over to the pilot seat, she had forgotten to fasten her safety belt and now she found herself on the floor, but with nothing but a bit lip and a bruise or two. The Freed's stayed in Galesburg until the next day when the CAA inspector came over to record the incident. They had some fun when the inspector recorded Mrs. Freed's flying experience. He put down "Dual time" 0; "Previous solo time" 0. She apologized for not making a better landing, but he assured her he had seen good, experienced pilots make much worse landings than hers. Incidentally, when I had seen an article about this event in a newspaper, I wrote Mrs. Freed and asked her to tell me the whole story in detail, because I was particularly interested in the throttle operation. She did this and I hope I have given the facts reasonably well, but I have not seen this letter for well over 30 years. I do have in front of me, however, another little note which she sent me together with a newspaper article about the incident. In this note she says, "As soon as the plane is repaired, I
would surely like to learn to really fly it". I hope she did, but I have not heard from her since. She was a courageous and competent person. I worried about the throttle problem for some time, and eventually did get a quadrant-type throttle located in the centre of the instrument panel on the later Ercoupes. Later on, however, and for the past many years, automobiles have not been provided with hand throttles and so the confusion no longer exists.

On February 18, 1943 Edmund P. Allen, who had been instrumental in the development of the large Boeing B-29 bomber, was killed when one of the engines overheated and the aircraft caught fire and crashed in Seattle. This was a great loss to me. I had first met Eddie Allen when I was working in the Bureau of Aeronautics in 1924 and he was building himself a very small airplane with a Harley-Davidson motorcycle engine. I used to visit him and watch the construction during lunch hours. He weighed only about 120 lbs. himself and he made the airplane as small as possible, following the square-cube law, where as you reduce the size, the volume and weight are reduced as the cube of the size reduction, but the area is reduced only as the square. He finished the airplane and flew it a number of times from Belvoir Field, the Army field across the Potomac. He had gone to the University of Illinois, but somewhat before my time. He had then been an Army pilot during World War I. When I first knew him the bridge of his nose was
missing and he told how that had happened. He said he was used to flying Standard airplanes and in making a landing after having done air work at a fair altitude, he used to spin down and make his landing out of the last turn. He changed to a Jenny one day, not realizing that a Jenny lost more altitude in a turn than the Standard did, and when he came out of his spin and tried to level out, he hit the ground before he had flared off his flight path. Later on he had his nose built up again by plastic surgery.

In the early 1920's he did some of the experimental test flying for the NACA at Langley Field. He developed into a fine technical test pilot. I saw him every now and then after that. Later when I was at the NACA in Hampton, Virginia, when he was at our home one evening, he told about an experience that he had while flying the mail with the DH's in the early 1920's, at about the time that I was working for the Air Mail in the Chicago area.

He was following a railroad track in hazy weather with low ceilings in the mountain areas of the West, when suddenly there was a mountain and the track disappeared into a tunnel. Fortunately he was just able to make a zooming turn and managed to avoid the mountain. Later on he became probably the country's best-known test pilot, particularly for trying out new airplanes. He did the first test flying for the Douglas DC-1 and in connection with these early trials,
proved that it would fly on only one engine by taking one propeller off and flying from Los Angeles to Albuquerque, New Mexico. For a number of years he was chief of aero-dynamics and test flying for the Boeing Company in Seattle, where he had had a great deal to do with the development of their large airplanes. His death in this experimental B-29 accident was a great loss to aviation. The B-29, incidentally, was the first Boeing airplane fitted with a tricycle gear. The first military airplane fitted with a tricycle gear was the Bell P-39 Aerocobra, designed by Bob Woods, who had been in East Jacobs' section at the NACA at the same time that I was working on the W-1. The P-39 was also fitted with a tricycle gear at almost the same time.

The first interest in applying the tricycle gear to large airplanes was exhibited by the Douglas people about 1935. Arthur Raymond, the Douglas chief engineer then, sent a man named Colbolm and W. Bailey Oswald to the NACA at Langley Field, to find out about the tricycle gear on the W-1 and what it might do for larger airplanes. (W. Bailey Oswald was a graduate student in Dr. Clark Millikan's C.I.T. class in propeller design in which he used the as yet unpublished manuscript of my book as the text. Oswald's thesis was on a method of airplane performance analysis, and he used my method for obtaining his propeller efficiencies.) I had some contact with them but they were more interested in what the pilots who had flown the plane said about it. After this the Douglas Company, in cooperation with the Army, tried the
tricycle gear out on a Douglas Dolphin, which originally had the tail-wheel type gear. The Dolphin was an amphibian flying boat, and they merely moved the wheels of the main gear back a bit and put a castering, steerable nose wheel under the front of the hull. These tests showed the advantages of the gear. On October 21, 1935 I wrote a memorandum in response to a request by Mr. D. W. Tomlinson of TransContinental and Western Air, who had inquired as to the possible use of the tricycle gear on a transport airplane. My 6-page memo pointed out the various advantages that I have already gone over here, but in addition pointed out that with a twin-engine transport airplane, the forward part of the fuselage could extend forward sufficiently to support the nose gear well forward and provide a satisfactorily long wheel base. Then three or four of the airlines got together with the Douglas Company in the hope of getting a larger transport airplane than the DC-3. Edward P. Warner was a consultant to this group, and he visited me at Langley Field and we went over the possibilities of applying the tricycle gear to such a large transport. He had of course been familiar with my activities all along the way, and had seen the W-1 demonstrated at Morgan's little field. The result of all this activity was the Douglas DC-4, the first large transport airplane to use the tricycle gear. Even then, they made provisions for returning to a tail-wheel type gear, in case they were not entirely happy with the tricycle gear. During World War II the DC-4 was used widely in military activities
as the C-54, and after the war it was used on airlines and on the Berlin Airlift. The tricycle gear was then used on most of the military airplanes, the design of which started during the period of the war, such as the Lockheed P-38, the Convair B-24 and the PB4Y2. By now (1977) it has become the conventional gear for most all military, airline and general aviation airplanes, which gives me a touch of satisfaction.

On October 6, 1944, with World War II still on, I presented a paper at the S.A.E. meeting in California, telling about the four years of flying that we had had with the pre-war Ercoupes. One statement that I made in that paper was "After four years of general use, no case of an Ercoupe spinning has come to our attention, and what is even more important, there is no indication that there has been a single accident caused by lateral instability or lack of lateral control. There appears to have been no accident associated with a turn in flight." Considering that most serious light plane accidents were associated with stalls in turns, this appeared to be a pretty good record. The only fatal accident occurred when a pilot was giving a demonstration ride to a 65-year-old judge, and he hit a lone tree during the climb, following the take-off run. In a steep climb in an Ercoupe, the pilot cannot see the horizon straight ahead because of the nose of the plane. One wing caught on the tree and the plane hit the ground nose down.
The pilot survived, but the 65-year-old judge was heavy-set and had diabetes, and he died of his injuries three days later. There were a number of unnecessary accidents, such as pilots landing in rough, unprepared fields or taking off from such fields without knowing they could clear the fences or obstacles, and so forth. All in all, however, the record looked good.

On the trip to Los Angeles to give this paper, I had my first ride in a Douglas DC-3 converted to a sleeper, called the DS-3. The tricycle gear would have been an advantage in this case, because with the tail-wheel type when the airplane landed at night, the sleeper slid down toward the tail end.

On that trip I stayed over a day in Phoenix in order to see how our turret project was getting along there. At Litchfield, Arizona, just west of Phoenix, the Convair people were putting the finishing touches on the PB4Y2s that they made in San Diego, and the final turret installation was made there. We always had a man or two representing us there. When I got off the airplane at Phoenix and had a bit of time before the baggage was available, I naturally drifted a few hundred feet over toward where the small private planes were located, and who should I see right off the bat but Doug Robinson. He lived in Tucson at the time, but had his plane at Phoenix to get some service work done on it. He suggested
that when I returned, I still had to go to Los Angeles and then San Diego and back; I stop off at Tucson and we could fly his Ercoupe around in the mountains for awhile. I had never done any western mountain flying and this appealed to me. After giving the paper in Los Angeles I flew down to San Diego where Frank Lane, who was in charge of our turret design, was spending a couple of months at the Convair factory where they were making the PB4Y2's. On the way back from San Diego I stopped again at Phoenix, and there was Doug Robinson to meet me with his Ercoupe. He let me take the plane right away to fly the 100 miles to Tucson. He had no maps or charts and when we got up off the field, I asked him what the course was to follow. He pointed to a mountain peak straight ahead and said, "Aim for that," which I did. When we had been on our way for awhile, I said, "And after we pass that mountain what's the next landmark?" "Oh, when you get there, you just glide down and land in Tucson." That was an entirely new kind of flying to me, with visibility of 100 miles. In Tucson I met a friend of Doug's, Rocky Nelson, who later became an Ercoupe dealer in Phoenix. While we were there, Rocky, who had an Interstate, and Doug and I in the Ercoupe, flew to Nogales. Actually we flew to a pasture near Nogales, and had our lunch in Mexico. The next day I went with Rocky Nelson in the Ercoupe to Safford and in that way got a taste of mountain flying for the first time - that is, western mountain flying.
Toward the end of 1944, our orders for war materials had fallen off substantially, and people were in general sensing the end of the war. The light plane manufacturers were starting to organize their sales and distributor organizations for the post-war boom they expected. Erco had made arrangements with Major C. C. Mosely, Grand Central Airport, Glendale, California, that he would be the Ercoupe distributor for Southern California after the war. His organization at the time was running a couple of flight training schools for the services and other operations in nearby areas within a 70 or 100 mile range or so. He wanted badly to get ahold of an Ercoupe, partly just to get familiar with it, but partly because he could use it to good advantage going from place to place in his operations. Erco still had about three planes around the plant and wanted to get one to him. They were moaning, however, about the chore under those conditions at that time while the war was still on of taking one apart, crating it, and shipping it there by freight.

I had been working too hard for a long time and was told by my doctor that I should take a vacation and relax for a bit. I then had the brilliant idea that I could save the company the chore of crating and shipping the airplane by taking it easy and flying it out to the west coast and getting in my vacation at the same time. Such a thing would not have occurred to me had I not done the mountain flying
in the Tucson area just a little while before. This idea suited Erco fine and so the arrangements were made. I went down to the Department of Commerce building in Washington and got section charts to cover the whole route. Dorothy says there were 35 of them, which seems quite a lot. But each one covered only half the territory of the present section charts. The plane had a low-frequency radio receiver but no transmitter. It also had the then optional equipment of an extra gas tank in the right wing so we had a total of 23 gallons of gas. With our optional equipment, to be legal we had only 17 lbs. left for baggage, which was rather tough on Dorothy, but she managed it.

After waiting about three days for sleet and ice storms to clear up in the Washington area, we finally just barely got out on January 10, 1945. We stopped at Greensboro, North Carolina for lunch and refueling, having left our Erco airport at about 10:30. A snowstorm was expected at Greensboro shortly, and we hoped to get off before the field was closed. Actually it was snowing heavily by the time we got off, but they let us get off before they closed the field and we were soon out of the snow. The airport was very busy with military air traffic.

The next stop was Atlanta, and between Greensboro and Atlanta we seemed to be making much less progress than we had expected; for example, the airspeed said we were
going along at 100 mph, but we thought we must have had very large headwinds. We finally got passed Stone Mountain, however, and landed at the main Atlanta airport, which was near College Park. At that time it was just a fairly large grass field with I believe two hangars on it, and there was not much action. It turned out that the people occupying one hangar were going to be Ercoupe dealers after the war and they took very good care of us and got us a room in a little hotel that was right on the airport. That little field grew into what is now still the main Atlanta airport, but it is now extremely large (\textit{long}) and one of the busiest fields in the country, mostly with airline service.

The next morning we flew over Birmingham and then down to Tuscaloosa, Alabama. We had a tail wind from Birmingham to Tuscaloosa and the factory smoke from the steel mills and so forth in Birmingham obscured the atmosphere just about completely all the way from Birmingham to Tuscaloosa. It was uncomfortable in the smoke, and so we stayed above it until we were at Tuscaloosa and fortunately when we got right over the airport we both spotted it and circled down to it. When we landed and rolled to a stop, we were greeted by a good-natured young fellow who said "Welcome to Tuscaloosa". That alone, would have made the stop pleasant, but we had other items on top of it.

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Oliver Parks of East St. Louis, Illinois, had a large organization operating in the latter part of the war. He had not only Parks Air College and the operation there, but he also had flight training schools for the services in a couple of places each in Georgia and Alabama. It had been arranged that after the war he would be the Ercoupe distributor for several mid-west states centering around St. Louis and also Georgia and Alabama, and this station at Tuscaloosa we had just landed at was one of them. We stayed through lunch and half the afternoon going over future possibilities. The last half of the afternoon was spent flying on to Jackson, Mississippi, where we spent the night. About this part of the trip we found out why we always seemed to have high winds.

We had had enough flights by now to be able to figure quite accurately that our fuel consumption had been less than 4 gallons per hour and that at that rate our 23 gallons would give us about 6 hours of cruising which was substantially more than we had counted on. All this time the airspeed indicator had indicated about 100 mph and the tachometer had given the correct reading for an airspeed of 100 mph. The fuel consumption, however, indicated that we were going only about 90 mph instead of the 100 indicated on the airspeed indicator. Therefore, both the airspeed indicator and the tachometer must have been inaccurate and both were reading
about 10% higher than they should have been. And we were really flying at 90 mph instead of the 100 that we thought we were. The next day we were going only to Port Arthur, Texas, a little over 300 miles away where our friend, Don Burns, and his family lived. We were going to visit them for a couple of days. We expected to get there by about noon, but when we got to the airport we found we had an average of close to 40 mph headwind all the way. This meant that we spent 3 hours going the 160 miles from Jackson to Alexandria, having seen the Mississippi River for a period of about an hour, and another 3 hours between Alexandria and Port Arthur. With the high headwinds we flew low, in the neighbourhood of 1000' most of the time, to minimize the effect of the wind. Going over mile after mile of Louisiana swamp was very uncomfortable, however, and I went up a little higher because looking down showed nothing but the bare poles of tree trunks and branches sticking up out of black or dark brown water. This comprised the most uninviting country that we passed over during the entire trip.

We had a very pleasant visit with the Burns family and I gave Don and each of his three children rides, one at a time, of course. On a Sunday morning we left Port Arthur for Waco, where we had arranged to have Sunday dinner with a couple of friends of ours from Washington, Russell and Edna Kluge.
Russell was now a major in the Air Corps at the Army field in Waco. We were glad to get off, because weather was moving in from the south and they expected the field to be closed shortly. But we had bright sunshine until we got about halfway to Waco. When we got within about 3 miles of Navasota, and 3 miles also from the little Navasota CAA airfield with a weather station on it, we ran into a layer of low clouds and fog (it was fog that ran clear to the ground) that went on as far as the eye could see. It lay right directly across our course. The CAA weather people did not give their hourly weather broadcasts during the period of the war, and I could not contact the station because I had no transmitter, just a receiver. There was a Navy field about 35 miles on our right, but it looked as if it would be right within this same fog area and it was likely anyway that it might take days to get out of it if we ever landed on a military airfield during the war. It didn't seem very sensible to go back where we came from because presumably the weather then had moved in all through that area. What to do?

Well, I knew that the fog might go all the way to Waco and I didn't want to fly over that stuff in a single engine airplane that I was duty bound to deliver in one good piece. We had noticed that on the way to Navasota we had been flying over a black paved road that had no telephone lines or poles on either side of it. So I decided to follow
it back to the nearest town, Carpenterville, I believe it was, about 12 miles away from Navasota, and land on the road as close to the town as possible so we could get to a telephone. I did this and had no real difficulty, because we found no automobile traffic on the road that the time, but I did have to hold the plane off to clear two big black hogs before setting down where I wanted to land it.

We then turned off on a little road leading to a cemetery close to the town. Shortly a black face appeared, then another, and then another. After a while, two white men came by on horseback. I guess I got in bad with them right away, because I asked them where I could go to a telephone and they had to admit there was no telephone in the town. (That may have explained the lack of telephone lines along the road.) Finally a young couple came along headed for Navasota in a little Chevy coupe and they stopped to see the airplane and quite excited by it. I then gave what appeared to be the oldest and dominant Negro a dollar bill and arranged with him to watch the airplane while we went to Navasota and saw what the weather would be and would be back later in the afternoon.

A dollar bill still had a little value then. The young couple took us to Navasota in their Chevy coupe, with Dorothy sitting on my lap, and we registered in a hotel and had our Sunday noon meal there instead of with our friends
in Waco. We called them on the phone and got them fortunately just before they were about to leave for the airport to meet us. Then we called the weather man at the local airport and found that this fog continued for about 40 miles and he expected it would clear up about mid afternoon or so. It did and we finally got to Waco in the evening and had the evening meal with our friends instead of the noon meal, and stayed overnight with them also. It was interesting that he had been an architect in Washington and had gone with the Air Force with the idea of designing needed buildings, but when we saw them he was in charge of all maintenance of the Army-Air Force airplanes at this depot in Waco and he said he didn't know one end of an airplane from the other when he first got the job, but he was probably a good administrator, I hope.

The next morning we set out in clear cold air for the west and had our lunch in Big Spring, Texas. Big Spring had two airfields, a little one for commercial use on the northeast and a big one on the southwest for Army and airlines. After almost landing on the little one, we decided it was abandoned and went to the Army field where we had landed on the airlines trip I had just made to the west coast a little while before. I figured that if the airlines could land there, we could too, and they had a lunchroom right at the airport.
When we landed, however, a non-commissioned officer came up to us and said that no civilian airplanes other than the airlines were permitted to land there and I better get right away if I didn't want to stay a long time. So we just opened the throttle and took off and went back to the little field, anyway. We found that it was not quite abandoned and did get a ride into town for lunch and back again.

That afternoon we flew on to El Paso. The Texas mountains and desert around Guadeloupe Pass looked very forbidding to Dorothy but to me, of course, who had had a couple of days flying in the western mountains before, it was just old stuff. At El Paso the map showed two fields also, one Army and one commercial, but only about 3 miles apart and on the east part of the city. The two fields were so big, however, that they ran into each other, and the Army was using both. We watched unsuccessfully for a green light from the tower and finally found a chance to duck down between two Army planes on an unused end of a runway that was under repair. We managed to get service at the commercial end of the field and stayed overnight in a hotel in El Paso. The Weather Bureau was not too hopeful about the weather for the next day, but the next morning it had cleared up by about 9:30 and by 10:15 we were en route to Tucson, this time, for the first time, on a flight plan.
We were keeping an eye on a little one-track railroad running fairly close to the Mexican border, but we were trying also to follow the regular beam between El Paso and a little place called Rodeo, a little less than halfway to Tucson. About 30 or 40 miles beyond the Rodeo radio and weather station, there was a range of mountains, the Chiricahua Mountains, that would provide the highest terrain over which we had to pass. Both to the right and to the left of our course the mountains were over 8000' high and directly on our course there was a pass at about 7000'. As we passed over the Rodeo radio, we were at about 10,000' because I wanted to clear the pass by a reasonable margin and the legal flight levels going west in those days were the even thousands, 6,000, 8,000, 10,000 and 12,000'. I didn't like to fly that high because of course we had a headwind, but being conservative, I did. I had my earphones on and was following the old low frequency beam, A on one side and N on the other and after we passed the Rodeo radio, there was a message from them, saying "Dangerous pass, very dangerous pass ahead". I don't know whether they saw us, or not; I don't know whether they meant it for someone else, but at any rate we did have that pass ahead of us. Then, still before we got to the pass, we got a message saying, "Icing, icing in the clouds at 10,000'; dangerous icing in the clouds at 10,000'." I saw some fairly shallow clouds right ahead of us by that time, so got down out of the 10,000' level, and being a good but stupid boy, went down to
the next legal level of 8,000'. This was just about 5 miles or less before we got to the pass and then things started to get tight. We sank below the 8000' level and even with full throttle and down at the best climbing speed, we were just barely able to hang on within 200' say of 8,000'. Of course we were in the downdraft on the lee side of the mountain.

Until I actually got into the pass, I could have turned right north and gone/about 10 miles and gone through a pass that was less than 6,000' high with much less difficulty. The twisting, winding road going through our pass seemed to look pretty close, but we still had 7 or 800' clearance and were just maintaining our altitude. This was rather hairy. Suddenly, however, as we got to the windward side of the range, we were boosted up to 10,000' even at a good speed and with very little power. So I had had my first real lesson in mountain flying. In the first place, it would have been common sense to come down just enough to stay under the clouds with their icing, regulations or no regulations. If I had wanted to come down, it would have been better to go 10 miles further north to the lower and less violent pass.

The rest of the flight to Tucson was routine and we landed at a small airport, then called Gilton, on the northwest edge of town and were met by our friend, Douglas Robinson, who then lived in Tucson. By then he had arranged to be an Ercoupe dealer after the war also. We visited with Doug and his delightful family the next day and then set out
for the west coast. It took over a solid hour of telephoning to get permission again to fly into the coastal area, 150 miles from the Pacific Ocean. They had no record of the arrangements we had previously made in the east. We finally got permission, however, to land first at Blythe on the Colorado River, and then at the Grand Central airport at Glendale near Los Angeles. We had a pleasant lunch stop at a small field at Blythe, which isn't there anymore, and then went on for the final lap to the Grand Central airport at Glendale.

We had heard about the smog in the Los Angeles area, but were not prepared for the severity of it. From Riverside on, we could see hardly anything except straight down, even flying only a couple of thousand feet above the ground. We passed San Bernardino without seeing it at all. From Riverside on we followed a main highway as much as we could, but fortunately I had anticipated difficulty and in the last stages had noted good landmarks every 5 minutes or so of the flight. One of these was the Santa Anita Racetrack, which we could see definitely and the next one was the Rose Bowl which we could make out clearly. The next landmark was the almost completely dry basin of the Los Angeles River which we were able to find and then we turned north and followed the river channel until we came to Grand Central airport. The visibility was so poor that we could hardly see from one end of the airport to the other, even though it was
not a very long field. When we landed we were met by Major Mosely who had known about when to expect us because of our flight plan and we had photographers and reporters ready for us so that he could get some publicity out of it.

We spent the next few days visiting my brother, Herb, and his family, who lived in Los Angeles at that time, and also visiting Dorothy's mother and her stepmother and her half-sister, Anne. Dorothy's stepgrandmother, Mrs. Sarah Edwards, was the same person we had visited in Emporia, Kansas in 1929.

We took the train all the way back to Washington, D.C. because you could not get airline reservations at that time during the war period. Even the ordinary Pullman berths were all booked up, but Major Mosely's secretary finally got us a drawing room on the Union Pacific from Los Angeles to Chicago. This was the pleasantest railway ride that we have ever had, because we were in a beautiful drawing room in a brand new car on the Union Pacific and the facilities were certainly excellent. We had taken the flying very easily and all in all, I got a good rest and a very pleasant one. It was on this trip that Dorothy first took an interest in cross-country flying in light airplanes. It was a triumph for her when on the third day out she was able to spot airfields before I did. She was amazed at the wealth of
detail given on the section charts and the accuracy with which features on the ground could be located on them. From that time on she helped with the navigation and felt that she was part of the crew.

Dorothy:

Even if it is only that Fred passes off my contribution to other people by saying "So she tells me where to go", nevertheless I think we both enjoyed my enjoyment of the flying.

Fred continues:

While we were on that trip we got word from my secretary, Sheila Kelly, that I should be back in time to go to New York to the next Institute of the Aeronautical Sciences meeting because I was to receive the Silvanus Albert Reed Award for the year 1944. The award is given for "a notable contribution to the aeronautical sciences resulting from experimental or theoretical investigation, the beneficial influence of which on practical aeronautics is apparent". My particular award was for "his contribution to the development of tricycle landing gear and the two-control, non-spinning airplane". The award was signed by six notable people: Silvanus Albert Reed himself, the donor, Rube Fleet, president of the Institute at the time and head of Convair, Charles H. Colvin, head of Sperry Instruments, Charles L. Lawrence, of engine design fame,
Jerome J. Hunsacker, a member of the NACA and from M.I.T., and Lester G. Gardiner, one of the organizers of the institute. At the annual meeting of the Institute in New York, which was a very spartan one because we were still in the war, I was particularly pleased to have the award presented to me by my old friend and mentor, Dr. George W. Lewis. I was also pleased by the fact that the winner of this award is selected by the Fellows of the Institute of the Aeronautical Sciences, my fellow engineers and scientists in this case.

At this point I should put in a word about my secretary, Sheila Kelly. She started with me shortly after she finished high school and she was the only secretary I had during my entire time at Erco. We complemented each other very well and she was a terrific help to me. She could file things away and then get them right out when I needed them, even years later. She remembered people and names and places, all of which I was very poor at. And she was a good-natured Irish lassie who kept the place in a cheerful mood most all the time.

After my book "Aircraft Propeller Design" had been out for four or five years, McGraw-Hill suggested that I revise it to bring it up to date. This was really necessary because much progress had been made in controllable pitch propellers and in measuring the variable stresses in
propellers in operation. I did not feel that I had the time, but said that I would do it if I could get someone to go in with me as a co-author, but to do most of the revision work. In 1935 I made such an arrangement with David Bierman, who had been working on propellers in the 20' propeller research tunnel. This petered out after the first few chapters when he became interested in a young lady and he became chief engineer and then president of the Hartzel Propeller Co. Finally got married. Later in 1943, I believe it was, I made the same arrangement with Bill Green who was doing the propeller design work under me at Erco, and the same thing happened. He got through three or four chapters with me, found it was a lot more work than he had expected, became interested in a young lady also, and soon was married. That was the end of the revisions, and I never did go back to it again.

There was great need for an up-to-date propeller book, however, and a little later, Wilbur C. Nelson, a professor at the University of Michigan, did write a small book which brought most of the propeller material up to date. His book was entitled "Airplane Propeller Principles".

Here are some quotes from a newspaper article of October 1944: "Wins fight to be an aviator". "Mrs. Alverna Babbs, who has received her solo permit from the Civil Aeronautics Administration, although she has no legs, is shown here seated in her plane at Wear Cook Municipal Airport
in Cincinnati". "Legless woman gets solo permit; flies plane here. Back in 1919 a 13-month-old baby was thrown from an automobile in an accident at Ferrall, Pennsylvania. She fell beneath a streetcar which severed both of her legs near the hip. Saturday this same person, now a 26-year-old person, flew her airplane into Wear Cook Airport. She is Mrs. Alverna Babbs, who was granted a solo certificate by the Civil Aeronautics Administration in September after taking three years of instruction in two so-called safety type two-control airplanes, the Skyfarer and the Ercoupe. She is able to fly these airplanes because they do not require operation of rudder pedals with the feet. The rudder controls are coordinated with the aileron and the elevator control, thus eliminating the necessity of foot pedals. Since there was no precedence to guide it, the CAA was hesitant to grant her student's permit, although Mrs. Babbs drove to Washington in a specially constructed auto to appear before the Board to demonstrate her ability to handle the controls. Last week they finally agreed that no suit would be necessary and granted the permit." She set a precedent and made it much easier for disabled veterans and paraplegics to get airplane licenses since that time. Her husband bought her a Skyfarer at the time. Incidentally, now in 1977 she is still flying. She is now Alverna Williams and she has an Ercoupe of her own which she flies all around and to many meets. More about her later.
As I mentioned before, as the war orders dwindled in 1944, the light airplane industry started to look forward to the post-war activities. In the late fall, Erco called a sales conference with its proposed post-war Ercoupe distributors. These distributors were:

Oliver Parks, Parks Aircraft Sales & Service, St. Louis
R. E. McCaughn, Aviation Enterprises Ltd, Houston, Texas
  (who incidentally later started Trans-Texas Airways)
Douglas Robinson and H. O. Nelson, Tucson, Arizona
C. C. Mosely and O. D. McKenzie, Grand Central Airport,
  Glendale, California
E. M. Anderson, Anderson Air Activities, Milwaukee
W. J. Waddell and G. H. Shepner, Waddell Aviation Co.,
  Detroit
Cody Laird and Gus Lazar, Southeastern Air Services,
  Inc., Atlanta
W. E. Schmidt, Wilkes-Barre, Pennsylvania
Merrill Christopherson, Provo Flying Service, Provo, Utah
John R. Keefe, Safeways Aircraft, Miami, Florida
W. D. Tipton, W. E. Mainville and Lester Scythe,
  Baltimore
Ralph Stemmens, Connecticut Aviation Co., Hartford,
  Connecticut
R. C. Davis, Union Motor Co., Little Rock, Arkansas
G. H. Kensinger, Memphis, Tennessee
L. W. Mack, Jr. and Willard Bridgman, Aero Enterprises
  Inc., Denver
George Patterson, Cincinnati
J. Wade Stewart, Parkersburg Flying Service,
Parkersburg, West Virginia, and
Fred C. Clark (address lost at end of tape)

End of Side 2

End of TAPE 12