

# LEGACY LOG OF HOMEBUILT & EXPERIMENTAL AIRPLANES

Sep. & Oct. 2018

P. O. Box 127  
Blakesburg, IA 52536  
641-938-2773  
AntiqueAirfield@sirisonline.com

Publisher: Robert L. Taylor  
Research Editor: Ben Taylor  
Graphic Editor: Cindy DeWild

*Photo by Audie Hollon.*



Above is that flying machine known as “Mr. Mulligan” which has been returned now four times to Antique Airfield AAA/APM Fly-ins in 1982, 2009, 2012, and a few weeks ago in 2018.

The photo on this cover of the Legacy Log was taken by Audie Hollon AAA M-23429 as the crew of Mr. Mulligan Jim Younkin M-13333 and wife Ada, Doug Rozendaal M-22883 and Kim Pardon completed yet another mission for Mr. Mulligan as they taxi away from the gas pump for take off. This was after a sentimental weekend for many members to honor both the memories of the builders and pilots of the original Mr. Mulligan and for many of us who continue to honor and admire the replica “Mr. Mulligan” built by the Younkin brothers.

Long may it fly- with possibly yet another return to Antique Airfield.

# The "Howard" Story

Dec. 30, 1960

Mr. Bob Taylor, President  
Antique Airplane Association

Dear Mr. Taylor:

While I hate to think I'm so old that the airplanes I built 'yesterday' are now antiques, I'm flattered that you plan to cover their story in the February issue of your "News" and to be sure of having a copy, I am taking you up on your invitation and enclose my check for \$7.50 for a one yr. membership in your association.

The photo you sent is of the first DGA-8 we built, and before it was licensed, the experimental X showing on the rudder. To make the CAA inspector happier with directional stability and to hurry up his issuance of a license, we changed the fin and rudder to the production configuration used on all subsequent models of this design. The other photo is the only thing I've ever seen on the nose wheel installation.

The following should help in straightening up the model designations:

DGA-1 A two-place, side by side bi-plane, OX-5 engine, built in 1924.

DGA-2 A three-place bi-plane, Hispano-Suisa engine, built in 1926.

DGA-3 "Pete" single place racer, American Gipsy engine, built in 1930.

DGA-4 "Ike" single place racer, 160 h.p. un-super-charged Menasco, built in 1932.

DGA-5 "Mike" same as Ike except 240 h.p. super-charged Menasco, built in 1933.

DGA-6 "Mr. Mulligan"

DGA-7 A single engine 'design', never built.

DGA-8—A four-place, 7 cyl., 320 h.p. Wright Whirlwind engine.

DGA-9—A four-place, Jacobs 300 h.p. engine, (same as DGA-8 except for deletion of wheel pants and use of Jacobs engine).

DGA-10 Twin engine 'design', never built.

DGA-11 Four-place, 450 h.p. P. & W. Wasp engine. (basic DGA-8 except for engine)

DGA-12, 13 and 14 Numbers not used on airplanes that were built.

DGA-15 Five-place, 450 h.p. P. & W. Wasp engine.

I have no personal knowledge of any of the designations following DGA-15. These were used after I sold my interests in, and severed my connections with the Howard Aircraft Corporation. I presume that the two-place trainer which was designed and built after I left the company, carried the designation DGA-18, but from what I have heard it was not entitled to the DGA (Damned Good Airplane) prefix.

Sincerely,

Ben O. Howard

Note: This page is mostly a reprint of page 9 of *Antique Airplane News*, Volume IV, Number 7, issued February 1961, published by The Antique Airplane Association, Editor Robert L. Taylor.

Benny Howard learned to fly in 1923 in "Jennies" in Texas, and went on to fame with his DGA (Damn Good Airplanes). His career as a pilot included service with the early Robertson Airlines, and later he was a research pilot for U.A.L.

The "Pete", "Ike", and "Mike" were strictly racing aircraft which were highly successful. "Mr. Mulligan" (DGA-6) was the forerunner of the later Howard series of classic closed-cabin monoplanes. The DGA-8 was the first commercial version of "Mr. Mulligan" followed by the DGA-9 with a 285 Jacobs. The DGA-10 was a twin engine model which never left the drawing board. The DGA-11 was a variation of the DGA-8.

In 1940, came the DGA-15 series. During World War II, this basic airplane was produced as CH-1 for the U.S. Navy as a personnel transport; as the GH-2, and GH-3 for ambulance use, and the NH-1 as an instrument trainer. Also, many civilian models were acquired by the USAAF under the designation UC-70.

Mr. Howard left the Howard Aircraft Corporation, which he formed in 1937, prior to W.W. II. In 1940, Howard Aircraft built the DGA-18 with both the Warner 125 and Kinner 160 engines. Only a few of these types survive. During World War II, Howard also built Fairchild PT-23's under license.

Member William K. Manchester, of 339 Cypress Ave., Kansas City 24, Missouri, is presently restoring a DGA-18K. He needs help in locating any parts for this model.

Member Ted Dantis of Crystal Airport, Minneapolis, Minn. has attended the last two Oskaloosa Fly-Ins with his Howard DGA-15P.

Dick Reade of Hayti, Missouri, also owns a DGA-15P (Advertised in January issue).

Dick McPherson of Dyess, Arkansas, made extensive modifications to a DGA-18 about a year ago, and worked this into a high performing, aerobatic airplane with a 245 Jacobs.

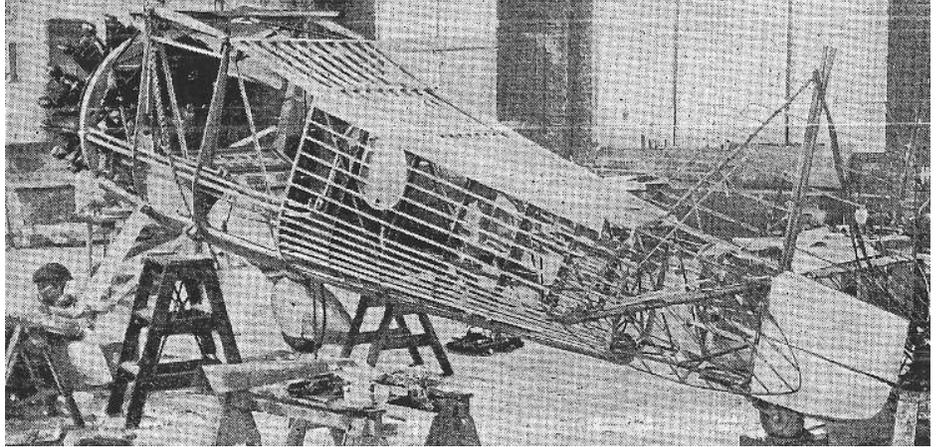


A very rare model DGA-9 of the Howard line. Location and owner unknown. From the Robert L. Taylor collection.

# Benny Howard's Ships in the Raw

To the right from the March 1936 issue of *Popular Aviation Magazine* article "Benny Howard's Ships in the Raw" by Fred Sterling. Photo by A. V. Schmidt.

Below, Bob Younkin inspects the progress of the replica "Mr. Mulligan" that outlasted the original and has visited Antique Airfield several times. This fabulous example of aviation history has attended numerous aviation events.



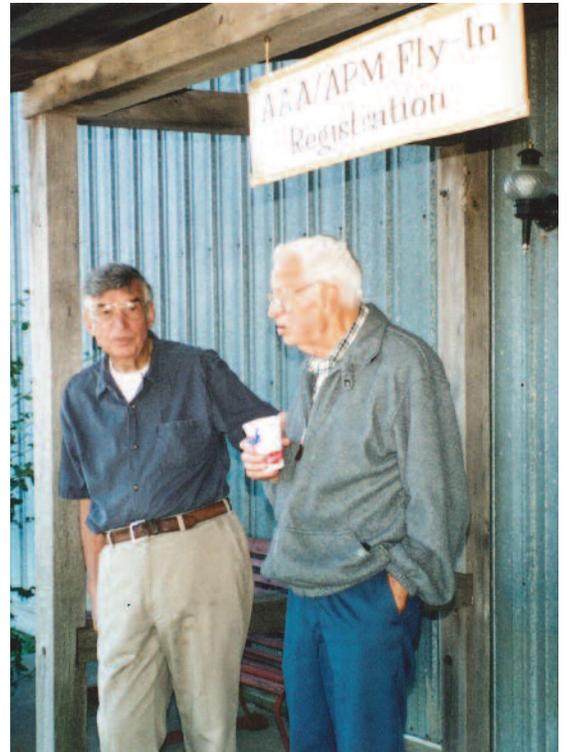
Here are the bones of Mr. Mulligan, DGA-6, while he was undergoing construction at the American Eagle Plant.



## **FIRST WWII FIGHTER ARRIVES AT ANTIQUE AIRFIELD**

The first airplane that could be truthfully classified as a World War II Fighter airplane attended the 1977 Fly-in. Arrival and departure were without incident and the "Wildcat" was flown by Bob Younkin of Fayetteville, Arkansas, Member M-1249. Bob "Went West" February 5, 2002. The arrival of the FM-2, of course, added another chapter to the myth that Antique Airfield just wasn't suitable for anything but light airplanes. We did not see Bob's arrival, unfortunately, but was on hand when he departed with the FM-2 after Antique Airfield had suffered from approximately 13 inches of rain and with the wind from the north, Bob had to use the wettest part of the runway to start his takeoff into the wind. Nevertheless, the stubby Grumman with its large high-pressure tires broke ground quickly and climbed away with no difficulty whatsoever. It is noteworthy that Bob had reported he had a total of five hours' time in this airplane before departing for Blakesburg.

Some years ago we were down at Fayetteville chartering the Ozark Aircrafters Chapter and saw this same Grumman (Eastern) FM-2 in his hangar awaiting restoration but we did not really comprehend the possibility of its actually visiting Antique Airfield. Knowing Bob Younkin's propensity for accomplishing the difficult, we should have known that this would have come to pass. During the 1977 AAA-APM Fly-in Bob was awarded a special recognition award for thus being the first to bring in the first World War II Fighter aircraft to Antique Airfield.



Bob Taylor & Bob Younkin share memories of past AAA Fly-ins and Bob's tenure as an Airpower Museum board member.



The FM-2 departing 1977 AAA-APM Fly-in.

## The Howard Flyabout

Designed, built and test-flown by Ben O. Howard, of Houston, Tex., the Howard Flyabout has just completed 3,000 miles flying under service conditions. This plane, although designed for cross country flights, is adaptable for instruction, commuting, patrol or sport flying. The seating capacity is two, with seats side by side, dual control in a 36 in. wide cockpit. The plane is provided with tool and package compartments.

The fuselage is of wood and wire construction, the engine mounting being of steel tube. The landing gear is of steel tube construction.



The Howard Flyabout (Curtiss OX-5)

The wing cellule is the single bay, biplane type, consisting of four panels. The upper wings hinge and have four center section struts for support. The lower wings only have ailerons, and the wing construction is entirely of spruce. Three piece built-up spars are used, with ribs of the Warren truss type.

The general specifications and performance figures as given by the manufacturers are as follows:

Length .....	22 ft. 8 in.
Height .....	10 ft. 6 in.
Span upper wing .....	28 ft.
Span lower wing .....	31 ft. 6 in.
Chord upper and lower .....	5 ft.
Gap .....	5 ft. 3 in.
Stagger .....	11 in.
Angle of incidence upper and lower wing ..	0 deg.
Dihedral upper and lower wing .....	0 deg.
Sweep back .....	0 deg.
Angle of ship and wings with tail on ground	16.5 deg.
Area of wings including ailerons .....	273 sq. ft.
Area of ailerons .....	22 sq. ft.
Area of horizontal stabilizer .....	18.5 sq. ft.
Area of elevators .....	17 sq. ft.
Area of fin .....	4.5 sq. ft.
Area of rudder .....	10 sq. ft.
Weight empty .....	1,220 lb.
Pilot and passenger .....	320 lb.
Fuel and oil .....	400 lb.
Useful load .....	720 lb.
Total weight .....	1,940 lb.
Wing loading .....	7.1 lb. sq. ft.
Power loading .....	21.5 lb. hp.
Fuel capacity .....	55 gal.
Maximum speed .....	97 m.p.h.
Landing speed .....	36 m.p.h.
Climb to 2,000 ft. full load .....	4 min. 40 sec.
Engine .....	Curtiss OX5-90 hp.

Attention non-AAA or expired members, we are emailing some sample copies of this issue to join us or to renew your AAA membership. The Antique Airplane Association was founded in August 1953 some 17 years prior to the EAA starting its own antique and classic division in 1970.

## Cuban Flyers Complete 20,000-Mile Good Will Tour

Three Cuban Navy flyers and their Wright Whirlwind powered Howard DGA-15W plane *Teniente Menendez* have returned to their Havana base after completing a 20,000-mile good will tour during which they visited 22 republics in North, Central and South America.

Despite the problems and obstacles attendant upon such a flight including a 560-mile jump across the Caribbean sea, numerous flights over the Andes, and a visit 13,000 ft. up in the Andes to La Paz Airport, highest air base in the world, the three men completed their mission and returned to their Havana base without mishap.

The three ambassadors of good will are Commander Oscar Rivery, associate director of the Cuban National Observatory and the navigator; Lieut. Juan Rios Montenegro, the pilot; and Sergeant Frank Medina, the mechanic.

Bearing letters from Col. Fulgencio Batista, president of Cuba, to the presidents of all the American republics, the trio took off from Havana on Oct. 12. They spanned Cuba to Santiago, flew across the 50-mile Windward Passage on the first water hop and landed at Port-au-Prince, capital of Haiti.

They stopped the following day to meet officials of the Dominican

Republic, then continued on, crossing Mona Passage for their second flight over Puerto Rico to San Juan. Then came a 560-mile jump across the Caribbean Sea and a welcome by the Republic of Venezuela. Heading southeastward along the coast, and skirting the Eastern Andes they next visited Dutch Guiana, stopping at Paramaribo.

In succession, they visited the capitals and major cities of Brazil, Paraguay, Uruguay, Argentina, crossed the Andes, skirted Mt. Aconcagua, the highest peak in the Americas; then continued on to land at cities in Chile, Bolivia, Peru, Ecuador, Columbia, Panama, Costa Rica, Nicaragua, Honduras, El Salvador, and Guatemala.

They entered Mexico at Vera Cruz on Jan. 14, and stopped at Tampico and Mexico City. On Feb. 1 they entered the United States at Brownsville, and headed for Washington via New Orleans and Atlanta. Following an official reception at Washington, they continued on to New York City, landing at Floyd Bennett Field on Feb. 6. Following a program of receptions headed by the Honorable Cayetano de Suesada y Socarras, Cuban Consul in New York, they left on Feb. 11 for Miami and Havana, arriving home on Feb. 15 after an absence of more than four months.



Howard DGA-8 of the Cuban Navy.



This photo of Howard DGA-3 Pete taken at Ottumwa Air Show at the old Ottumwa Municipal Airport in 1932 after Howard sold it to Herald Neuman who advertised it for sale in *Aero Digest*. Photo by the late Ray Taylor, older brother of Bob Taylor.

# THE JOBMASTER COMPANY

1016 1st Ave. So., Seattle 4, Wash. MAin 3-5006  
 Renton Airport — ALpine 5-4222

December 19, 1960

Mr. Robert L. Taylor, President  
 Antique Airplane Association  
 2548 Meadowdale  
 Ottumwa, Iowa

Dear Mr. Taylor:

Thank you very much for your interesting letter. We are very much interested in your project and have enclosed a few details for your perusal. A check is enclosed for a two-year subscription.

We own all of the type certificates on the Howard Airplanes and there is a continual gradual interest being shown in the various conversions. We helped with Mr. Swindle's conversion also.

Jobmaster conversions are now active in the United States, Canada and Alaska. Although in small numbers, it looks promising.

There is one angle that should not be overlooked in the Howard airplanes and that is, they are built so rugged and being an unrestricted airplane, it might be they could fit into a conversion program using new turbo-prop installations, where speed and large fuel capacities are a must in order to utilize the advantages of the higher thrust-to-weight ratio of the new turbo-prop engines.

The advantages of the wooden wing can be summed up in the following statement: "Select wood, properly bonded, has the strength-weight ratio of steel, and infinite fatigue life."

Yours very truly,

Jobmaster Company,  
 C. L. Scott

*Clayton Scott became AAA member 4604.*

The Howard Jobmaster is a six-place, high performance airplane, adaptable to wheels, floats, skis, or amphibious floats. It is approved on four different model Edo Floats.

	Wheels	Amphib.	4580	4665	6236	6470
Empty Weight	2900	3651	3276	3326	3450	3450
Six Passengers	1020	1020	1020	1020	1020	1020
Baggage	150	150	195	145	150	150
Range, plus 30 min.						
Res. Full Gross						
Six Occupants	400	100	500	500	400	400
Oil, 5 gal.	40	40	40	40	40	40
Radio & Misc.	25	45	45	45	45	45
Useful Load	1600	1349	1800	1750	1625	1625
Gross Weight	4500	5000	5076	5076	5076	5076

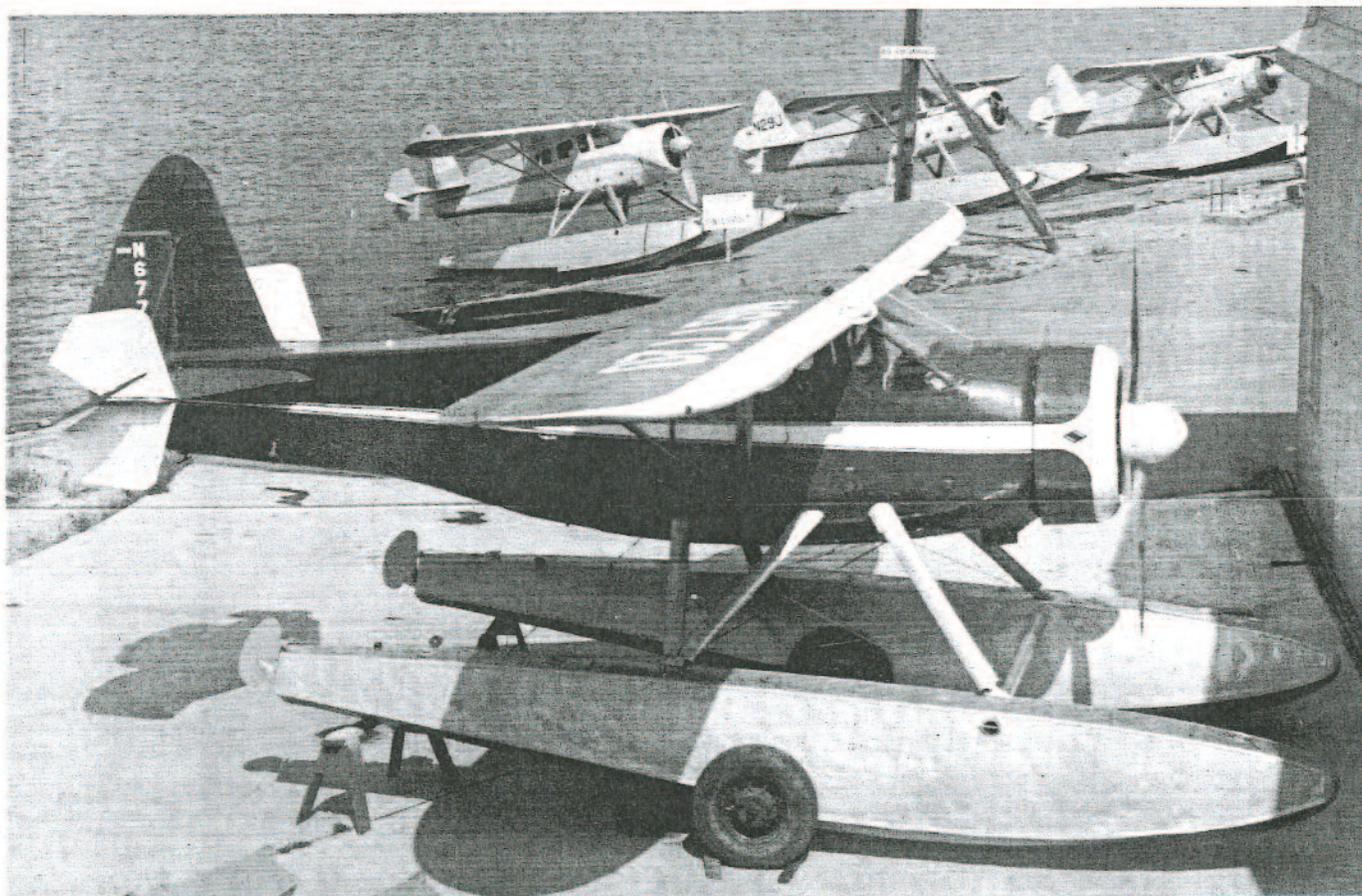
Total Fuel Capacity varies from 122 to 151 U.S. Gallons.

Oil Capacity, 8 Gallons.

Float Cruise Speed at 7000 ft. 70% power, 150 m.p.h.

Range with Full Tanks - 800 to 1000 miles, wheels  
 600 to 750 miles, floats

The Howard has been used very successfully on skis for many years in Alaska.





# AIRCRAFT CORPORATION

5312 W. 65th STREET • CHICAGO, ILL., U. S. A.

Below are Howards that attended the 2018 AAA/APM Invitational Fly-in.



N-68431, Ron Wagner  
DGA-15P, Tonka Bay, MN

Photo by Alan Achor.



N-999WT, Mark Baker, President of the A.O.P.A.  
DGA-15P, Frederick, MD

Photo by Roger Cain.



N22410, Mike Vaughan  
DGA-15P, Charleston, IL

Photo by Roger Cain.



N-66294, Jerry Lugten  
DGA-15P, Leslie, MI

Photo by Roger Cain.

## Howard DGA Club?

### *Letter from the May/June 1969 Antique Airplane Association News*

On a recent weekend in March 1969, the Los Angeles Area Chapter of the Antique Airplane Association hosted a fly-in at Lompoc, California, and what a treat, for there were five, yes five, Howards on the line.

As we skipped down the runway, we could see Bob Reichardt's Howard parked with the early arrivals. Later another Howard flew in and this was Don Allenbaugh from Northern California with his Blue-Bird. Sunday morning, and before breakfast was properly stowed away, a twin of Reichardt's arrived piloted by its owner, Jack Cup. Not long after, another 985 could be heard and this was Bob Myers of San Diego.

Now if we can have more Howards at an antique airfield fly-in than any other make of airplane, couldn't we have a Howard DGA Club? Bob Taylor has offered to help in any way he can, and will send this to all AAA member Howard owners. Bob Reichardt has consented to act as President Pro Tem, to be a focal point for ideas, names and information of what may be wanted. His address is 15845 Concor Ridge Road, Saugus, California 91350, so let's drop him a line telling about your Howard and club ideas. We could have a meeting at Ottumwa at the National Fly-In to set up guidelines and just what we would like in the way of a club, formal, informal, et cetera.

There are many bits of information that are of value to the Howard owner and pilot, and a club would be a great way to pass it around. It takes a long time to learn by oneself and there are also many misconceptions fostered by hangar flying that really are not so. For it is a DGA.

The Late Joe Hecker, San Diego, California

Photo at right of Joe Hecker on Antique Airfield with N68259.



N-22424, Mike Iverson  
DGA-15P, Lino Lakes, MN

Photo by Roger Cain.





Bernard (inset) and his airport above, are criterions of rugged individualism.

**W**HAT private flying in this country needs is more men like Charlie Bernard. All great movements in the arts and sciences have had their guiding stars—their Joshuas in the wilderness, so to speak. Such movements seem to require a leader, a sort of crusading evangelist who is always there when the going gets hardest, who says little and does much, who asks little and usually gets less than that. As a candidate for a seat with this group of little-appreciated heroes we herewith present the name of Oregon's own Charles Bernard.

In many ways Oregon is unique among the states of the Union. It has a large part of the world's supply of airplane spruce and very few airplanes. It has a long stretch of vulnerable coast line and not a single airplane base to protect it. It has the only outright, acknowledged and working state aviation law in the United States. Oh, yes, and don't forget—it has Charlie Bernard.

Mr. Bernard is a shining example of a man with a mission. Born and raised within a few rods of where he now lives, he had no idea of missions when, as a boy, he romped and played over the fields and meadows of his dad's ranch. When he thought of the future he hoped he would be as good a rancher as his father was and let it go at that. He was doing a pretty job of it along that line up to the time the Federal Department of Commerce decided to do

# PILOTS' GODFATHER

by LESLIE LONG

**One man still can do a lot for private flying, though single-handed. Charlie Bernard has.**

a little sitting down on aviation. Up to about this time his home town of Beaverton, Oregon's airplane Mecca, had paid little attention to flying, but it so happened that a local man built a successful ship and things began to happen. The city, of course, had no public airport and as one of the Bernard meadows happened to be nice and handy the local aviators and occasional visitors began sitting down in it. That's what started it all.

Having been more or less interested in aviation for several years, Bernard at that time became an outright enthusiast. It didn't take much urging to induce him to erect a hangar for the local ship. It was not long before another ship owner wanted one and that called for another and another and so that was that. Almost before he knew it he had

an airport with hangars and everything on his hands, and had found that he liked the idea very much.

It seems that there must always be some sort of fly in the ointment and Bernard soon discovered a bad one. Amateur aviation was not being treated right. Its Uncle Samuel was playfully trying to run a steam roller over it, at the same time feeding it cyanide of potassium and setting fire to its coat tails. Because he believes in justice and fair play, Bernard took this situation to heart with all the energy and enthusiasm he had. He took off his coat and went to work—and by work, we mean *work*.

He drove miles and miles contacting state legislators and senators. He talked with business men, judges and lawyers. If an amendment to the state aviation law threatened, he rounded up a bunch

of the boys and was right on top of it before it could get more than started. He worked up propaganda for the papers and got it printed, too. Things simply seemed to get done once he started working on them. It wasn't for money or notoriety, either. He believed in what he thought was right and for that reason the things he did had the force that only honesty and sincerity of purpose can bring.

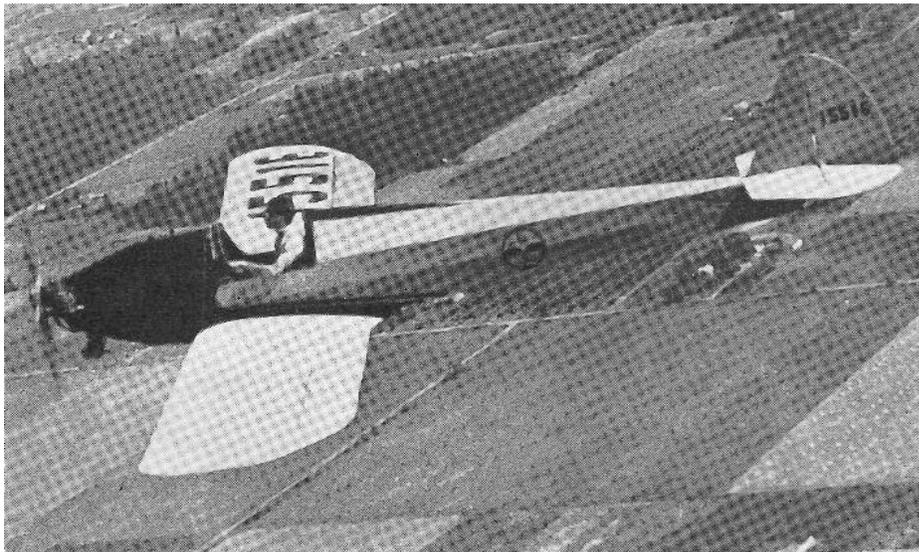
After watching the boys and their ships for a few months Bernard decided to go the whole thing. He set aside his best 50-acre field and told the boys it was theirs. This took courage, considering that he is anything but a wealthy man. He did not, and does not maintain the field with profit as the objective. Hundreds of dollars were spent in levelling and drainage work. Hangars were added as needed until today there are 22 of them and they house 27 ships that mean much to private flying out here.

New hangars are being added steadily and at the present rate it will be but a year or two until there will be 50 of them. Think what that means to the other states whose amateurs have been law-ridden out of existence.

Any flyer who makes his headquarters at Bernard airport becomes at once a member of a big and happy family. Boys or girls, Charlie takes them under his wing. Their troubles are his troubles. If they happen to be short of money (and they usually are) it's okay. Have it some time, won't you, buddy? Sure! And to their credit let it be said that they get it at the earliest moment. If one of the gang happens to make a five-point landing out in the country somewhere, the phone tinkles and five minutes later you will see Charlie, with a trailer behind his car, quietly leaving for the scene of the mishap. If anything or anybody needs help, just call Charlie and the help is at hand.

The spirit of good nature and good fellowship shown by the Sunday and holiday crowds is something worth watching. Everybody knows everybody else and they work together with a wholeheartedness that is rare these days. But just because spirits are high don't think for a moment that there is no discipline. Nothing escapes the steady gray eyes of the Boss. Let some young pilot get too enthusiastic in his flying and the moment he lands he is confronted by an unsmiling, stern-faced Mr. Bernard who tells him in few words just what is expected of him. Let it be said that the advice is followed to the letter.

Charlie is 45 years old. He stands a good six feet high and weighs 225 pounds. He has the body of a football fullback and the face of a cherub. The only thing that would give any indication of his age is the mop of silvery hair that is usually pointing in a dozen directions at once. Like most big men he is quiet and reserved in actions and speech. When attending important meetings or conferences he prefers to sit in the background and listen to the others, but if things go against his beliefs he can rise and speak from the



Let there be no mistake about the ability of many "home-builders." This trim low-winged monoplane was designed and built by the author, a close friend of Bernard's.

shoulder with a slow directness and evidence of conviction that are worth yards of flowery oratory.

It is this faith in his beliefs that make the man what he is. He is so certain that the amateurs are entitled to better treatment that he is unable to understand why others do not feel as he does. Unlike most of us, he puts his faith to practice. As this is being written, the Oregon law is slated to come to a direct test of strength with the Bureau of Air Commerce. That certainly should cause anybody to stop and ponder a while, but not Charlie Bernard. At this moment he is rushing work on four new hangars, certainly a heroic way of showing his faith in American justice and of keeping up the morale of the worried amateurs.

The action is all the more noteworthy because he stands to take a disastrous loss in case the Washington juggernaut is able to squelch Oregon's flying freedom. Not only that, but he is to a certain extent risking the futures of his wife and three children on the theory that Right is Right and must prevail.

It is not too much to say that Oregon by this time would not have any amateur flying interest had it not been for Charles Bernard. He supplied the needed opportunity and encouragement that has kept it alive and growing. If every town and city in these United States had a Charles Bernard the story of private flying would be much different than it is today.

END

## OREGON AVIATION HISTORICAL SOCIETY

The museum hangar here in Cottage Grove boasts more than 6 pre-war Oregon home built aircraft that help to tell the story of experimental aircraft in the US. Aircraft ranging from a mid-wing Longster and a George Yates Geodetic as well as the Portland School of Engineering 1930 Cirrus Racer!

### Preserving Oregon's Rich Aviation Heritage for Future Generations

#### Our Mission

The Oregon Aviation Historical Society was incorporated in June 1983 through the efforts of a group of aviation enthusiasts who recognized the need to preserve Oregon's rich aviation heritage for the benefit and enjoyment of future generations.

It's purposes are to collect, preserve, restore, and

Write us at OAHS  
2475 Jim Wright Way  
Cottage Grove, OR 97424  
or send us an email at  
[oregonaviation.org@gmail.com](mailto:oregonaviation.org@gmail.com)



exhibit aviation artifacts; to develop facilities for the restoration and preservation of artifacts, public viewing and exhibition of the collection; to establish and maintain an Oregon Hall of Fame; establish a resource center for Oregon Aviation historical research and to disseminate information about Oregon aviation history.

# Oregon's Lightplane Patriot

by LESLIE LONG

It didn't take an "official government stamp" to make George Yates' planes airworthy. His story is inspiring.

**S**ORRY, boys, this story is not going to be about another of the more or less well-known Longsters. It is going to be about a fellow named George Yates, who lives out here in Oregon and about whom you should know a lot more than you do. George is a real lightplane fan, a build-them-at-home enthusiast and a persistent fighter of vicious aviation laws. For 15 years he has centered his existence around the building and flying of home-made airplanes. He works, eats and sleeps with them. It is true that he has taken enough time out to acquire a wife and family, but seems only dimly conscious of the fact.

Like many another notable, George got his first urge to fly and his first training by hanging around the old Jenny ships. There has long been a saying that all good pilots got their training in a Jenny, and perhaps it is largely true. Anyway, as an ambitious young sprout he learned to wallop an OX-5 across the tail and make it go places. It was a lot of fun, of course, but there were some serious problems involved, not the least of which was the fact that there were no concealed meal tickets to be found on a Jenny. Even a starry-eyed young pilot has to eat, so our George decided he would have to go work. Being used to noise and sparkplugs and grease, it was only natural that he should become an automobile mechanic and—in passing—a good one. Incidentally, it was at about this time that he began to acquire the above-mentioned family, one or so at a time. To an onlooker it would have seemed as though his flying days were just about over, and that aviation was to lose a genius.

But George had no such weak misgivings. When work was slack and the



Two of Yates' outstanding "home-built" ships are shown on this page. The mid-wing monoplane above bears the famed PFA insignia. That's Yates himself in the above inset.

evenings long he began to work out the ideal ship. It had to be good and it had to be simple and it had to be inexpensive. As the idea took shape he began making small models of his brain child, most of them brazed up out of welding rod, a rather unusual model material to say the least. One fine day he concluded he had what he wanted and was ready for fate to bang on the door. It did.

In 1929 he was in the employ of a gentleman named Elmer Stipe. This man had vision and he sensed the value of George's inventive ability. After looking over the models he proceeded to finance the first of the series of Yates ships. This job was designed and built

for a 90 h.p. Cirrus engine. From the day in 1930 when it was test-hopped to this day it has been an outstanding success. Wanting more speed, Mr. Stipe had the Cirrus replaced by a 100 h.p. Menasco, which was in turn replaced by a 125 h.p. Martin. In all these years not one single failure has occurred, not a joint loosened. Known all over the Northwest as the "Stiper" it has had a vast number of hours and has been a source of great pleasure to its owner.

Following the Stiper came a ship in the lighter class. It was a single-place job and powered with a nine-cylinder, 45 h.p. Salmson engine. The entire design was unique. Except for fittings, motor mount and landing gear the entire ship was of wood. There were no longerons and no wing beams, and it flew like a scorched hornet. Built for and still owned by Robert Fulton, it was placed on exhibition in a Portland show room and practically stopped a meeting of Northwest air executives. Blasé big shots looked it over with frank astonishment. Here was something new that hadn't come out of a mahogany-lined drafting room.

Shortly after completing the Fulton ship, George met up with a personage who very nearly took him to the cleaners—Old Man Pneumonia. Unscathed through years of flying and test-hopping every sort of good and bad airplane, he had to put up the fight of his life to win out. But he did it, and it was while putting in the long hours of hospital convalescence that he decided the dreary days of balky batteries and cold repair shops were over. From thence onward it was to be all airplanes, or it could be anything it wanted to—including the poorhouse.

So he hied himself to the American Mecca for sport plane builders: the little city of Beaverton, Oregon. Bernard airport is unique in American aviation. Try to picture a well-kept airport, bordered along one whole side by a row of 20 hangars, each housing one or more trim ships. And gentlemen, *practically all these ships are home-made.* This place is a living example of what young America can do if given a chance. Anyway, it was the place for George and he



One of George Yates' most popular and successful ships is the high-wing parasol monoplane above. Drastic government regulation has outlawed aircraft like this.

knew it. Starting from scratch it was practically no time until he had a shop and some tools and had gone to work. The venture was a success from the start.

And now we come to the oyster in the stew, as it were. The Yates System is based on a structural method that is not new in engineering but one that is, or at least was, new in aircraft building. It is the diamond mesh, or lattice type of construction, well known to engineers for many years. Perhaps the best example today is the lattice masts used on American battleships. Basically the Yates construction is the skin-stressed, monocoque type. A little study of the accompanying photographs will show its beautiful simplicity. It is inherently braced against loads from every angle. While exceedingly strong it is not entirely rigid and is able to absorb shocks that would wreck any other type of structure. Weight for weight it is beyond doubt the lightest design ever developed. As an instance of this, the entire fuselage structure of an average lightplane will weigh less than 30 pounds.

The Stiper was built of steel, the material being the familiar quarter-inch tubing of .028 gauge. The average length of the mesh was (and still is) about five

inches. Where the tubings cross it was simply brazed together, a very simple job. Notwithstanding the eight years of rough and ready flying, not a single one of these joints has let go. Every one who has flown the ship has remarked on the freedom from motor vibration, the elastic structure absorbing all shocks from the engine. Heavy landing shocks are also effectively taken care of.

After completing the Stiper, Yates became a convert to wood construction and every ship since built has been made of that material, excepting, of course, motor mount and landing gear members. This method of building is undoubtedly the lightest, strongest, and cheapest that has been devised to date. For the average single place lightplane the spruce strips are but 3/4 inch wide by 1/8 inch thick. The bulkheads are simple plywood oval rings, cut from one-quarter to three-quarter inches thick. Material for the entire fuselage structure may be had for less than \$10, and if that shouldn't interest the amateurs it would be hard to say what could. Assembly is not difficult. After the size and shape of the bulkhead rings have been decided on from preliminary

drawings they are cut out and then placed in position on a framework made of scrap lumber. The strips are then simply laid on in an easy spiral, usually making from two to three turns in the length of the fuselage. Where they cross the bulkheads they are nailed and glued. Another set is then placed over the first, wound in the opposite direction and these are also nailed and glued to the bulkheads, as well as to the other strips where they cross. Toward the rear end, where the structure gets quite small, some of the strips are cut off to prevent crowding.

As can be understood, this type of fuselage is practically finished when assembled. The streamlining is automatically done. The fabric may be stretched directly over the meshwork, but Yates prefers to run light spruce strips lengthwise over the mesh. The photographs show construction for an enclosed type of low wing cabin ship and the bulkheads are shaped accordingly. For an open cockpit job the whole fuselage may be made up without any break in the outline, and then the cockpit opening cut out where wanted. The cutout is then framed with light plywood. Where concentrated loads come the bulkheads are usually reinforced with steel plates.

A couple of years ago the English were much excited about a new type of airplane construction (geodetic) that was hailed as the final answer to every problem. This turned out to be precisely what we have been talking about. The discovery was a little late as this writer saw a complete scale model of the Yates scheme in 1927, and the model was several years old at that time. Although not perfected the basic idea was there.

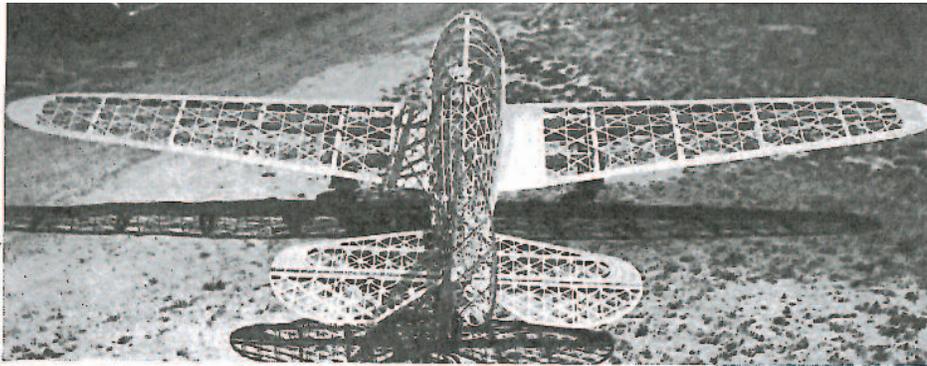
While for business reasons we cannot give details here, it may be said that Yates has developed a wing around his diamond mesh scheme that is certainly the acme of strength and lightness. In the true sense of the word the wing has no spars, although there are lateral members that act as formers. To give some idea of its efficiency a panel having a length of 15 feet was supported in the middle. Four heavy men rested their entire weight on one corner and caused a deflection of less than one-eighth inch. In spite of the extreme strength and rigidity this panel weighed but 24 pounds!

Amateur airplane building in America has been hampered by just two things. One was unjust and restrictive laws, and the other was the high cost of materials and skilled labor formerly required. If a more liberal and far-sighted government should come into power that would remove the first hinderance. George Yates has already removed the other. A few dollars' worth of spruce, a couple of pounds of nails and a can of glue are all that are needed to build the complete basic structure of an airplane. The Yates ship is marvelously light and strong. It is adaptable to any shape or design and its cost almost sounds too good to be true.

At this writing Mr. Yates has four ships going through his shop at one time. They are all low-wing cantilever jobs, and all to be powered with Continental A-40's streamlined into the leading edge of the wing.

And, gentleman, you should see them!

Note: Watch for more Oregon articles. Your publisher was a member of the American Airmen's Assn, it was not American Airmen's Assn.



The first "geodetic" plane was destroyed by fire just as it was ready to be covered. Note the basket-like appearance of the construction

## The Greenwood-Yates Geodetic Plane

**T**HE Bircraft, now under production at Portland, Ore., by Allan Greenwood, and George Yates, is one of the most interesting small plane developments of the year. It is a low-wing two-place monoplane, in appearance and design very similar to the Boeing 247, even to the extent of using two engines, which are Menascos of 50 h.p. each. Its most interesting feature, however, is its construction.

The Bircraft is built of wood, and constructed on the "geodetic" principle, the resultant uncovered structure resembling a basket weave. The individual members are thin wooden strips, lying in the curved plane of the contour of the fuselage, or wing, the interior structure consisting merely of wooden longerons, and rings in the wing, and simple ribs and spar in the wing. Internal bracing members either are eliminated entirely or are unimportant. The strips, crisscrossing each other at right angles, provide a stiffness, which eliminates the need for struts, or wires.

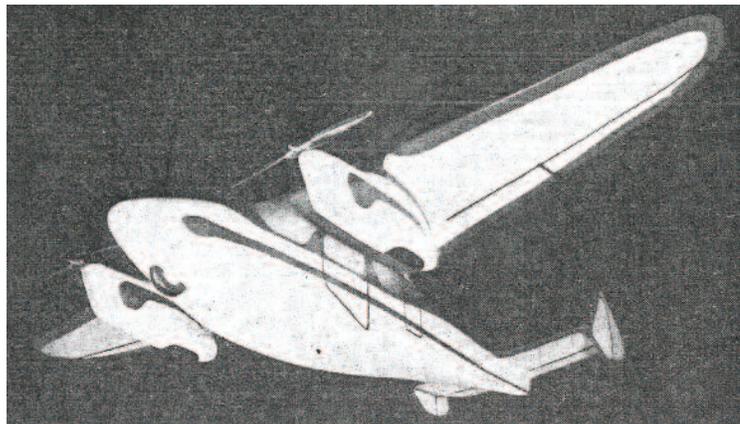
The Bircraft is believed to be the first application of the geodetic principle to aircraft construction in this country. The only other project of its kind so far as

known is the Vickers Wellesley bomber in England, in which the geodetic principle is used, but with metal instead of wooden members.

This form of construction is called "geodetic" because the members follow geodetic lines in their windings along wings and fuselage. A geodetic line is the shortest distance between two points in a curved surface, when the path of the line lies wholly in that surface. It is the line followed by a flexible string tightly stretched over a curved surface. In this way forces imposed on the structure are made to "creep" around the surface, where all of the material is concentrated in the form of the geodetic members.

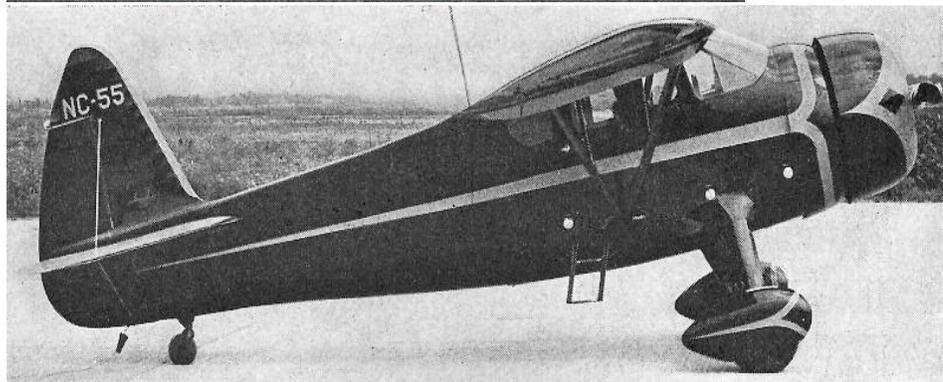
The Greenwood-Yates Bircraft is 20 feet over all in length, 32 feet in span, and the estimated performance is said to be very high. One of the planes was completed but was burned before the fabric covering was applied, so that no actual flying data is available. Greenwood and Yates are now building three of the Bircraft, one of which is to be powered with a single 125 h.p. engine, instead of two 50 h.p. engines.

**Mr. Mulligan at a different time and place**, believed to have been near Creve Coeur, MO, with AAA Life member M-10827 Bud Duke in formation with his Monocoupe. At a tragic time on 6/19/04 in that same clip wing Monocoupe wherein Bud had flown successfully in many air shows he along with passenger Ken Love, AAA Life M-6683, both met with a sudden accident that has defied explanation. Ken Love was a long time volunteer for the Airpower Museum and amongst his valuable contributions is the "Gone West" memorial on the APM front yard founded by Ken and his buddy Bob Gast, AAA Life M-9127. This Mr. Mulligan photo was just found in our many photo files and we regret that it lacks any I.D. of the photographer or date on it. RLT



Left: One of the proposed Howard projects that may have encouraged Benny to resign.

Below: One of four Howards bought by the C.A.A. in 1938.



The Howard line at the 2009 AAA-APM Fly-in.



Article below from February 1939 issue of *Western Flying*.

## Howard Re-Organizes

Officials and directors of the Howard Aircraft Corporation of Chicago have voted final approval of Wright & Co., Ltd., of New York, covering the offering of an issue of its common stock, the proceeds of which are to be used for the purpose of providing the corporation with added working capital with which to expand its aircraft business. Details of the underwriting were not disclosed pending registration with Federal and State securities commissions.

The Howard Aircraft Corporation has been producing the Howard 4-5 place plane in the Chicago area for the past two years. These planes have been "custom built" to order. The company has also been carrying on a development program and a series of market studies. While no specific information has been released regarding these other types, it is understood that one of these is a 24,000-pound cargo carrier, and that another project under consideration is the building of training planes training civilian pilots.

The unusual feature of the cargo ship will be its hinged tail. The hull will be constructed in two sections. These will be joined just behind the wing on hinges. When the plane is to be loaded the whole tail section will be swung to one side. It will then be possible to back a truck up to the two sections and load even bulky articles with ease.

Temporarily the company will remain at its present quarters, but later it will seek a new location.

The officers of the corporation also announced yesterday that B. D. De Weese has been appointed executive vice president and general manager. De Weese until recently was head of the Stinson Aircraft division of the Aviation Manufacturing Corporation.



A look back at the Atwood, Illinois area location of the Adkisson hangar with Earl (M-2726) standing in front of his busy hangar and airstrip before he "Went West" 7/13/2008.

The reconstruction of this hangar is moving ahead with the concrete floor and sub walls completed the week of October 11th.

A big thank you to those AAA members whom have made this part of the Adkisson Hangar project possible and for the APM to move forward on its completion. Even the dirt removed for this project will be used to make some Antique Airfield areas more suitable for fly-ins. Some of our older AAA members may well recall just how "scruffy" Antique Airfield was in 1970.

Robert L. Taylor

The Adkisson Hangar (45' x 48') will be mated to the APM middle hangar and open at the back into that structure. As part of this project, the middle hangar will have installed a complete ceiling, covered walls & new lighting.

Long term plans call for the main museum hangar, the middle hangar & the Adkisson hangar to become one large, finished, well lighted display area for the APM's aircraft.

Progress to this point is due "THANKS" to all who have donated by becoming an Antique Airfield Ambassador as funded through donations to our "Buy-a-Foot" campaign.

Currently, over 62% of the available 2160 total sq ft has been purchased, but there is still time to help complete this important project.

So whether you buy just one sq. ft. or 100, it all helps, and it all adds up! If you are ready to help make the APM Adkisson Hangar a reality, you can use the attached coupon and send your check or money order to the APM "Buy a Foot" campaign at 22001 Bluegrass Rd. Ottumwa, IA 52501, or make a donation via PayPal through our website (scroll to the bottom of the page and look for the donate now button) at: [http://www.antiqueairfield.com/apm/adkisson\\_hangar.html](http://www.antiqueairfield.com/apm/adkisson_hangar.html)

**Yes, I want to become an *Antique Airfield Ambassador* and "Buy a Foot" to help assemble/build the APM Adkisson Hangar Center !!**

Name: .....

Address: .....

City: .....

State: ..... Zip: .....

**Air Power Museum Inc.**  
EST. 1961

**Antique Airfield Ambassador**  
**"DEED OF TRUST"**

Your Name Here

By: \_\_\_\_\_  
Air Power Museum Inc.

Name (s) on Deed of Trust .....

(Note: You certainly are welcome to purchase more than one foot)

Quantity (\$30 per each sq. ft): ..... x \$30

Total Enclosed: ..... \$ .....