

W.W. I PHOTO PAGE

By PETER K. BOWERS

Pushers, airplanes with their propellers behind both the wings and the powerplants, used to be as common as those we call "conventional" tractor types today. At the beginning of WWI, airplanes were about evenly divided between the two basic configurations. Each had its advantages for specific purposes. The tractor had the performance edge, and when the invention of the gun synchronizer gear took away one of the major advantages of the pusher, it was the beginning of the end. While all modern jets are "Pushers", the design survives for propeller types only in a few special-purpose models, mostly flying-boat-type amphibians.

(1) French Farman S.III of 1914-15, built by Fiat in Italy. With its enclosed nacelle, this model was a great improvement over its predecessors, on which the crew sat on the lower wing. (Photo - Fiat)

(2) The French Voisin was similar to its contemporaries, the French Farmans, British F.E.'s and D.H.-I's, but used a distinctly different quadricycle landing gear. (Photo - French Air Service)

(3) The Germans made very little use of single-engine pushers, but the most used Ago C.II was a great structural and aerodynamic improvement over Allied models. (Photo - Sanke Postcard)

(4) Pusher configuration was standard for the single-engine flying boats of all powers. Most were multi-seat patrol types, but some were fighters, like this German

Hansa-Brandenburg CC with its unusual star-strut arrangement. (Photo - German National Archives)

(5) Pusher engines were admirably suited to the weight and balance problems of the swept-back "flying wing" design. This 1915 American Burgess-Dunne was built after Burgess obtained the American license for the British Dunne patents in 1913. Almost all of the tail-less designs of history have been pushers. (Photo - USAF, courtesy of Harold Taylor)

(6) Main German pusher emphasis was on twin-engine bombers such as this Albatros G.III. Better known were the Gothas and Friedrichshaffens. Because of need to keep the weight forward, lower wing was cut away for propeller clearance. Photo shows upper propeller blade well ahead of trailing edge of wing. (Photo - Albatros)

(7) Twin pushers, other than flying boats, were rare on the Allied side. Experimental De Havilland 3, looking almost like a flying boat, served as prototype for D.H. 10 series which had engines turned around to standard tractor arrangement. (Photo - DeHavilland Aircraft)

(8) One of the oddest pushers of WWI was the U.S. Navy Gallaudet D-4. Separate propeller blades were mounted on a ring that encircled the fuselage aft of the wing. This 1918 model was powered with a 400 HP "Liberty" engine, but earlier models used two 150 HP Dusenbergs which, singly or together, could turn the prop. (Photo - U.S. Navy)

FAMILY TREE of the A.T.C.

by JOSEPH P. JUPTNER

We continue here brief descriptions of the Approved Type Certificated aircraft in numerical order of issuance, and a photograph of each. It is hoped that Members will offer three-views of favored aircraft,

A.T.C. #22 - CENTRAL STATES "MONOCOUE"

When first introduced during the hustle & bustle of early 1927, the Central States "Monocoupe" came forth as a refreshing departure from the typical commercial airplane type of this period, and made an early favorable impression on the flying public. Without the full realization at first, this type of airplane was destined to become very popular; the early model became the fore-runner of a series of good and often outstanding little airplanes. "Monocoupe" Model 22 was designed by Don Luscombe, as a diminutive cabin monoplane of somewhat comical proportions, carrying two persons in chummy comfort. Some were powered with the 5 cyl. "Air Cat" engine of 60-70 h.p., and though somewhat reluctantly, some were powered with the 6 cyl. Anzani engine of 60 h.p. Don Luscombe was a talented designer, often suspected of having access to a crystal ball, but his apparent knack was just careful analysis and good judgment, the mark of all good designers. (Photo - Ford Motor Co. via Stephen Hudek)

A.T.C. #23 - BOEING "FLYING BOAT", MODEL B-1D.

It is interesting to note that most all of Boeing's early efforts in airplane design, starting way back in 1916, were either float-seaplanes or flying-boats. No doubt, this was greatly influenced by Boeing's location at Seattle, Wash. an area where there's water a plenty. Stemming from the early B-1 type, the B-1D was the first

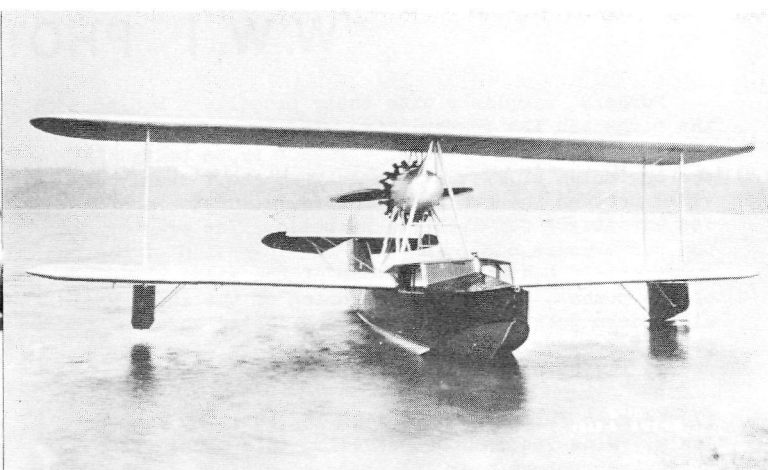
aircraft of the flying-boat type to be certificated. Powered by a Wright J5 engine, it seated four in cabin comfort and its performance was adequate. It was used to carry air-mail, cargo, and occasional passengers in regions of the Pacific northwest. Two of the B-1D type were built; one with a J5 for Percy Barnes and one with a "Wasp" for Western Canada Airways. Gone now from the scene is a versatile machine that combined the sport of boating with the convenience and pleasure of flying. Flying-boat, float-plane, & amphibian pilots will hasten to say there is nothing quite like flying off water. (Photo - Boeing Airplane Co.)

A.T.C. #24 - STINSON "DETROITER", SB-1.

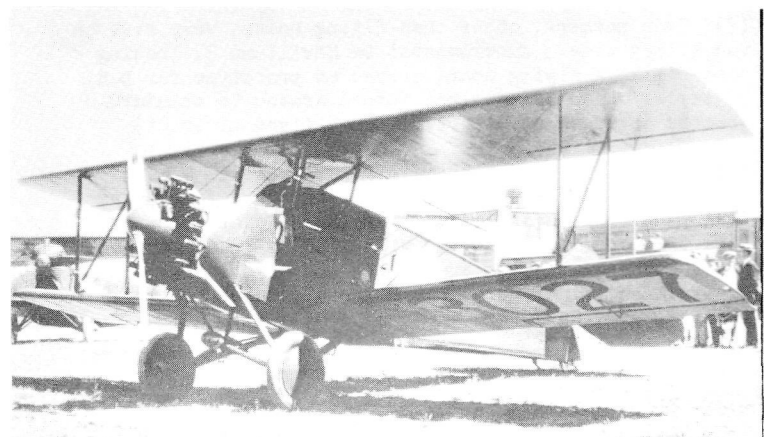
"Eddie" Stinson proudly introduced the first of the "Detroiters" biplanes in Jan. of 1926. This airplane was the culmination of much planning and incorporated some very advanced ideas for these times. Men of big business were favorably impressed and interested in the airplane's future, so Stinson had no difficulty in obtaining capital for his new venture. Two of the earliest "Detroiters", powered by Wright J4 engines, were used by Hubert Wilkins on his Arctic expedition of 1927. Others were used as executive transports and a good number were used by early airlines. Northwest Airways started passenger service with three "Detroiters" in July of 1927 and was the first line to offer cabin comfort on scheduled flights. The later version of the SB-1 was powered by a Wright J5; two of these were used for air-taxi service by the Wayco Air Service in Detroit. Production of the "Detroiters" biplane was discontinued June of 1927 in favor of the new "Detroiters" monoplane, the illustrious SM-1. (Photo-Ford Motor Co. from Stephen Hudek.)



A.T.C. #22 - CENTRAL STATES "MONOCOQUE"



A.T.C. #23 - BOEING FLYING BOAT, MODEL B-1D

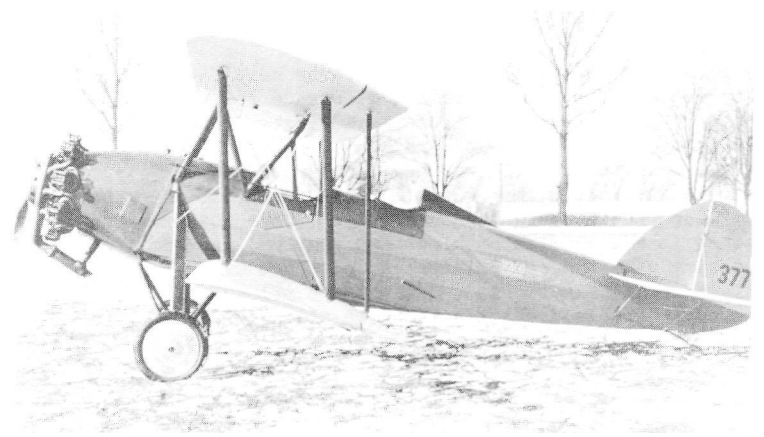


A.T.C. #24 - STINSON "DETROITER" SB-1



A.T.C. #25 - MAHONEY-RYAN "BROUGHAM", B-1

B-1 type were built at San Diego, Calif., and operations were later moved to St. Louis, Mo., where production continued on the B-3, B-5, and B-7 "Brougham" type. (Photo - Ford Motor Co. from Stephen Hudek.)



A.T.C. #26 - SIEMENS-WACO, MODEL 125

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The trim-looking Siemens-Waco was typically a "Waco 10", only faintly disguised by the installation of a Ryan-Siemens engine. This engine of German design and manufacture was exceptionally smooth-running and developed a good reputation for reliability. For a time, numerous foreign built radial type engines were popular here in the U.S. because of the great need for medium-powered air-cooled engines. American manufacturers were painfully slow in developing a suitable engine of this type. The Siemens-Waco was a combination that flew and handled well, best proven by Charlie Meyers, Waco's chief pilot, when he won the free-for-all stunting contest at the Macon, Georgia air races in 1928. Somewhat costly (\$5300) in comparison to the price of the 0X-5 powered "Waco 10" (\$2385), the Siemens-Waco did not fare too well. The small-operator usually found it impossible to warrant such a large investment for his own use. Only four of this type were built in 1927 and possibly 21 were built in all. (Photo-Chas. W. Meyers.)

A.T.C. #25 - MAHONEY-RYAN "BROUGHAM". B-1.

Ryan's colorful history actually came to a peak with the solo-flight of Chas. A. Lindbergh across the Atlantic Ocean in the Ryan NYP, the memorable SPIRIT OF ST. LOUIS, a flight that electrified the whole world and literally put aviation on it's feet. For a time, the "Brougham" basked in the fame of Lindy's plane. Often referred to as a sister-ship it's own merits were soon recognized and B-1 production went up to three per week. The busy staff at Mahoney-Ryan in those days read like a who's who in aviation such memorable names as B.F. "Frank" Mahoney, Hawley Bowlus, Don Hall, Fred Rohr, Doug Corrigan, "Red" Harrigan, and others, every one of them a prominent figure in the make-up of aviation history. Some 150 of the "Brougham"

A.A.H.S. Member Joseph P. Juptner's book, U.S. Civil Aircraft has recently been produced by Aero Publishers, Inc. Volume I contains, in more elaborate form and more photographs, a description of A.T.C. Nos. 1 to 100 of which we have presented; to date, the first 26. A perusal of the new book indicates the interest taken by other Members, as evidenced by the photographic credits.