

Magnum D-29



*Bathtubs for trainees
couldn't save the
company from oblivion.*

BY PETER M. BOWERS

Another good but thoroughly forgotten airplane of pre-Depression 1929 is the New Standard D-29 trainer. New in this case is not an adjective applied to the airplane; it is the first word of the manufacturer's name and is used in the same sense as New York or New Jersey to indicate a second and relocated organization with historical links to the original of the same name.

The original organization in this case actually was two closely integrated companies with separate names and plants. One was the Standard Aero Corporation, with its plant at Plainfield, New Jersey, and the other was the Standard Aircraft Corporation of Elizabeth, New Jersey.

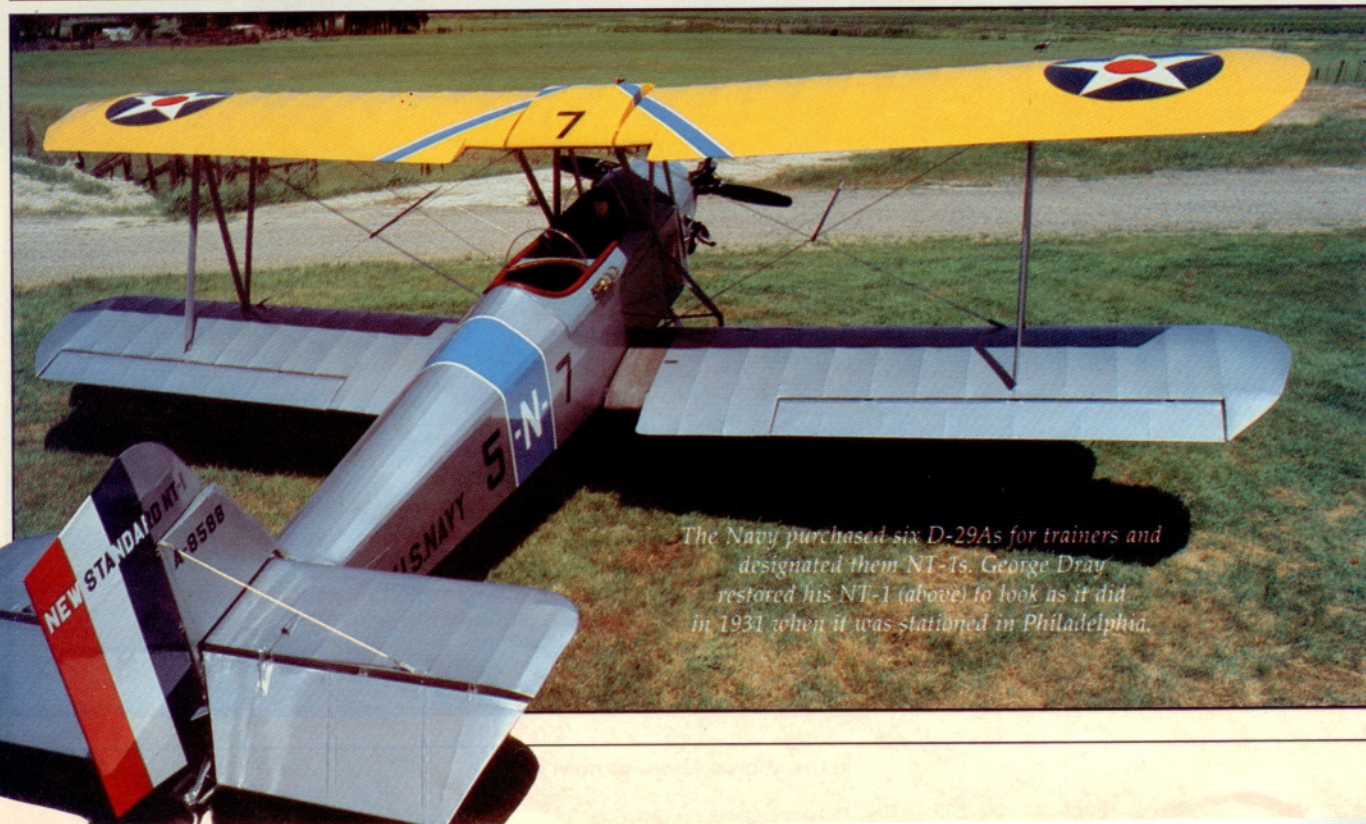
Standard Aero was founded in May 1916 to take over the existing, but financially troubled, Sloan Airplane Company. Sloan's chief engineer, Charles Healey Day, who was to become the designer of the New Standard line, was the principal link between the original companies and New Standard.

The Standard Aircraft Corporation, which became the major airplane-building unit of the two, was founded a little later in anticipation of big orders from the government when the United States became involved in what at the time was called The European War. While Standard Aircraft was the bigger organization by far, it was a subsidiary of Standard Aero. Collectively, the dual organization was referred to in the industry as Standard.

Although it was second in size only to Curtiss, Standard strictly was a "war baby" and closed down soon after the armistice ended orders for its purely military products. The best remembered Standard is the Model J training biplane, a development of the Sloan Model H and very similar in appearance to the Curtiss JN-4, or Jenny, line. The Model J shared the barnstorming era with the Jenny, but always has

New Standard D-29





The Navy purchased six D-29As for trainers and designated them NT-1s. George Dray restored his NT-1 (above) to look as it did in 1931 when it was stationed in Philadelphia.

been eclipsed by the greater fame and numbers of the Curtiss. Actually, the J, built two years after the Jenny, was a notably better design.

Although the U.S. Army ordered 750 Js from Standard Aircraft and another 851 from licensees, few were used for wartime training. The original Hall-Scott A-7 engine was a constant source of trouble. In view of the availability of the Jenny, the cost of reengining the Model J could not be justified. As a result, most of the Js were sold, still in the factory crates, at war-surplus prices. The first thing that most new

Models 25, 26 and 27 in short order. Similarly, there had been minor variations of the J such as JR, JR-1B and SJ.

In spite of the corporate name, the G-D 24 through 27 line was marketed as the New Standard to capitalize on the old firm's reputation. After Gates resigned in December 1928, the firm was reorganized and became the New Standard Aircraft Corporation, still located in Plainfield.

At this time, Day went to work on the design of a dedicated primary trainer for the then-booming market. The old, 90-hp, war-surplus Curtiss

by the mile and cut off by the yard."

The equal-span, fabric-covered wings, with the trusty Clark Y airfoil, used traditional wooden spars and wood-truss ribs, but the four ailerons were built up of bolted and riveted aluminum angle and channel. The single fuel tank, instead of being contained within the upper-wing center section, was the center section, thickened into a raised airfoil shape in the manner of the contemporary British de Havilland "Moth" to provide a capacity of 22 U.S. gallons.

The fuselage of the D-29 had several



A single cockpit for two occupants, ailerons on all four wing panels and a Kinner radial engine characterize the standard D-29A.

owners of a Model J would do was remove the pesky Hall-Scott engine and install a reliable 90-hp Curtiss OX-5 or a 150- or 180-hp American-built Hispano-Suiza, or Hisso.

Day's postwar reputation was maintained by the success of the reengined Model J in the barnstorming and flying circus operations of the early 1920s.

From 1919, until he joined with Ivan Gates of Gates Flying Circus fame to form the Gates-Day Aircraft Corporation at Plainfield, New Jersey, in 1927, Day was a consulting engineer for various postwar aircraft firms.

The first Gates-Day product was the G-D 24, a big, five-seat, open-cockpit biplane powered with a 180-hp war-surplus Hisso engine. The number 24 represented Day's twenty-fourth design, but this number should be taken with a large grain of salt: Engine changes and revised seating arrangements in the same airframe resulted in

OX-5, mainstay of the low-priced airplane fleet from 1919 through 1928 (along with the large and clumsy airframe that was needed to carry it), clearly was on the way out. The old Curtiss OX was being replaced by a new crop of 65 to 110-hp, air-cooled, in-line and radial engines. Charles H. Day picked one of these, the American-built version of the 85-hp British "Cirrus III" upright in-line four to power his new D-29 model (note the absence of the G; also, there is no record of either a G-D 28 or a D-28 design).

Compared to other new biplane trainers that had just appeared, notably the Fleet 1 and 2 and the Great Lakes 2T-1A, the D-29 looked not only old-fashioned, but downright crude. This was deliberate, an attempt to keep the design structurally and functionally simple. The airplane was so angular that it almost qualified for the statement that was applied to some later aircraft: "Built

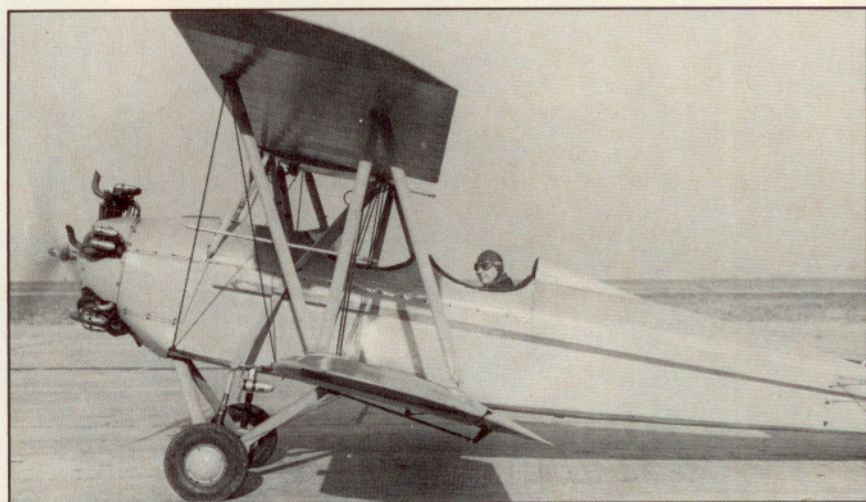
innovations. The primary one, a carry over from the G-D 24 through 27 line, was the structure. This used bolted and riveted aluminum channels and angles instead of the now-standard welded steel tubing. The tail surfaces were of similar construction, and all were fabric covered.

The cockpit owed a little to the G-D 24 through 26 models that seated four passengers in a single cockpit with two side-by-side pairs in tandem, but provided a separate cockpit for the pilot.

Since the D-29 was only a two-seater, both occupants were seated in tandem in a single elongated cockpit that quickly was dubbed "the bathtub." Fitted with dual stick controls, the large opening was divided only by the structure needed to support the rear-seat windshield and instrument panel. The added aerodynamic drag of the larger cockpit was not considered a significant handicap on a low-speed/



This modified D-29A (above) has a rounded fuselage, two cockpits, metal paneling from the nose to behind the cockpits and fairing strips from the rear cockpit to the tail. Another modification of the D-29A is shown below. Note the wind-driven generator above the landing gear used to power the lights.



high-drag design like a trainer, and the added buffeting that the crew got from the slipstream was presumed to be a natural part of low-cost flying.

The landing gear was rugged, as required for a trainer, and had the divided-axle with oleo-pneumatic shock absorbers supported by outriggers from the lower longerons. No brakes were fitted to the wire wheels, and a steel, spring-leaf tail skid was used. Although brakes and tail wheels were just gaining popularity, the trainers of the time almost universally were of the no-brakes-plus-tail-skid type and were intended to operate from turn fields. Advertised price was \$4,250.

Approved Type Certificate (ATC) A-198 was awarded to the D-29 on August 15, 1929, but only one airplane was built under that designation. Day was ahead of some of the other designers in detecting the inadequacies of the Cirrus engine and had a replacement in the works—the 100-hp Kinner K-5

five-cylinder radial. The otherwise identical airframe was designated D-29A. Note that this was not a new model even though the switch from the Cirrus to the Kinner engine in the D-29 was every bit as major an item as was the switch from a Hisso to a Wright J-5 that made the G-D 24 into the G-D 25. The D-29A received ATC A-216 on August 28, 1929. The initial price was \$4,475, but this was reduced to \$3,131 in July 1930 to encourage sales in that Depression year.

The 17-design jump in ATC numbers within two weeks shows the rate at which new designs were being certificated at the peak of the pre-Depression "Lindbergh Boom". The stock market crashed the following October, and the subsequent world-wide economic depression had a disastrous effect on the aircraft industry and influenced the course of subsequent designs through economic factors.

Altogether, 34 airframes were started

as D-29As, but some of these were modified before delivery and received revised designations. The early D-29As retained the bathtub cockpit and the four-aileron arrangement of the original D-29 but some, still identified as D-29As, had features of the later modified models.

There was to have been a D-29B, powered with the 100-hp Dayton "Bear" engine. This four-cylinder, upright, air-cooled conversion of the war-surplus Hall-Scott L-4 ended up being very similar to the Cirrus. The Bear-powered model never came to be, nor did another proposed B model that would have been powered by a 125-hp Kinner B-5 radial. This was a case, as often happened and still happens, of a manufacturer publicizing a planned model but not producing it. The advance information, however, gets into the standard reference books without adequate follow-up and becomes history, accurate or not.

A D-29P, supposedly a cleaned-up D-29A, appears in the references but is not verified by FAA documentation. The twenty-sixth D-29A was used to test the new 90-hp, inverted, Menasco B-4 engine and was designated D-29 Special on Category II Approval 2-326, issued February 9, 1931.

Officially, there was a single D-29S, converted from the twentieth D-29A. The S identified it as a sport model. It had ailerons on the lower wing only, single controls, two conventional cockpits, five additional gallons fuel capacity and a 50-pound increase in gross weight. ATC A-3243 was issued on May 27, 1930. In a further attempt to boost its sales appeal, New Standard modified this same airplane in such a way as to compromise the full ATC, so the airplane had to be recertificated; the lesser Category II, or Memo, approval 2-324 was issued on September 29. This certificate, too, was temporary since the airplane soon was converted to a D-31 model.

There is no reference to a New Standard D-30 model, so Day's run of design numbers is not continuous, at least not for completed models.

Other D-29As, verified as such by registration numbers and by designations painted on the airplanes, incorporated some of the D-29S's changes, notably the double cockpits and two ailerons. However, there is no Federal Aviation Administration record to indicate that they ever became D-29Ss, nor is there a notable factory changeover



The Navy's six NT-1s (D-29As) were equipped with wire wheels and improvements such as two conventional cockpits and ailerons on the lower wings only (above). The sole surviving New Standard D-29A (below) retains the original bathtub cockpit and still is flying.

point from A model to S model details.

The U.S. Navy, which was expanding its trainer fleet at the time by placing small orders for off-the-shelf civil designs, bought six D-29As and assigned the naval designation of NT-1 (N for trainer, T for New Standard's identification letter and dash 1 for the initial configuration). Although the NT-1s preceded the only D-29S made, they had some of the improvements that would appear on the D-29S; notably the ailerons on the bottom wing only and the two conventional cockpits. The no-brakes wire wheels and the metal tail skid of the original D-29 were retained. The NT-1s may have been the inspiration for the D-29S model and the incorporation point for the aileron and cockpit changes.

The NT-1s did not acquire notable records as Navy trainers, but they did leave a lasting impression on naval aviation in a different way. The Navy designed and built some of its own airplanes at the Naval Aircraft Factory in Philadelphia. The structural details of the D-29/NT fuselage were incorporated in the 799 N3N trainers that the Navy built starting in 1936.

Three of the D-29As were modified as a new model, the D-31, which featured a 125-hp Kinner B-5 engine and a further 20-pound weight increase plus two ailerons and conventional cockpits. The first of these D-31 models received Memo Approval 2-276 on October 3, 1930.

The end of the line came with a three-seat development, the D-33. Only three were built; they had 125-hp Kinner B-5 engines and a gross weight of 2,140 pounds. Memo Approval 2-327 was issued on February 12, 1931.



NEW STANDARD D-29

D-29	Specifications	D-29A
Cirrus III 85 hp @ 1,900 rpm	Powerplant	Kinner K-5 100 hp @ 1,810 rpm
30 ft	Wing Span	30 ft
24 ft 11 in	Length	24 ft 8 in
248 sq ft	Wing area	248 sq ft
1,097 lb	Empty weight	1,165 lb
1,632 lb	Gross weight	1,790 lb
6.58 lb/sq ft	Wing loading	7.21 lb/sq ft
19.2 lb/hp	Power loading	17.9 lb/hp
	Performance	
88 mph	High speed	98 mph
75 mph	Cruising speed	80 mph
37 mph	Landing speed	42 mph
670 ft/min	Initial climb	750 ft/min
10,000 ft	Service ceiling	11,000 ft
300 sm	Range	250 sm

Day left soon afterward, and the New Standard firm went into liquidation. A new organization, Farman-Standard, was seeking to buy the assets but the deal fell through. The New Standard D-29, -31 and -33 models were acquired by Barnard Aircraft Corporation of Syracuse, New York, and the Gates-Day 24 through 27 models went to the

Jones Aircraft Corporation of Schenectady, New York.

Of the 34 airframes that were started as New Standard D-29As only one D-29A and one D-31 survive today. □

Intrigued by airplanes long before his first ride in a Travel Air at age 10, Peter Bowers, AOPA 54408, has since logged more than 5,000 hours.