The prototype Timm Collegiate after extensive modifications that included new high vertical tail, modified turtledeck, redesigned landing gear, and a MacClatchie Panther engine.
Fred Bamberger photo

Yesterday's Wings

The Timm Collegiate

by PETER M. BOWERS / AOPA 54408

A relatively advanced design for its day, this monoplane trainer with parasol wing was orphaned by the depression. Only six aircraft were completed, of which three still exist

■■ Consistent readers of this continuing feature of The PILOT will recall many references to "the depression." This was a major historical milestone in world affairs and a reference point in time similar to wars and major natural disasters.

For American aviation, it was particularly significant. Hardly any account of aircraft development and production in the 1929–1934 period can avoid reference to it. It was also a major disaster, and many famous manufacturers went out of business because of it. However, their products had already made their marks on contemporary history and are still remembered.

A greater, but unpublicized, tragedy was the loss of many new and small firms that were just getting started, in what was supposed to be the dawn of a new era, when the depression hit. Some of these firms had only prototypes of interesting new designs flying, while others had been able to turn out a handful of production models. Since these small outfits had no dealer organizations set up, and no inventory of spare parts had been accumulated, the planes were real orphans after the factories closed. With no spares, few could earn their keep in normal commercial operations. Those that managed to survive until World War II were either in the hands of private owners, who could nurse them along, or were used by dusters and other operators who were used to making their own replacement parts for nonstandard airplanes.

An excellent example of a promising new design developed by a small firm and then orphaned by the depression is the Timm *Collegiate*, which should not be confused with the better-known Aeronca C-3 *Collegian* of 1931–1933.

At the time of its first flight in November 1928, the *Collegiate* was not even the product of a recognized airplane manufacturer. The O. W. Timm Airplane Corporation of Glendale, Calif., was actually a repair and modification shop. Otto Timm, who had taught himself to fly in 1911 in a plane of his own design, had designed and built several other airplanes in the interim, but was not a manufacturer. When he decided to build the *Collegiate*, he did not set up a big factory and seek outside financing. The project was financed by the profits of the shop. When the design proved promising, additional planes were started, and material for another 25 was ordered.

However, such ambitious plans were not to be realized. The depression hit soon after the third *Collegiate* was started, and only six were completed (few enough for the entire production to be accounted for individually in this article). These six underwent minor refinements and many engine changes in the early 1930s, and all eventually found individual customers. The Timm Airplane Corporation then went out of business, but a new Timm Aircraft Company, which survived into World War II, was formed in San Fernando in 1934 as a manufacturing firm.

The *Collegiate* was a relatively advanced design for 1928. Practically all the trainers then in production were biplanes. Most used the water-cooled Curtiss OX-5 engine, a 90 h.p. World War I surplus item, but a few were

The second Collegiate, with tail revised to what could be called standard configuration (compare with No. 1), revised landing gear, and its fourth engine model, a 170 h.p. Curtiss Challenger.
A. U. Schmidt photo

appearing with the new 100 to 160 h.p. air-cooled radials that were just coming on the market. Otto Timm had the foresight to see that the biplane would soon be on the way out, so he designed a monoplane trainer. Tradition dictated open cockpits, which ruled out putting the wing right on top of the fuselage in the manner of most contemporary monoplanes. The wing was therefore raised above the fuselage in what is known as the parasol position. This created what was, in effect, a traditional biplane without the lower wing.

The fuselage and tail were welded-steel tubing, while the wing was a three-piece wooden frame, all fabric-covered. The original powerplant, although it was an air-cooled radial, was an unfortunate choice. Timm had made a great buy on 10 surplus French Anzani 10-cylinder, 120 h.p. radials, but these proved to be anything but reliable. After failures of several Anzanis in one airplane during the test program, finding a suitable powerplant for the *Collegiate* became a major problem. The design probably

Below: The third Collegiate, with its original tail and landing gear configuration. Note that the shock absorber strut runs straight from the axle to the upper longeron. The high-pressure tires were soon replaced by low-pressure type. Van Rossem photo

Right: The fifth Collegiate, powered by a 150 h.p. MacClatchie Panther engine, set a unique 378-hour endurance record in November 1930. This is one of only two Collegiates to retain the same model engine throughout the life of the airplane. Fred Bamberger photo

holds the world's record for the number of engines—some of them obscure and little-known in their own time—tried in a single airplane model. Actually, eight different powerplants have been used over the lifetime of the *Collegiate*s, but only six were approved for use in standard-licensed versions.

Timm used the new American-designed 100 h.p. Kinner K-5 radial in the *Collegiate* in order to complete the testing needed to qualify for the Approved Type Certificate (ATC) that was necessary for production and commercial sale of the airplane. The prototype was issued ATC No. 180 in July 1929. The model designation of the airplane reflected the engine and horsepower, and the licensed prototype became the *Collegiate K-100*.

The Kinner was a good engine, but delivered less power than the plane had been designed for. In the interest of improved performance, the third *Collegiate* was completed with a 170 h.p. Curtiss Challenger engine installed. With this interesting twin-row, six-cylinder radial, it was licensed as *Collegiate C-170*, under the somewhat lesser approval of Memo 2-202. The prototype, meanwhile, had replaced its Kinner with a new Comet E-7 radial of 165 h.p. This changed the designation to *Collegiate C-165* and qualified it for license under Memo 2-209 in April 1930. The second airplane, completed with the Kinner in 1929, quickly changed to the Comet. This engine, too, proved to have its shortcomings and was replaced in No. 2 by something entirely new, the 120 h.p. Western Enterprise L-7 radial. This version was licensed under Memo 2-323 as the *Collegiate TW-120* in 1931.

The Challenger proved to be the most suitable engine tried to that time, and No. 2 soon had its L-7 replaced by a Challenger. Airplane No. 4, meanwhile, had started out with the new 160 h.p. Continental A-70 radial, which proved to be the best of all in the long run, remaining in production through World War II. This Continental-powered airplane was designated *Collegiate TC-165* under Memo 2-265. The letter "T" was added to the designation to distinguish it from the C-165 designation of the Comet-powered version. Apparently the early Continentals had problems, too, for the A-70 in No. 4 was soon replaced with a Challenger.

Airplane No. 5 started with another new engine, the 150 h.p. MacClatchie X-2 Panther. This was a seven-cylinder radial with unique mechanical features. The airplane, designated *Collegiate M-150* under Memo 2-239, was delivered to the MacClatchie Manufacturing Company of Compton, Calif., as a flying testbed for the new engine. (While FAA records show five different engine models used in the prototype *Collegiate*, they do not record its brief use of another Panther.)

Delivery of No. 5 to MacClatchie was at the height of the endurance flight craze, and the owner of the company, J. Warren MacClatchie, decided to use this method to demonstrate the reliability of his new engine. However, he used a somewhat different approach. He reasoned that continuous running at a relatively constant throttle setting did little to prove much about the actual performance and reliability of the engine under normal operating conditions. Changes of power setting, plus heating and cooling changes associated with takeoffs and landings, were far more significant. He proposed, therefore, to seal the engine and go for an endurance record that included landings and takeoffs, with refueling done on the ground (plus crew changes), rather than the longest continuous time in the air, with in-flight refueling.

Named "City of Los Angeles," the M-150, in November 1930, made 97 takeoffs and landings in the course of 378 hours and 48 minutes, without being switched off or receiving any mainten-

SPECIFICATIONS AND PERFORMANCE
TIMM COLLEGIATE K-100

Span	35 ft.
Length	24 ft. 7 in.
Wing area	236 sq. ft.
Powerplant	Kinner K-5, 100 h.p.
Empty weight	1,309 lbs.
Gross weight	1,952 lbs.
High speed	108 m.p.h.
Cruising speed	92 m.p.h.
Climb	640 ft./min.
Service ceiling	16,000 ft.
Range	540 mi.
Price	$5,500

ance. Fouled spark plugs finally brought the unique demonstration to a halt. MacClatchie had proved his engine's reliability, but, like many of the small-company airplanes of the time, the engine never found a market in the depression years and was quickly forgotten.

The sixth and last *Collegiate* was completed and licensed with the Western Enterprise L-7 and was actually the first to use this rare powerplant. However, this too was soon replaced with a Challenger.

Five of the *Collegiates* survived through World War II and beyond. Airplane No. 6 was last heard of in 1940; No. 3 was photographed by the author in Eugene, Ore., in 1948 and soon dropped from sight; and No. 4 was scrapped in 1947. Numbers 1, 2, and 4 were converted to dusters during the war years and were fitted with 220 h.p. Continental W-670-6A engines, which were improved versions of the old A-70 and were civil equivalents of the R-670s used in wartime Army and Navy trainers, including Timm's own N2T-1, which was known in the factory as the PT-220. However, this time the engines used did not affect the model designation, although it would seem logical to call them C-220s. By then the FAA merely regarded them as modifications of the standard models that they had been, not new models. This policy applies to other aircraft where the original engine installation or an early change was reflected in the designation. Only two of the six *Collegiates*, No. 3 and No. 5, used their original engine models throughout their existence.

Two of the dusters, No. 1 and No. 2, reduced to what the antique airplane buffs call "basket cases," still exist. So does No. 5, which was not converted. No. 1 and the fuselage of No. 2 (its wings were destroyed in a hangar fire) have found a haven in the garage of Rev. Boardman C. Reed, the well-known "Aeronautical Anglican" of Hanford, Calif., who will combine the parts to put No. 1 back in the air. The other surviving *Collegiate*, No. 5, is rapidly becoming another basket case outside a hangar in Buckeye, Ariz. It is hoped that some dedicated antiquer will be able to acquire and restore this final example of a rare orphan of The Great Depression. □