

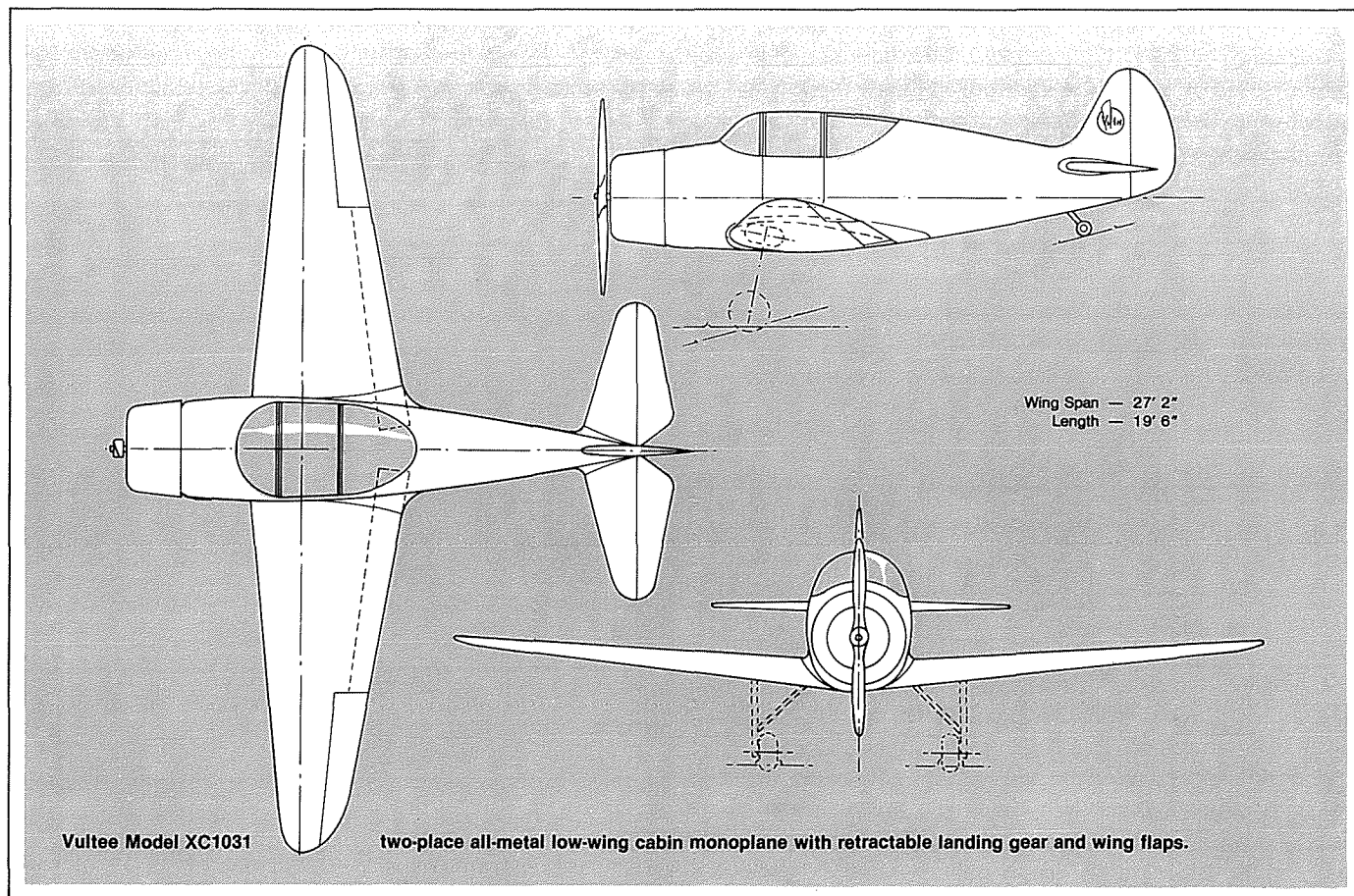
Vultee "P-38"

by Dusty Carter

Memories of 50 years ago are stirred by the recent celebration on the golden anniversary of the famous Lockheed P-38 *Lightning*, considered by some as the most outstanding fighter of World War II. While I did not work on the Lockheed airplane I did have a small part to play in the events that led to the development of the "twin-tailed devil."

I began my career as an aerospace engineer in 1936 when I joined Vultee Aircraft in November of that year. What happened in those first few months was the stuff that made Horatio Alger famous. I attended Frank Wiggins Trade School (now known as Los Angeles Trade Technical School) located in the old Metropolitan High School facility in down-

town Los Angeles. In the latter part of 1936 Vultee contacted the trade school with a request for some students to work for a couple of months at Vultee's new factory in Downey, Calif. The Downey factory had been built by Emsco Aircraft Division of the E.M. Smith Co., manufacturers of a wide variety of oil field equipment. Emsco occupied the factory in 1927 where they produced a series of single- and multi-engined airplanes before their demise during the Wall Street crash of 1929. The facility was then used by a trucking firm for a short time followed by an aircraft supply house. Some time in 1935 or early 1936, Walter B. Kinner moved his newly formed Security Aircraft into the old Emsco plant and produced a few



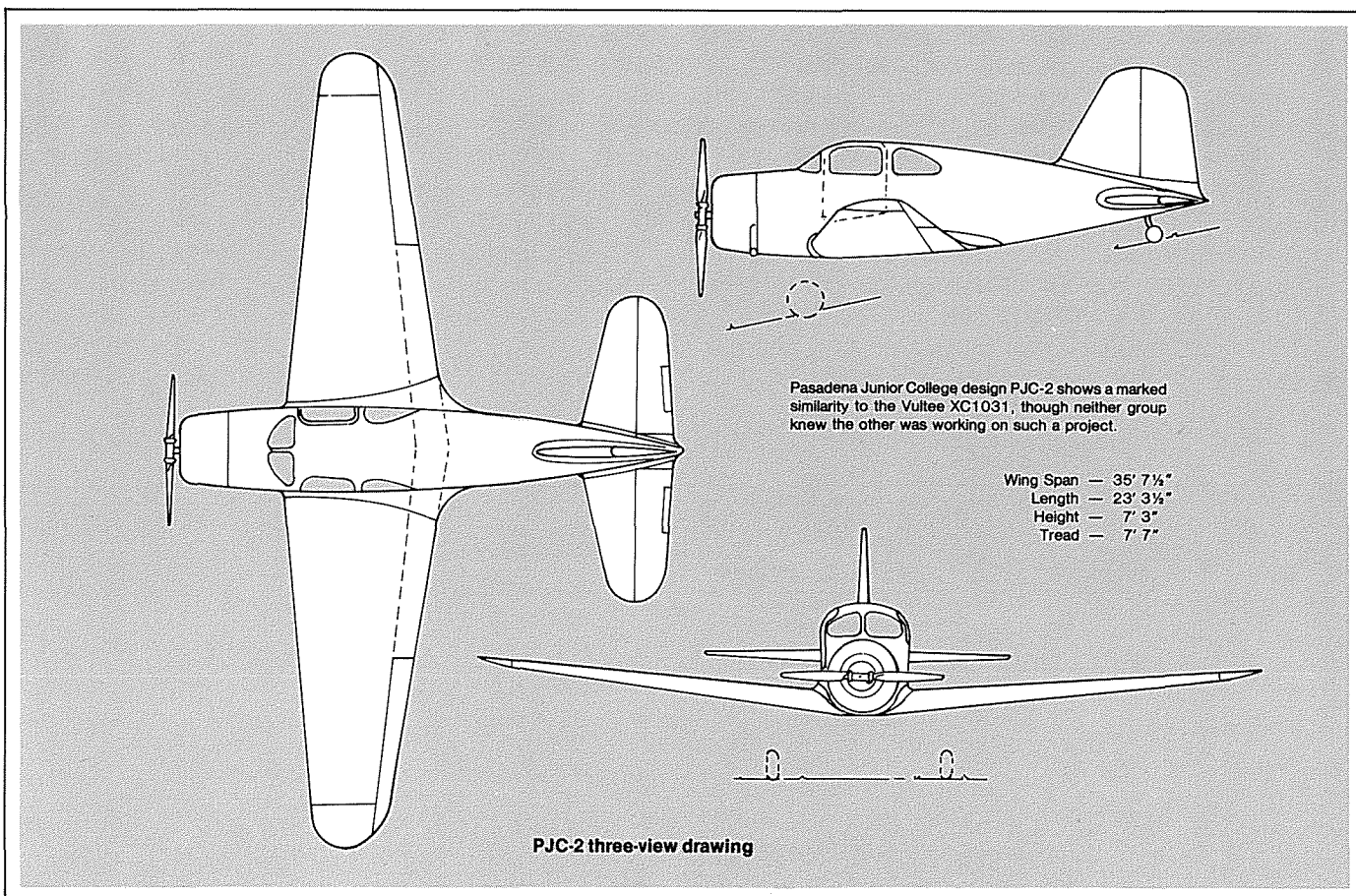
"Airster" airplanes. The overhead of the large facility was too much for the modest Security Aircraft and they moved out in just a few months. Vultee Aircraft moved into the Emsco factory in June of 1936.

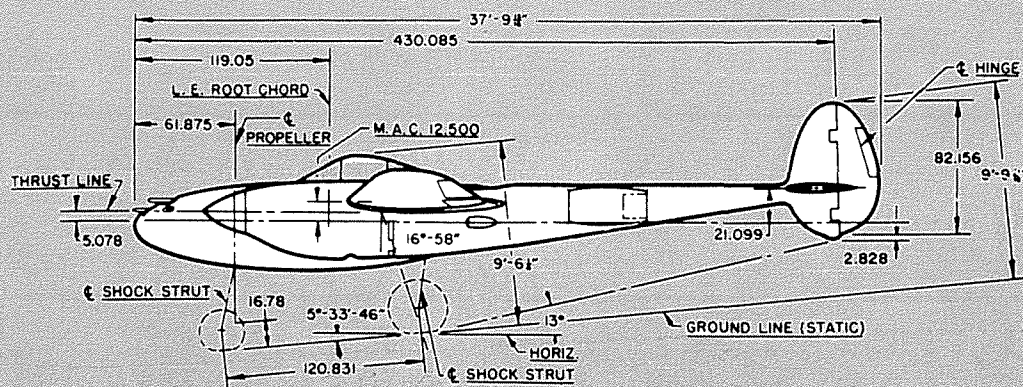
Vultee had started his company in a hangar at Grand Central Air Terminal in Glendale, Calif., and with the production of the V-1A transports the manufacturing facility was moved to a larger hangar further down the field at Grand Central. All but the last four or five V-1s and the first three V-11s were built at Grand Central. By that time the Chinese had ordered a large number of V-11s, and Turkey and Brazil were also interested in procuring large numbers of the new attack bomber. Because of the new orders coming in, Vultee went looking for a suitable facility. Gerard F. "Jerry" Vultee had been a designer at Emsco and consequently was familiar with the factory and its surroundings. The plant was located among the farms and orange groves in rural Downey and had a paved runway suitable for the attack bombers. And it was somewhat secluded (in 1936). In addition to the foreign interest the United States Army Air Corps had placed an order for a few V-11s to be called YA-19s. In order to get the drawings made for this increased business Vultee was looking for a lot of help. To meet these obligations "Jerry" Vultee called his old friend Ted Woolsey at Frank Wiggins Trade School to obtain some temporary help in the way of some draftsmen. Theodore A. Woolsey was chief engineer and president of the short-lived Thunderbird Aircraft located in Glendale and "Jerry" Vultee had been an instructor at Curtiss-Wright Institute of Technology, located at Grand Central Air Terminal, so the two men had known each other

prior to the formation of Vultee Aircraft. Ted Woolsey selected four of his "best students," as he told Vultee, to go to Downey for a couple of months as draftsmen. The four selected were Raymond Grill, who became supervisor of the armament group at Northrop Aircraft; Robert Brison, who became chief engineer for Hiller Aircraft; Henry Stiglmeier, who eventually held several sailplane records and later changed his name to a more simple Henry Meyers; and myself who eventually retired from Rockwell International, Space Division, as supervisor of advanced design on the shuttle program in Downey. In fact, my last office was located about 40 feet from the spot of my first drafting table at Vultee some 42 years before!

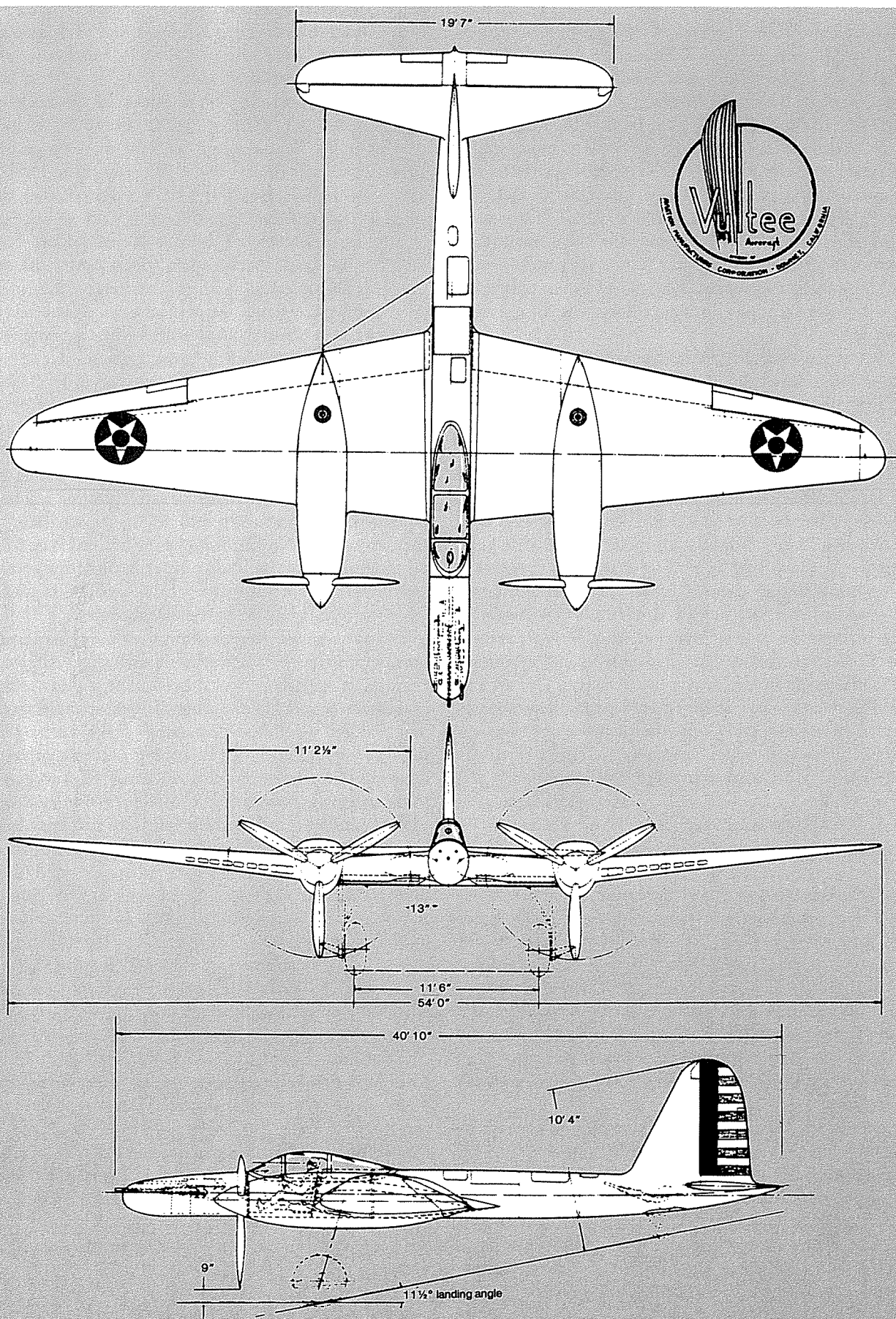
The four of us were paid the magnificent wage of forty dollars per month (that's \$40.00/month!) and for this we only worked 44 hours per week with the four hours on Saturday when we were paid at noon—most of the time! There were a couple of times we had to hang around till 1:00 or so to get paid in cash because it took Jerry that long to round up enough cash to pay us! The couple of months went by in a matter of weeks, or so it seemed. We heard from some of the fellows at school the design project was going well and we were anxious to get back to school to get in on the design of a Menasco-powered racer.

The four of us decided that we were going back to school and I was selected as spokesman for the group to talk to the chief engineer, Bob Davie. At this time we had progressed from "tracers" to "detailers" and each had been assigned to a "layout man" (now called designers or Members of Technical Staff or simply MTS). I went to Davie, who became





Lockheed P-38 three-view drawing



Vultee Model XP1015 two-engine interceptor pursuit, Allison V-1710-C7 engines

Director of Wind Tunnel Model Design at North American Aviation, and confronted him with our decision to return to school. The following afternoon Davie came to me and asked that we meet him in his office (a desk in the corner of the drafting room) after working hours.

When we arrived that evening we were a bit surprised to see Jerry Vultee sitting at Davie's desk. Jerry presented us with an offer we readily accepted. He proposed that he and Davie would stay a couple of hours two nights a week and take us through the design of an airplane. He understood our desire to learn "how to design an airplane" and was willing to teach us. What an opportunity! Where else could we get such high-powered instruction on nearly a one-on-one basis? Virtually a private school with Vultee and his chief engineer as instructors!

The following week our classes got under way. Our first exercise was to conduct a market survey to determine the type of airplane to be used in the design study. Jerry dismissed the "racer" as a subject admitting it would be fun but that the market survey was as much a part of design as was the design itself. The rather brief market study led us to a private aircraft that is part of today's general aviation.

The type selected was to be a two-place, side-by-side light plane. We also chose to make it all metal and provide good performance by retracting the landing gear. We did a preliminary analysis of existing aircraft in that market and came up with a tentative size and weight. A review of the available engines brought us to the selection of a 90-hp Lambert engine. Each of us created our own design and submitted them for critique by Vultee, Davie and ourselves. One configuration was selected and a three-view (a copy accompanies this story). With the three-view complete the project was assigned a company number known as XC1031. With the three-view as a basic, work was started on preliminary performance analysis to be followed by the establishment of preliminary loads for various flight envelopes. This was to be done before we could start a preliminary design of the airplane.

This is about as far as we got on the project. One evening as we met Jerry for class he informed us that school was to be put on hold for a while and that he had another assignment for each of us. With that said he drew a bunch of keys from his pocket and opened the door behind him. The door bore a large red placard that read SECRET ROOM. We entered the room and found it full of a bunch of old guys we had never seen before. Not only that, they *all* had assumed the "asses and elbows" position, an engineering vernacular for working very, very hard.

Jerry then told us the need for getting a large number of drawings completed in a very short time to meet the deadline for submission of a proposal to the U.S. Army Air Corps for an advanced interceptor pursuit aircraft. The four of us, barely out of high school, were being assigned to a designer to do detail drawings for the proposal. I might add here that each of the designers was an older man in his middle to late fifties with some in their sixties. Apparently experience was a major factor in selecting top designers. The gent I was assigned to was a Scotty Morrison, who I presumed to be in his sixties. Scotty had worked for Curtiss in the old Garden City plant. This small crew of "old guys" put more lead on paper

in a shorter time than any other similar sized crew I have seen in my 40-some years in the business! And their drawings were classic works of art. Not much like Max Headroom or some of the electronic graphics of today.

What an opportunity for a bunch of 18- or 19-year-old young bucks! Only a short time out of high school, only a few months in the industry and we were working on the most advanced fighter in the world. We soon found out that we were expected to assume the same A&E position we noted when we entered the "secret room." And we were expected to produce an equivalent mileage of pencil lines. Four more tables in the small "secret room" were out of the question. Carpenters were called in to make a small "drafting room" on top of the concrete vault where all of the engineering drawings were stored. The vault was in the middle of the main drafting room and the work space was eight or 10 feet above floor level to provide some "security." Not many wanted to shimmy up a small vertical ladder. Not me, certainly. But that is exactly where my assignment took me. Now I have never been too athletic and my rotund "physique" made that ladder a major chore each time it was to be negotiated. On top of all that the elevated position of our "drafting room" brought us up into one of the sawtooth peaks in the factory roof. No air conditioning and the warm June and July months upon us. Our private drafting room was like a Swedish sauna but with none of the benefits, but we got the job done and it was delivered on schedule.

The airplane we proposed was a twin-engined interceptor pursuit powered by two turbo-supercharged Allison V-1710 engines. It had four .50 caliber machine guns and one 20 millimeter cannon in the nose. It was a single-seat aircraft that featured a full bubble canopy. It had a very slim, long fuselage and a conventional landing gear that retracted into the wing. The engine nacelles contained the power plants and their attendant systems. The coolant radiators and the oil coolers were buried in the wing with leading edge inlets provided. The machine looked truly formidable and Jerry Vultee had great expectations for it.

Wind tunnel work had been done at the Guggenheim Aeronautical Laboratory, California Institute of Technology (GALCIT) at Pasadena, Calif., and the tests were very encouraging. Two other firms cast their bid for this fighter. They were Curtiss Aircraft and Lockheed Aircraft. Jerry flew his Stinson SR-9 east to attend the awarding of the contract. On his return he called us all into the "secret room" to brief us on what had transpired. Curtiss was the high bidder and I recall Jerry making a comment to the effect that "they must be too busy to want a new project because they were really very high in their bid." His comment about the winner, Lockheed, went something like this, "... they cannot possibly make any money on this ... their bid is so low they are certain to lose money." History has told us how wrong Jerry's evaluation of Lockheed was. Lose money indeed! The program was to make Lockheed a major factor in world aviation forever!

No, there never was a *Vultee* P-38, as we all know, but the drawings that have recently come into my possession indicate the overall similarities to the Lockheed P-38. One wonders what might have been had the single boom P-38 been built!