



Lineup of Fokker D-VII's representative of many flown by the Army in the early post war years with their original markings. (Photo - From a glass plate negative in the Bowers-Williams Collections)

THE AMERICAN FOKKERS Part 1

By PETER M. BOWERS

INTRODUCTION: The well-known Fokker airplanes were turned out in three principal areas of the world under circumstances that gave them distinctive characteristics and separate identities. The areas and associated time intervals are: Germany from 1911 through 1918, Holland from 1919 to the present, except for the WW-II years, and the United States from 1925 to 1932. The American Fokkers are the subject of this series of three articles for the JOURNAL. Part I backtracks in time a bit before the start of U. S. production to cover the imported models. One notable model, the F-VII, qualifies both as imported and domestic but will be covered as a U. S. product because it fits into the American designation and serial number systems. The presentation by models in Part I is rather random because a straight chronological listing would separate the writeups of closely-related models, while a straight alphabetical listing by model designation would completely disrupt the more important chronology.

The general details of Fokker construction are too well known to justify description and analysis here. This and the two articles to follow are oriented mainly toward procurement and operational histories and the growth of each model and its relationship to the others.

German-built Fokkers began to arrive in the United States during World War I, when captured examples were sent over by the Allies to participate in the various "Liberty Bond" drives. More came in immediately after the Armistice as war booty while still others, although German-built, were actually purchased by the Army from Fokker's new Dutch factory. A variety of the Dutch postwar designs were purchased by the U. S. armed services and by a number of private owners.

It is interesting to compare official attitudes toward the wartime Fokkers in two different areas. By reading the British Technical analyses of captured German Fokkers as relayed to the public by the British Aviation press, one gets the impression that the Fokker welded steel tube fuselage construction was a poor innovation, that overall workmanship was sloppy, and that

the machines were poorly designed aerodynamically and from a maintenance standpoint. All of this should be taken with a large grain of salt, however, for this was in wartime, and it just wouldn't do to praise the enemy's equipment in public.

The reaction in American technical circles, notably the Air Service Engineering Division at McCook Field, near Dayton, Ohio, was much different. Some of the reports that this organization put out were highly complimentary. Of course, with the war over, they could be more objective about the subject and with enough airplanes on hand to do a thorough job of testing, they could really check them out. The Fokkers came through with flying colors on static tests and especially in the reliability and maintenance aspects of the round-trip trans-continental race held at the end of 1919 (1). Some of the war-booty D-VM were given to various U. S. manufacturers for detailed analysis and destructive testing, and it was not long before some of the really advanced features of the design began to show up in U. S. products.

Even the postwar Dutch designs made a good impression on officialdom. General Billy Mitchell's report on his trip to Europe in 1921-22 devoted much space to his visit to the Fokker plant and to an official Dutch Air Force description of the serviceability of the Fokker welded steel tube construction (2). He also managed to arrange for the immediate off-the-shelf purchase of some new models for testing and study in the United States.

While the technical impact of the Fokkers was good, political reaction was something else. With the war over, the market for new military aircraft was extremely small, and the commercial market was non-existent due to the competition of cheap war-surplus military types. Understandably, the industry didn't want to share what little military business was left with a foreigner, especially one who was a very recent enemy. The agitation was enough to stir up action in Congress, and legislation was passed to the effect that the Air Service would not be equipped with foreign aircraft. Mitchell still wanted his Fokkers, however, and was able to get them by using

experimental funds. Even then, the name "Fokker" had to be soft-pedalled when the planes were used in this country.

Tony Fokker himself came to the United States several times in the early 1920s both to demonstrate his products to the military and to set up a New York office for his Dutch factory. Regardless of the pros and cons of the man's abilities as an engineer, the Air Service was not hesitant in acknowledging his genius as a test pilot. Engineer or not, he knew just what had to be done in the balance and rigging areas to get a design to perform properly. When visiting the Naval and Marine air base at Quantico, Virginia in the early 1920s, he was told about a C-1 model that was giving trouble. After trying it out, he told the Engineering Officer to cut the tail off at a certain point and then weld it back on after cutting a short section out. He didn't even take measurements--just said to cut here and there. The work was done as he had suggested and the plane performed much better (J).

Fokker's principal customer for Dutch-built airplanes, in spite of the "Buy American" edict, was the U.S. Army's Air Service. There was also a little business with the Navy, but in the commercial market, where Fokker thought that business should have been best, there was only great disappointment. Although Fokker had bona fide commercial airplane designs that were far ahead of anything the Americans had turned out, he encountered the same problem U. S. manufacturers had faced--competition from the cheap, war surplus types. By the time these old planes began to wear out to the point where a market opened up for new commercial designs, Fokker had established an American factory of his own. He was then ready to compete for a share of not only the commercial market but also the military since he was no longer handicapped by the "foreigner" label.

Most of the war-booty models operated by the Air Service flew under their original German military serial numbers from which the year designation was deleted. For example, Fok D-VII 8323/18 used 8323 for a serial. These numbers were usually low enough to avoid conflict with planes carrying early Signal Corps or Air Service numbers. Postwar purchases were assigned serials where they fitted in with other procurement except that a few D-VII's from the war-booty stock, a C-1 and a D-VIII purchased in Holland were given numbers in a special 94000-series that was some 26000 removed from the highest sequential number assigned in the original series that started in 1909. Only a few Air Service Fokkers were procured from Holland after the "Fiscal Year" serial numbering system was started in 1921. Navy Fokkers, whether transferred from Army stocks or purchased from Holland, were assigned serial numbers in the order of acquisition right along with other Navy assignments. Unfortunately for the historians, there were no requirements for the registration of civil aircraft in this country until the beginning of 1927, so there are no official records from which to determine the numbers and models of the Fokkers imported for civil use. The only oldies that show up in the FAA records are the relatively few that were operating after January 1927.

Each different "Foreign Fokker" model operated in the United States or Canada is described under its own heading on the following pages. No attempt has been made to trace ownership changes or delivery and salvage dates of individual aircraft. Military serial numbers, when available, are presented in the individual write-ups. Part 2, covering American-built Fokker models 1 through 7, will be presented in the Winter issue of the JOURNAL. An index of all U. S. Fokkers by civil registration and military serial number will be presented at the conclusion of Part 3.

FOKKER EINDECKER - The first Fokker known to have come to the United States was an Eindecker, or E-series monoplane, of indeterminate designation. This machine was shipped around for display purposes to raise funds through the War Bond drives. Joe Pfeiffer told the

author of seeing it in 1917 at the Stix, Baer and Fuller department store in St. Louis. It was hanging from the ceiling, and its original fabric was sadly damaged.

The origin of the plane is not known. It may have been supplied by either the French or the British for each had captured several E's. It may have been scrapped out at the end of the war, or returned to Europe, for it does not appear in postwar inventories as some other wartime imports did. If it was sent back to Europe, there is a good chance that it could be the E-III, that is now hanging in the Science Museum in Kensington. Perhaps an interested person can check the past history of that particular machine to find if it had been loaned to the United States.

FOKKER DR-I - Another wartime import was a triplane, the DR-I, which was flown, according to the late Christy McGrath, by a British pilot in company with a Sopwith Camel to re-enact the Death of Richthofen for the Bond drives. No pictures of this particular plane can be found. It may have stayed in this country, for one DR-I shows up in the 1920 Air Service inventory. However, this triplane could have been a second one brought in with the war booty. Although on the inventory at McCook Field, it, like many other interesting German planes on hand, was not photographed nor was a test report written.

The only Fokker triplane data available in the Wright (Ex-McCook) Field data collection was material copied from foreign sources. The last official U. S. record of this DR-I is in a list of planes in storage in 1923 for the aviation museum at McCook Field. Unfortunately, the majority of the stored planes were destroyed before they were ever put on display. Several others were destroyed during WW II when the dead storage space they occupied was needed for more important purposes.

FOKKER D-I - This one may never have been in the country, but it does show up in the 1920 inventory. However, this could well have been a typographical error in which a D-VII had been entered as a D-I. Much greater errors of transcription are in those old records.

Why an example of the D-I, a 120 hp fighter of 1916 vintage, should have been brought to the States is a bit of a mystery at this point in history. There are no records to show whether it came in during 1917 as an example of relatively recent German equipment for technical study, was one of the fund-raising exhibits, or was one of the several hundred war-booty aircraft. It was certainly no great aeronautical milestone. It was strictly a biplane adaptation of the well-established E-series fitted with a 120 hp Mercedes water-cooled engine in place of the usual rotary. The early D's even used the monoplane's wing-warping system of lateral control, although most of them later reverted to ailerons. The D-I found little favor with the German Air Force and there are no documents to indicate that the Allies ever captured one. All contemporary reports in Allied publications are abridged from German or Neutral publications. Similar material is all that could be found in the Wright Field files.

FOKKER D-VI - The D-VI was a biplane adaptation of the well-known triplane, and was developed to overcome the speed disadvantage of the three-winger while using up many of the triplane parts in the existing stock at a time when the triplane was clearly on its way out. The engine, cowling, landing gear and tail surfaces were identical to those of the DR-I, and the fuselage was different only to the degree necessary to accommodate the two-spar lower wing of the D-VI. The biplane wings were essentially short-span D-VII wings since they used the same ribs, ailerons, spar spacing and interplane struts. The D-VI's saw little combat, and served out the war in reserve units and as trainers.

The 1920 inventory lists four Fokker D-VI's on hand in the United States, but again, none seems to have been tested or photographed. The only information in the files at Wright Field is a photostatic copy of a



A Fokker E-I captured by the French and set up in a typical display of captured enemy equipment in the Invalides, Paris. (Photo - Musee de l'Air)



Captured Fokker DR-I tested by the French after being fitted with a 110 hp Le Rhone rotary engine and Nieuport 21 cowl. (Photo - McCook Field 33393)



A Fokker D-I photographed at the factory. The one reported to have been in the United States may only have been listed through a typographical error. (Fokker)



Fokker D-VI at time the Germans changed from curved to straight-sided crosses. There are no photos available of four D-VI's known to have been in U.S. (Adlershof)

short French report on one of the D-VI's that was surrendered to the Allies following the Armistice.

FOKKER D-VII - Although not all of them were flown, the D-VII, the outstanding German fighter of WW I, was the most numerous of all Fokker models in the U. S., either imported or domestic. A total of 142 of them were brought into the States as war booty (4) while approximately another 20 went to Canada. The D-VII's began coming into the country very soon after the war, and some were flown with their original markings in the "Victory Bond" drive of April 1919. At least one, believed to be a factory-converted two-seater, was bought from the Dutch factory in 1921. (2) Today, two survive outside of museums. One, owned until April 1966 by Tallmantz Aviation, is the only currently flyable original Fokker in the country. The other, owned by Jim Mathiesen and Jim Nissen, is undergoing restoration.

Old "U-10", the example in the National Air Museum which was captured by the 95th Pursuit Squadron in the closing days of WW I, has just been completely restored (5) while the Albatros - built version in the Broome County Museum of Knowlton, Quebec, Canada has recently been refurbished.

The D-VII's were as good or better than any production fighters on hand in the postwar years, but in spite of their availability they were not put into service with the active squadrons, although British S.E.5s and French Spad XIII's were. Major military use of the D-VII's was in the role of advanced trainers. The largest number was concentrated at Kelly Field, Texas. Others were scattered among various Army fields, some flying in their original markings as late as 1923. Eleven were on the McCook Field "P" list (6) and there were

others at the Field that were not on the list as the rugged construction of the type and its ready adaptability to using larger powerplants made it an ideal test vehicle for the time. A dozen were to have been transferred to the Navy, and Navy serial numbers A-5843 through A-5854 were assigned. Only the first six were delivered, however, and they were used by the Marines.(7)

Still other D-VII's were distributed to interested manufacturers by the Army. One was assigned to NACA at Langley Field, Virginia, and three were at the Boeing plant in Seattle, Washington. One of the latter, converted to a two-seater, was used by the attached Air Service personnel while the others were torn apart in structural tests. Through such direct inspection, as well as favorable Air Service and NACA technical reports, the D-VII had a very significant effect on subsequent U. S. aircraft designs.

Some D-VII's that the military didn't use passed into the hands of surplus dealers, along with large stocks of German war-booty aircraft engines, and became available to the public. Others were still available from military stocks as late as 1926. The rugged structure, size and easy maintenance features of the D-VII resulted in many being converted to two-seaters to increase their utility in the business world. Many were eventually fitted with a variety of American-built engines such as the Hall-Scott L-6, a six-cylinder in-line type similar to the original Mercedes and B.M.W. equipment, and the Wright-Hispano. These engines were used due to increasing spare part problems with the orphan German engines. Some of the private owners didn't seem to trust the Fokker cantilever construction and chose to install conventional flying wires between their D-VII's wings.

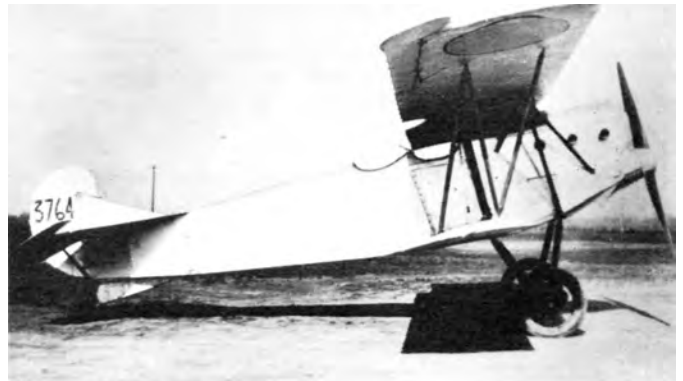
Only 13 D-VII's appeared on the U. S. civil register



Two-seat D-VII, Army serial 94034, with pilot's seat moved forward and experimental Liberty-8. (McCook Field 17989)



D-VII fitted with the 300 hp Packard 1A-1237 engine was one of at least four so modified at McCook Field. Aircraft is serial 8403 with no P-number. (McCook Field)



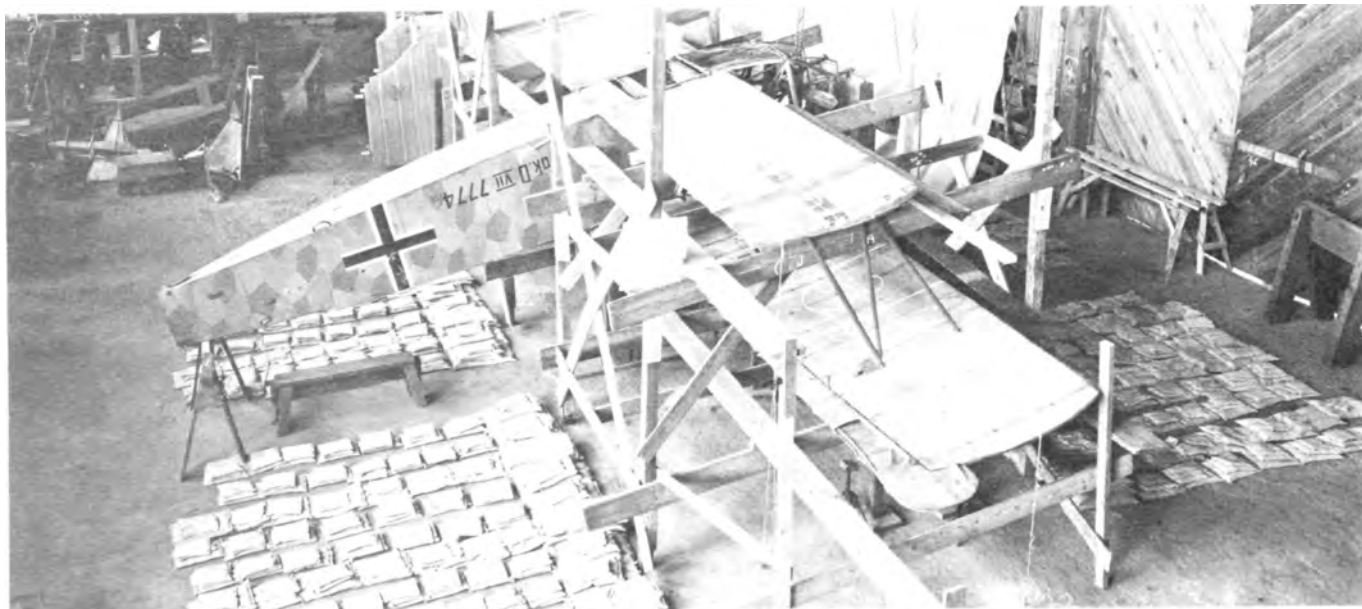
Civil D-VII fitted with two cockpits, Hall-Scott L-6 engine, and S.E.5 tailskid. Emblem on fuselage is that of Beacon Airways. (Photo - Peter M. Bowers Collection)



One of the Hall-Scott powered D-VII's used in "Hell's Angels" is carrying a movie camera for over-the-tail shots. (Photo - Courtesy of Merlin Hannan)



NX-3764, former Beacon Airways two-seater, reconverted to a single seater and fitted with Hisso engine, shown as it appeared for "Men With Wings" in 1938. (Bowers)



Fokker D-VII, 7774/18, while undergoing static testing at McCook Field, Ohio. (Photo - McCook Field Number 4983)

after 1927. The serial numbers, which the data collectors call c/n, or constructor's numbers, to distinguish them from the military serial numbers, are quite confused in the FAA records. Nine of the D-VII's have none at all, one has the five-digit Army serial, two have what could actually be Fokker factory serials, and one has a serial that was obviously dreamed up by the owner to fit a requirement that his plane have one. Nothing is known of the factory serial numbering system applied to the Albatros-built Fokkers. Some of the Albatros versions, incidentally, appear on the 1920 inventory as "Albatros D-VII", an obvious error since the actual Albatros D-VII was a one-only prototype.

The last public appearance of the D-VII in strength was during the shooting of Howard Hughes' epic "Hell's Angels" in 1929. Five started in this and 4 finished. Three of the survivors carried on in the Hollywood Stunt Squadron and were expended until only one was left. This plane, which in pre-"Angels" days had been a two-seater with an in-line engine, ended up as a single-

seater with a Wright-Hispano V-8 engine in it. It is the plane owned until recently by Tallmantz. The other survivor, an L-6-powered version, escaped Hollywood and is now owned by Mathiesen and Nissen. It, too, had been a two-seater with wire-braced wings, apparently fixed up for a duration or distance flight as additional tanks were built into the upper wing.

The apparent number of D-VII's in the U. S. is greater, since there are a few reproductions. One is full scale, built and flown by Ed Brennan of Cleveland, Ohio, and another was constructed by Cole Palen of Old Rheinebeck, New York from Fokker C-II parts.

FOKKER D-VIII/E-V - An indeterminate number of D-VIII's were in the country. Some came in as war booty, apparently old models with the E-V designation, for three appear on the December 19, 1919 inventory as E-V's. These may have been sent to Texas as trainers, for what seem to be the tails of three, with German markings, appear in a long lineup photo taken at Kelly Field. No



Fokker D-VIII being tested at McCook Field, May 20, 1921. Others listed as E-V on 1919 inventory. (McCook 8214)



Fokker D-IX that was later to become the U. S. Air Service PW-6, photographed in Holland. (Photo - Fokker)



D-IX during its early tests in Holland with the landing gear gas tank installed between the wheels. (Fokker)



The Fokker D-XII with the Curtiss D-12 engine installed. This was the first attempt by Anthony Fokker to meet the PW-7 requirements. (Photo - McCook Field 13759)



First PW-7 with original tail, headrest and V-struts. Air Service serial number has been applied to the side of the fuselage but there is no insignia. (Fokker)



Third PW-7 with revised tail shape used on all three. No. 2 also had fabric covered wings and N-struts. (ScottFld)

E-V's or D-VIII's show up in the July 31, 1920 inventory. Two listed as D-VIII's are known to have been at McCook Field after that date. Both had late 1920 or 1921 5-digit serial numbers--64345 with McCook Field P-number 165 © and 94112 with P-number 169. P-165 lasted until 1927, which qualified it as the last rotary-engined airplane in Army service. It was also seen at the 1924 National Air Races which were held in Dayton.

The Mitchell Report states that one D-VIII was purchased from the Dutch Fokker factory without giving the date. The serial numbers assigned to the McCook D-VIII's both in the 64000 and 94000 range, fit right in among other Fokkers purchased abroad in 1921, but one of the numbers must have been a late assignment to one of the war booty planes. The fact that Anthony Fokker could sell the Army planes that it already had, including more D-VII's, certainly confirms the stories of his abilities as salesman. Could he have convinced them that a D-VIII was an entirely different airplane than the earlier E-V, which had been withdrawn from front-line service because of defective wings? The fact that Army pilots used P-165 for racing showed they had confidence in its structural integrity.

FOKKER D-IX (U. S. Army PW-6) - The Fokker background on this one is a little hazy. While developed in Holland in 1921, it carries an earlier Fokker designation than the D-X, a monoplane which the late A. R. Weyl reports as having been built in Germany between the Armistice and the famous exodus to Holland (9). After the war, Fokker adopted the German military airplane designation system for his own models and continued where the wartime numbers left off. His single-seaters continued the German "D" series and the new two-seaters used the established "C" designation.

The D-IX was designed to the order of the U. S. Army in 1921 and Mitchell's report of his visit contains a progress report on it. Only the one aircraft was built. It was given the Air Service designation of PW-6 for Pursuit, Water-cooled, Model 6. Basically, it was an improved D-VII with features of other postwar Fokkers. The most noticeable was the location of the main fuel tank between the wheels. The justification for this was that the flames from a battle-damaged tank would be kept away from the fuselage by the slipstream. Fokker told Mitchell that he had tested this idea by setting the tank on fire in the air and that it had worked. Nothing seems to have been said about the increased hazard of fire following a crash landing. The Army, which had already tried the tank on an existing Fokker design that it had bought as CO-4, rejected the idea early in the flight test program and the PW-6 was delivered without it.

After delivery in June 1922, the D-IX/PW-6 went through official Air Service testing. While it was declared to be a good design, it was not considered to be sufficiently advanced over models then in service to justify further development. With its 300 hp Wright-Hispano, it was better than the similarly-powered Thomas-Morse and Boeing MB-3's and the Curtiss-Orengo D's, but the new generation of fighters then in the planning stage was slated to use the new 375-435 hp Curtiss D-12 engine. The PW-6 stayed around until 1926, when it was scrapped.

FOKKER D-XIII (U. S. Army PW-7) - The Army PW-7 doesn't have a directly equivalent Fokker factory designation. It has been described in contemporary publications as an improved D-XI, but it is actually a considerably different and larger airplane. The D-XIII, a still later design, is the direct derivative of the PW-7 and is the model to which it should be compared.

When ordered in August 1922, the PW-7 didn't exist as an airplane. It was designed to an Air Service requirement for a fighter to be powered with the new Curtiss D-12 engine, a compact V-12 developed from the wartime K-12. Mitchell had been impressed by the existing 300 hp D-XI fighter and thought that a similar design

built around the D-12 would fill the Air Service's needs. The contract was set up with certain incentive and penalty clauses and a wooden mockup of the D-12 engine was to be sent to Fokker (10). This proved to be inaccurate, and Fokker insisted that an actual engine be sent. The Army complied, but only after guarantees were received that full security measures would be taken because the engine was still new and very hush-hush.

The 300 hp D-XI model was a little too small for the D-12 engine, so Fokker's first PW-7 effort for the Army was his slightly larger D-XII model that was then under development. This was unique in being the first thin-wing Fokker since 1916. The original D-XII was powered with the same 300 hp Hispano used in the D-XI but was easily adapted to the larger D-12. The D-12-powered D-XII wouldn't meet the contract requirements, so Fokker rushed through a new design that was in effect an enlarged C-XI. The first of these actual PW-7's, later called XPW-7 when the X-prefix was adopted in 1924, was tested at the factory with a large vertical fin, Army khaki coloring, and the Air Service serial number on the fuselage but no U. S. military markings. (Fokker seemed to have something against U. S. markings, for one reference mentions that he was docked for the cost of McCook Field having to put the markings on. This comment was also made about other Dutch-built Fokkers delivered at this time.)

When the first PW-7 (Serial number 68580, McCook Field P-number 326) was delivered, the tail size had been reduced. This plane had torsionally-stiff wings covered with plywood and used V-struts. The other two (serials 68581 and 68582, P-327 and 378, respectively) had fabric-covered wings and used N-struts.

All three PW-7s were strictly experimental, and were used extensively at McCook. One was used by Lt Jimmie Doolittle to make the first outside loop during a series of tests in which the plane was fitted with recording instruments to check on the stresses encountered during violent aerobatics.

FOKKER C-I - The C-I was developed near the end of the war at the request of the German Air Force, which wanted a fast two-seater that could be produced with D-VII parts and tooling. The order for 70 was not finished by the Armistice. Since Fokker hadn't yet been paid for them, he logically figured that they were still his property and smuggled the whole batch into Holland (9) (11)

So closely did he follow the official request for a D-VII development that the C-I was actually just a stretched D-VII. The fuselage was lengthened only eight inches, additional room for the observer being provided by moving the pilot forward a bit. This cut down on the space available for fuel, so an additional tank was fitted between the wheels (this has been described under



Photographed at Quantico, Virginia this U. S. Navy Fokker C-I shows the landing gear gas tank between wheels and its D-VII radiator. (Photo - U. S. Navy 185553)



U. S. Army Fokker C-I with German L.M.G. 08/15 "Spandau" machine gun installation. (Photo - McCook Field 11796)

D-IX.) The tail surfaces were standard D-VII parts, and the ribs and ailerons were the same only fitted to long-wing spars.

The Army bought one C-I in 1920, and shipped it to McCook Field. The P-list (6) says that this was given Air Service serial number 94034 and P-number 290. However, the photo at the top of page 82 shows that P-290 is very definitely a D-VII. The only known photo of the C-I at McCook (above) was taken too close in to show any number. Other copies of the P-list in the author's file are from a later period and some of the models in the P-250 - 300 range have been dropped. This is a typical problem in this type of research.

The Navy bought three C-I's, assigning them serial numbers A-5887 through A-5889. At least one was stationed at Quantico, Virginia, and was the subject of the tail-cutting story on Page 80.

FOKKER C-II - The C-II was a civil adaptation of the C-I, and was put into limited production in Holland. Principal difference from the C-I was the conversion of the rear cockpit to two seats under a coupe top. Some retained the D-VII/C-I nose radiator while others, notably those powered with the 200 hp British Siddley "Puma" engines, used a longer, oval radiator. Some of the B.M.W.-powered models also used such a radiator.

Several came to the United States and one went to Canada. Four appear on the U. S. civil register as follows:

Registration:	262	C/N:	202
	1532		214
	3190		174
	7552		165

C/n 174 was registered in Canada as G-CAEV on March 1, 1925, and was "Written Off" November 21, 1928 (12). Parts of one that had been stored in the New York area since 1933 were acquired by Cole Palen in the late 1950s and the wings and tail surfaces were used to produce a D-VII reproduction.

FOKKER C-IV (Army CO-4) - The C-IV which resembled an enlarged D-VII with a D-IX rudder, was one of the postwar Fokker developments that impressed Mitchell. He bought the existing prototype "off-the-shelf" and arranged for the purchase of two more to be built to established Air Service specifications. The first one, designated CO-4 for Corps Observation, Model 4, had a 400 hp Liberty engine with a square nose radiator, and had a gas tank between the wheels. After the plane was service tested on a flight from McCook Field to San Diego, San Francisco and return, the nose radiator was removed and replaced by two French Lamblin models located under the belly, and the axle tank was removed (13). The

second Fokker CO-4 had a revised landing gear and vertical tail and was fitted with a round nose radiator. The third was similar to the second except for having two side radiators that retracted into the fuselage to vary the cooling area.

Before the second and third CO-4s were delivered, Mitchell ordered five more with the side radiators of the third prototype. These show up in Air Service records as CO-4 and CO-4A. The prototypes were delivered as plain CO-4 but became known as XCO-4 after the X-for-Experimental prefix was adopted in 1924. One of the CO-4A's, along with a static test article, was delivered to McCook Field, and the others were delivered to Langley Field.

Air Service serial numbers for the CO-4s were:

XCO-4 #1	(P-250)	68557
XCO-4 #2	(P-284)	68565
XCO-4 #3	(P-285)	68566
CO-4A	23-1205 thru 23-1209	
	(23-1209 was P-325)	

FOKKER C-V - There was but one C-V in the U. S. and it is hard to pin down because of confused records. The FAA carries it as a C-IV, Registration 439, c/n 4127, powered with a Rolls-Royce "Eagle" engine. Photos show it carrying the designation C-5 (Arabic figure 5) and a factory-applied American Fokker trademark. Early C-V's (Roman numerals used at the Dutch factory) were virtually indistinguishable from late C-IV's, so it is difficult to tell from the several available photos just what this plane is, especially since it was considerably modified when the photos were taken. However, if it came through the American factory and was painted there, it is logical to assume that the factory put the proper designation on it and that the old FAA records are off by a digit (in calling it a C-IV).

Nothing is known of the early history of this plane or when it came into the country. It has the large wing of the model designated as C-Vc by the factory. Fokker wasn't one for adding letters to identify small sequential variations in his planes. In the C-V series, the letters identified various sizes and shapes of wings, which were interchangeable. Dropping the suffix letter upon importing a Dutch model into the U. S. seemed to be common practice for Fokker; certainly it was widely practiced in the case of the trimotor F-VIIA's.

The C-V was used in the early 1930s by two Seattle area pilots, Bob Wark and Eddie Brown, for an attempt to fly non-stop to Tokyo. After a series of mishaps, during which the original landing gear was wrecked and replaced by one adapted from a Fairchild 71 (14), the flight was called off. The last spectacular activity of the C-IV-cum-5 came when it served as a refueling plane for another Fokker that was trying to fly non-stop from Seattle to Tokyo. That story will be covered in Part 2 under the Fokker "Universal".

The biplane survived until WW II and was set up as an attraction at an eastern Washington filling station. A grass fire destroyed the wings, but the fuselage and engine are still reported to be in existence.

FOKKER F-III - The F-III was an improved version of the F-II, a high-wing cabin transport that had been developed in Germany before the move to Holland. Larger than the F-II but using the same 185 hp B.M.W. engine, the unique feature of the F-III was its engine being off to one side of the fuselage centerline with the pilot sitting along side it, instead of straight behind it as in conventional aircraft. The engine could be offset to the left or right, at the buyer's option.

To Fokker (or Rheinhold Platz, his designer) must go credit for developing the world's first true transport plane that had the welfare of the paying passenger in mind. The type sold well in Europe, where airlines sprang up all over soon after the war, but there was no real market for them in the U. S. Two appear on the civil register, 1891 (c/n 1603) and 2720 (c/n 1600).



Civilian Fokker C-II, a modified C-I with two-seat rear cockpit and a deep oval radiator. (American Fokker 303)



Original form of first Air Service CO-4 (Fokker C-IV), with square nose radiator and axle gas tank. (Fokker)



The first CO-4 after change to French Lamblin radiators and elimination of axle gas tank. (McCook Fld 13754)



Second CO-4 with round nose radiator, different landing gear and new vertical tail shape. (Photo - McCook Fld)



Last of four CO-4A's, 23-1209, delivered with retractable side radiators. (Photo - McCook Field 20247)



Modified Fokker C-Vc, labelled C-5, as prepared for a flight from Seattle to Tokyo. (Bowers Collection)



Fokker F-III with the pilot's cockpit offset to the left. Bert Acosta is seated in cockpit. (American Fokker 309)



Second T-2 as delivered without stars on wings and contemporary Fokker commercial paint job on fuselage. (McCook)



The second Fokker T-2 after it was repainted and converted to an A-2 flying ambulance. (Photo - McCook Field 18460)



First T-2 after conversion at McCook Field for endurance and long-distance flying. The special lettering for the famous distance flights and the striping are in gold over the standard Army khaki-brown finish. (Photo - McCook 14968)



An example of how old photographs get around. Photo of MacReady-Kelly T-2 in flight was taken by the U. S. Air Service. A copy negative and prints were made for Fokker by the Reid Studio of Patterson, N. J. before the American Plant had its own photo facilities. Print was later stamped by General Aviation Manufacturing Corp., then turned up in the files of North American Aviation, one of the successors to General, and was subsequently made available to the author by James J. Sloan.

FOKKER F-IV (Army T-2, A-2) - Another new design that impressed the Army was the giant F-IV, a greatly enlarged F-III powered with the American Liberty engine. It also included the same offset engine design with the pilot sitting to the left of it. Two were contracted for in December 1920 and shipped in March 1922. Both were initially known by the Army as T-2 for Transport Model 2. The first (serial 64233, P-253) was extensively modified at McCook Field in preparation for the famous non-stop Transcontinental flight of May 2-3, 1923. The preparations and an account of the flight are extensively detailed in THE FIRST NONSTOP COAST-TO-COAST FLIGHT (15). Briefly, the modifications added fuel capacity to bring the normal four-hour endurance up to 40 hours. Empty weight increased from 5037 pounds to 6192 (16). Because the new gross weight was to be 10,754 pounds instead of the original 7993, the wing was removed and static tested to a load factor of four. The second plane (serial 64234, P-243) was delivered as a T-2 but was soon converted to a flying ambulance under the designation of A-2.

The famous transcontinental flight and the endurance flights that preceded it came right at the height of the "anti-foreign" feeling, which put the Army on the spot for using a Dutch-built plane to set records. Since it was just about the only design in the world at the time that could do the job, it had to be used. However, the foreign angle was completely squelched in the contemporary publicity. The plane wasn't even publicized as a Fokker but as the "Air Service T-2." The purpose of the flights was not to set records, it was to test the latest versions of the well-established Liberty engine. The suppression of publicity must have hurt Fokker deeply, for he was a genius at milking every last bit of personal publicity out of the accomplishments of his airplanes. However, he was shrewd enough to know which side his bread was buttered on in this case, and went right along with the Army's wishes. How well he did is reflected in Fokker advertising of the time, which handled the T-2 exploits very lightly.

After the flight, T-2 No. 1 ended its flying career on June 1, 1923 but was not dropped from the Army records until February 1924. In 1924 it was sent to the Smithsonian Institution. The other, as A-2, was surveyed in December 1923, but this does not necessarily mean that it was scrapped. It may have ended up in civilian hands, for FAA records list a "Fokker T-2, registration 5763, C/N 6010" with Liberty engine. Since some Fokkers were on the civil register under their factory designa-

tions while others used U. S. military designations, this could have been the T-2/A-2, or it could have been an actual Dutch-built T-II torpedoplane. Several of these were sold to the U. S. Navy, and one could have ended up on the civil register. Just another of the fascinating little puzzles that pop up in this game of aeronautical archaeology.

FOKKER F-VI (V.40 and U. S. Army PW-5) - This is another real puzzle on the Fokker end of the line. While it is a derivative of the D-X and a single-seat fighter type, it never received a D-designation from Fokker. When Mitchell visited the plant, it was called the V.40, and the Army bought two of them as such. However, the designation had already been used by Fokker on a little 35 hp sportplane turned out in Germany after the Armistice. The 10 production models that the Air Service bought were designated PW-5, but Fokker publicity referred to it as the F-VI. This implied that it was a commercial design. It was a contemporary of the F-II thru F-IV, but actually preceded the F-V. There is no evidence that anyone other than the U. S. Air Service was a customer for this particular model.

The two V.40's were bought and delivered early in 1922 (serials 64231 and 64232, P-231 and 232, respectively). The first had plywood covering for the fuselage in the cockpit area, while the second had removable armor from the radiator to one full bay behind the cockpit. Flight test reports were quite enthusiastic about the flying qualities. On one flight, the unarmored one shed its wing during a roll out of the top of a loop (17). Investigation showed that the failure occurred at a



First of two V.40s bought by the Army. This model did not get a D- designation with the other postwar Fokker fighters and was called the F-VI. (McCook Field)



Third from last Fokker PW-5, serial 68554, with engine and cockpit armor removed. (Photo - McCook Fld 16859)



Fokker PW-5, 68554, P-266. Ailerons of the PW-5 extended beyond wing trailing edge, unlike V.40. (McCook Fld 17622)



The Fokker TW-4 which was known at the factory as the S-1 . It was tested at McCook Field as P-245. (McCook 13696)



Fokker T-II used by the U. S. Navy as the FT-1. Letters "HR" on fuselage indicate Hampton Roads. (USNavy 651096)

wingtip and that the resulting flutter finished the job. The wing of the second V.40 was then static tested and found to be understrength to the design requirements. Fokker supplied a new wing that was 70 pounds heavier because of being fitted with stronger spars and a heavier skin. This wing deflected only 60 percent as far under the same loading. This satisfied the Air Service, which then ordered 10 production versions of the V.40 (serials 68547 thru 68556) to Air Service specifications as PW-5. These had the improved wing, a steerable tail skid, full floating axle, equipment improvements and the removable armor feature of V.40 No. 2. At the same time, the Air Service bought two experimental metal frame wings with fabric covering behind the front spar.

The first two PW-5s were delivered bare to McCook Field, where engines and equipment were installed. The remaining eight on the contract were delivered to Selfridge Field, Michigan, for acceptance testing. Considerable evidence of poor workmanship and sub-standard material was found there. Fokker came through with replacement parts, but doubts as to the safety of the planes for normal pursuit squadron operations resulted in an order being issued that all pilots flying the PW-5s would wear parachutes. Following the initial tests at Selfridge, the PW-5s were shipped to Kelly Field for Service testing.

FOKKER S-I (U. S. Army TW-4) - This is still another plane that caught Mitchell's fancy. The Fokker designation for it was quite logical: S-I for "Schulflugzeug." It was unique on two counts--it was a primary trainer with side-by-side seating, which was something new that the Air Service was trying at the time with domestic designs by Dayton-Wright, and it was a monoplane trainer. The powerplant when the Air Service bought it as TW-4 (serial 68576, P-number 245) was the Curtiss OX-5. The prototype, built in Germany just after the war as V.43, was powered with a 75 hp Mercedes and crashed in Holland in October 1921 (9). Whether the S-I and TW-4 was the same airplane rebuilt, or whether another was built is not known. Fokker records do not list customers other than the U. S. Air Service.

Fokker tried the side-by-side seating arrangement on a later trainer, the S-II biplane, but it did not win wide acceptance. The Air Service did not seem to care for it either, ordering only limited numbers of the Dayton-Wright side-by-side aircraft (TA-3, TA-5, TW-3,

TW-5) before reverting to the traditional tandem seating. The TW-4 didn't last long after its delivery in 1922; it was surveyed in November 1923.

FOKKER T-II (U. S. Navy FT-1) - This aircraft was a natural development of the big F-IV adapted to military purposes. Intended as a torpedo-carrying seaplane (the Fokker designation T-II was for "Torpedoflugzeug"), the wing was placed at the bottom of the fuselage to make a convenient anchor for the floats, which were mounted separately without cross-struts so the torpedo could be dropped between them. The U. S. Navy ordered three, with serials A-6008 through A-6010, powered by a Liberty engine. A-6010 was later modified by the Navy and became the FT-2. (Page 82 of the Mitchell Report gives an interesting account of how Fokker, the intuitive test pilot, ordered three feet of the aft fuselage chopped off after he made the first flight in the T-II prototype.)

Under the Navy designating system that had been adopted a year before, the T-II/FT-1's were bought in 1922, and the abbreviation letter assigned to the manufacturer was presented first and the letter designating the type of airplane followed. Thus, FT meant "Fokker Torpedo." If these planes had been ordered a year later, the designation would have been TF-1 for "Torpedo Fokker." The -1 and -2 did not mean models!" and "2" but the first and second configurations of the basic model. An entirely new torpedoplane design ordered from Fokker under the 1923 system would have been T2F-1.

The Navy serial number of the third T-II/FT-1 (FT-2), A-6010, is the same as that given in FAA records as the c/n of the Liberty-engined "Fokker T-2" registered 5763, so it is quite possible that A-6010 did get out of the Navy and onto the civil register.

FOKKER B-III - This is presented last because, as well as being a single model, it is the last of the "Imported" Fokkers other than the F-VII's, which are considered as "American" models. The Fokker B-series was introduced in 1922 and consisted of flying boats and amphibians. It differed from the established Fokker practice in several ways, first by reverting to constant-section untapered wings and in using sheet metal construction for the hulls. In spite of all the water areas in Holland and the rest of Europe, the B's did not catch on. One B-III came to the U. S. late in 1926 and was pur-



Metal-hulled Fokker B-III was civil version of the open cockpit model built for the Dutch Navy. (Amer. Fokker 555)

FOKKER MODEL OR FRGN MIL DESIG.	ALTERNATE DESIGNATION	SPAN	LENGTH	WING AREA	ENGINE & HP	GROSS WEIGHT	HIGH SPEED	REMARKS
"Eindecker"	M-14	31' 2.5"	23' 7.25"	172	Oberursel 100	1340	87	Probably an E-III
DR-I	-	23' 7"	19'	189.5	Oberursel 110	1260	121	German Off. Figures
D-I	M-18	29' 8.5"	18' 8.5"	236	Mercedes 120	1472	93	Fokker (1918)
D-VI	-	25' 2.5"	19' 4.25"	184	Oberursel 110	1282	124	Fokker (1918)
D-VII	-	29' 3.5"	23'	219	Packard V-1237 300	2462	151	Air Service Figures
D-VIII	E-V	27' 7"	19' 4"	108	Oberursel 110	1238	115	Air Service Figures
D-IX	PW-6	29' 6"	23' 3.5"	237.9	Wright Hispano 300	2763	138.5	Air Service Figures
D-XIII	PW-7	38' 4"	23' 11"	250	Curtiss D-12 375	3176	151.1	V-Strut Model
C-I	-	34' 10"	23' 8"	290	BMW 243	2576	112	U. S. Navy Figures
C-II	-	34' 10"	24' 5"	290	BMW 185	2600	112	Harleyford Figures
C-IV	C0-4	39' 6"	29' 8"	410.6	Liberty 400	4505	127.4	C0-4 No. 3
C-V	-	48'	30' 5"	495	Rolls-Royce 360	5500	131	Jane's 1925
F-III	-	52' 6"	33' 10"	452	Siddley Puma 240	4187	105	Jane's 1922
F-IV	T-2 - A-2	79' 8"	49' 1"	958	Liberty 400	5037	100	7-Place A-2
F-VI	V.40 - PW-5	39' 4.5"	26' 1.25"	246.6	Wright Hispano 300	2686	144.5	V.40
S-I	TW-4	41' 8"	29' 2.5"	284.3	Curtiss OX-5 90	1967	85.7	Air Service Figures
T-III	FT-1 - FT-2	65'	51'	830	Liberty 400	7300	104	U. S. Navy Figures
B-III	-	59'	39' 1"	600	Napier "Lion" 450	6810	112	Jane's 1927

chased by a member of the Vanderbilt family. The basic B-III was an open cockpit military reconnaissance model but the civil version, known as the B-IIIC, featured a built-up cabin.

While photos show Vanderbilt's B-III with U. S. civil registration 149, it doesn't show up in the FAA records, which are quite incomplete for those early days, or in a privately-compiled register of the late 1920s (18). The FAA does carry a B-II (which must be a misprint), registration 3996, c/n 900.

FOOTNOTES:

- (1) U.S. Air Service Information Circular, Vol 1, No. 1, February 5, 1920. Report of First Transcontinental Reliability and Endurance Test. October 8 to October 31, 1919.
- (2) Air Service Information Circular, Vol. IV, No 391, November 1, 1922. Report of Inspection Trip to France, Italy, Germany, Holland and England, made during the Winter of 1921-1922.
- (3) Interview with Anton Sulak, Seattle, 1956 and 1966.
- (4) Fahey, James C, U. S. ARMY AIRCRAFT 1908 - 1946, Page 19.
- (5) Cross & Cockade Journal, Volume 5 No. 2, Pages 117-127.
- (6) A.A.H.S. JOURNAL, Vol 1, No 4, Pages 147-157.
- (7) Larkins, William T., U.S.M.C. AIRCRAFT, 1914 - 1959, Page 7.
- (8) U. S. Air Service, Official Test of Fokker Mono-plane D-VIII Equipped with 110 hp Oberursel Engine, reprinted in A.A.H.S. JOURNAL, Vol 1, No 3, Page 82.
- (9) Weyl, A. R., FOKKER, THE CREATIVE YEARS. Putnam 1965.
- (10) PW-7 Project Book, Wright Field Archives (not in USAF Museum).
- (11) Fokker, A.H.G., and Gould, Bruce, THE FLYING DUTCHMAN, 1930.

(12) Register of Canadian Civil Aircraft, 1920 - 1929 from National Aviation Museum, Ottawa, Canada (1964).

(13) U. S. Air Service Technical Bulletin No. 31, December 1922 - January 1923, Pages 4-9.

(14) Interview with Eddie Brown, Seattle, 1957.

(15) Smithsonian Annals of Flight, Vol. 1 No. 1. The First Nonstop Coast-to-Coast Flight and the Historical T-2 Airplane. Louis S. Casey, 1964. U. S. Gov't Printing Office.

(16) U. S. Air Service Technical Bulletin No. 33, March 1923, Pages 4,7-11.

(17) U. S. Air Service Technical Bulletin No. 24, April 1922, et seq.

(18) American Bureau of Aircraft - 1929 Register of Licensed, Temporarily Licensed and Identified Aircraft of the United States.

EDITOR'S NOTE: Pete Bowers, 13826 Des Moines Way So, Seattle, Washington, has been a "Fokker Fan" since 1929 when he was in the fifth grade and had the ambition of working for Mr. Fokker. Subsequent events made this impossible, and he has been an engineer for Boeing since leaving the Army Air Force in 1947.

He wishes to point out that the accumulation of this American Fokker material has been an extra labor of love (among his other collecting subjects) over the past 25 years and it is not yet the complete compilation desired. The work has reached the point where filling the holes comprising the last 5% can take as long as the time expended on the other 95%. Everyone knows Pete strives for the most complete coverage possible, but in this case he has modified his customary goals. Feeling that too much material is being kept out of circulation by authors who won't publish until all holes are filled, and that most now is better than possibly all at an indefinite future date, Pete has released his "95% Fokker Opus" for publication in the JOURNAL beginning here.