



Among the early types to fly from Langley Field was the SE-5 such as this one, perched on the grass field with the airship hangar to be seen just above the fin of the plane. (Photo - Merle Olmsted Collection)

Langley Field 1917 - 1945

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When Major John C. Barthoff, U.S. Army Signal Corps, arrived on the Virginia peninsula, near Hampton, in late June of 1917, he must have found a depressing situation. The "Aviation Experimental Station and Proving Ground", of which he was to be the first commanding officer, had had a series of troubles since its inception in mid-1916. Preparation of the land and construction of facilities for the new station had proceeded in spurts with a great amount of friction and disagreement between the contractors, the engineers and the Army, which was responsible for construction. All this, along with the ever present mud of airfield building, must have left Major Barthoff less than enamored with his new command.

Langley Field, as the station was officially named on 7 August 1917, owed its birth to the National Advisory Committee on Aeronautics. The NACA was first proposed by Dr. Charles Wolcott, secretary of the Smithsonian Institution, but did not become an operating organization until mid-1915 when President Woodrow Wilson signed legislation approving its formation. Its objectives were to conduct research on aeronautical subjects and make the resulting information available to industry, the military services and other interested parties.

During 1916 it was decided that the installation the NACA was to occupy would also serve as a station for Army and Navy experimental work. It was therefore obvious that fairly extensive facilities would be required, and a number of large sites along the eastern seaboard were investigated. Finally, the one near Hampton and Newport News, Virginia was selected.

Into 1917, construction of the new field progressed so slowly that the Army and the Navy tired of waiting

and secured experimental stations elsewhere. For a short period their departure left the NACA as the main party interested in the field. However, when the march of world events plunged a badly prepared United States into a bloody European War in April 1917, the Army renewed its interest in the field and soon began moving aviation units into Langley Field. The first to be assigned was the 5th Aviation School, soon renamed the 119th Aero Squadron. For the next three years, unit arrivals, departures and redesignations took place at an ever increasing tempo.

Major activities at the field during the war were a photo school, organized in November 1917, an aerial photographers and observers school and, a little later, a pilots school. Because of a slow start, however, Langley Field played only a minor, contributing roll in the U.S. World War I air arm. It has been difficult to trace information on types of aircraft assigned to the field during the war, but the few photos available indicate that the majority were the ubiquitous Curtiss JN-4, used in all schools requiring aircraft. It was not until after WW I that the great and interesting variety of machines began to appear.

The physical layout of Langley Field has changed little since its earliest days partly because of its location which finds it surrounded, roughly on two sides, by water. The main gate to the field is reached across a one-half mile bridge and is on the southeast side. From the entrance circle, tree lined Dodd Blvd. leads northeast past the officers quarters, headquarters with the Army hangars just beyond them, and on to the NACA area. This main boulevard was named for a former

post commander, Col. Dodd, who was killed in the crash of a DH-4 in 1919. Along the water's edge was a boat house (still in use today) and a seaplane hangar. Beside them, the original NACA facilities were constructed, including their first, five-foot wind tunnel, built in 1920. Other wind tunnels were constructed in the next 15 years including a full scale unit which would handle single engine aircraft and, in 1935, a high speed tunnel. One of the most famous results of these tunnels was the development of the NACA cowl for radial engines.

Since the late 1920s, continual beautification has made Langley's old section a most attractive area, and many of its shops, hangars, quarters and other buildings have changed little over the last 30 to 40 years. Beyond, the center of the base forms the flying field which was entirely grass until October of 1936, when runway construction began.

On the west side of the field a lighter-than-air (LTA) area was established and an airship hangar built in 1919. For a number of years this hangar housed many different types of captive and free balloons, and airships ranging in size from the Roma on down to the smallest airships of the day. In the twilight of its existence, it was used as an aircraft repair shop, finally being torn down in 1947. Additional officer and NCO quarters were built in this area, and expansion of NACA facilities in 1939 resulted in still further construction in this west area. During WW II, the field expanded to the southwest into what is known as the Shellbank Area.

With the end of World War I, Langley Field absorbed a great many Air Service units, the majority of which

were either disbanded immediately or consolidated with other units as their personnel returned to civilian life. This general re-shuffling continued throughout 1919, but three units which arrived managed to escape the axe and were to become important residents on the Virginia peninsula.

The first of these was the 74th Aero Squadron which came to the base on 17 June 1919. In September it was redesignated the 88th Aero Squadron (Observation), acquiring the designation and battle honors of the 88th Corps Observation Squadron which had been in action in Europe continuously from May 1918 until the Armistice and flew Sopwith 1 1/2 Strutters and later Salmsons with the 3rd Corps Observation Group, AEF. During its two years at Langley it operated DH-4s (as did the majority of Air Service units), and its insignia was a black roughrider astride a bucking bronco with an orange circle background. During the ship bombing trials, the 88th participated as a light bombardment squadron. In October of 1921 its personnel were transferred to the 50th Observation Squadron, and the unit was reassigned to Fort Knox.

The 50th Observation Squadron was another outfit with a distinguished, although short, battle record in France. It arrived back in the U. S. from Europe early in May 1919, and after discharging most of its members at the Aviation Concentration Camp at Garden City, Long Island, it was assigned to Scott Field, Illinois. In October 1919, it was reorganized at Langley and was to remain there until the Spring of 1927 when it would depart for Brooks Field, Texas, taking the 20th Photo Section with it. During its stay at Langley it operated



DeHavilland DH-4 showing the insignia of the 88th Observation Squadron, a black rough rider on an orange circle background. (Photo - Olmsted Collection)



DeHavilland DH-4B of the 50th Observation Squadron following a hard landing. The Squadron had nine of these aircraft in November 1924. (Photo - Olmsted Collection)



One of several Curtiss Jennies assigned to the 50th Observation Squadron in the early 1920s was the Hisso powered A.S. 23532 or 23592. (Photo - Olmsted Collection)



Curtiss JNS Jenny of the 50th Observation Squadron with G-1 target glider fitted to its upper wings during the early part of 1925. (Photo - John Brogan)

primarily with DH-4Bs. In November 1924 it had nine DH-4Bs (six of which were armed and equipped with radio), one Fokker CO-4, an airways DH-4B and two JN-4s. The Jennies were interesting as they were equipped with G-1 target gliders fitted to their upper wings and made a number of successful air launches in early 1925. The Squadron had been partially re-equipped with Douglas O-2s at the time it transferred to Brooks.

Like most other Air Service units, the 50th was badly understrength during the 1920s. The Annual Report of the Chief of Air Service for fiscal 1925 showed it to have eight of its nine authorized pilots, but none of its authorized nine observers. This acute shortage of observers was general throughout the service, only a total of 30 being assigned against an authorized strength of 254 for the eight bombardment, two attack and 14 observation squadrons.

Third unit to arrive during the first year of peace was the 19th Balloon Company which was destined to make Langley its home for 16 years. Although it had been in France, it had arrived too late for action, had returned home, was disbanded and then reorganized at Langley Field on 24 July 1919. Its coming made Langley an important Army LTA center until the march of aviation development rendered the airship obsolete. Although German use of the Zeppelin during WW I had achieved only limited success, both the U. S. Navy and the U. S. Army were convinced that the airship was to be an important military weapon, and the dynamic William "Billy" Mitchell exerted considerable effort in this direction. Even though the Army was denied the opportunity to acquire and operate the big rigids, by an agreement be-

tween the War and Navy Departments, it did concentrate on the small non-rigid ship which had been used quite successfully by the British during the late war.

The Army, however, did acquire one large, long range airship with the purchase of the 410 foot, Italian-built Roma. Delivered to Langley and assembled there in 1921, it made three reasonably successful flights in the fall of that year. The six 450 hp Ansaldo engines proved hopelessly unreliable, however, and it was decided to replace them with Liberty engines as soon as possible. In early December the ship was to fly to Bolling Field for the formal christening ceremony, but on the day scheduled, the weather was quite cold, and although the crews exerted maximum effort, the Ansaldo engines resisted all efforts to get them started. After four hours of strenuous effort four engines were running, but the two aft engines never did start and the operation was cancelled.

On the 21st of December, Roma finally made it to Bolling for the christening, but most of the flight was made with various engines dead. After this flight she remained in her hangar while the Ansaundos were replaced with Liberty engines. The test hop with the new power plants came on 21 February 1922 with the 19th providing the crew for the Roma along with some members of the Airship School Detachment. In all, there was a normal crew of 19 aboard, plus 26 passengers, some of whom were aboard for technical reasons--a large number of non-essential passengers for a major test hop. During the test, the envelop nose cap failed backwards, and Roma plunged into high tension wires near Norfolk. There were only eleven survivors from the crash and fire.



Thomas Morse Scout and a 133-inch long, 1600 pound aerial bomb at the entrance to Langley Field in the early 1920s. (Photo - Olmsted Collection)



Among the many visitors to come to Langley across the years were General Douglas MacArthur [r] and a Curtiss PW-8 of the 17th Pursuit Squadron. (Olmsted Coll.)



SE-5s at Langley were also used to carry small bombs which were attached to the aircraft beneath the fuselage as seen here, 3 June 1921. (Olmsted Collection)



Starting the engine of an SE-5 was a teamwork job although the "team" attending this one is considerably larger than normal. (Photo - Olmsted Collection)



A Douglas O-2, serial number 25-368, in the hangar at Langley on 14 September 1926 and carrying the insignia of the Air Corps Tactical School. (Photo - NACA)



The first production Curtiss P-1 Hawk, serial number 25-411, came to a moment of grief while serving with the ACTS at Langley Field. (Photo - Olmsted Coll.)

Following this tragedy, the Army tried once more with the semi-rigid type, the RS-1. Years of effort and a great deal of money were spent on this ship, but it was a continual disappointment, and its relationship with Langley Field was slight. For the next 13 years the 19th Airship Squadron remained an active part of the Langley family, and its non-rigid airships were a familiar sight along the east coast until the 19th transferred to Sunnyvale, California in November 1935.

With the experience of WW I as a guide, the exponents of air power saw the need for a school to train officers in the efficient use of military aviation. Such a school was authorized by the Secretary of War in July 1920. First called the Air Service Field Officers School, later the Air Service Tactical School and finally the Air Corps Tactical School, it began operation at Langley at the end of October 1920. The School remained at Langley until crowded conditions forced it to be moved to Maxwell Field, Alabama in July 1931. Before its move, it played quite an important role in the tactical development of the service and the proper use of the four branches of the air arm--pursuit, bombardment, observation and attack. At first there was no flying instruction involved as all students were rated pilots. From 1922 on, however, the school had aircraft assigned to it, and many of them carried the school markings, ASTS (later ACTS) in a shield. A photo taken by the 20th Photo Section in May 1923 provides us with an example of the types in use. This "family portrait" includes six DH-4s, one JN-4, four SE-5s, two Spads, a Fokker D-7 and an MB-3. In later years, equipment was the same as used in service squadrons, Curtiss P-1s, Douglas O-2s, etc. As far as is known no bombers were assigned, the school utilizing those of the 2nd Bombardment Group.

In the 10 years of operation at Langley, the Air Corps Tactical School graduated 195 men, nine of whom became generals during the Second World War.

During the years, a fascinating array of aircraft types have operated into and out of Langley Field, and it all began six months after the Armistic. On 10 May 1919 a Liberty Loan rally and aerial circus took place, and some 10,000 people attended even though it rained all day. There were parachute jumps from balloons, and Lt. (later General) Harold George was on hand with a Sopwith Camel to make simulated balloon attacks. He also bombed, with live bombs, a battery of German 77 mm guns. The circus was repeated the following day and another 10,000 people attended. The purchase of a \$1,000 bond allowed the buyer to ride in a balloon or a bomber, and there were twelve such purchases.

In mid-June, another aerial circus and athletic contest was held, and three more Sopwith Camels came down

from the Richmond Supply Depot for the occasion. (There is some doubt that so many Camels were in the U. S. and photos or confirmation is still sought - author.) On this day a tragic accident occurred with an interesting aircraft type. While engaged in mock combat over the base, Ensign Charles Hammon, USN, was killed when he lost control of his red and green Italian Macchi Chasse boat, spun in and crashed in the circle at the base entrance. According to the local newspapers, Hammon was part of a Navy detachment of 130 men at Langley who were conducting some type of experiments with battle-ships.

Probably the best known of all events in Langley history were the spectacular ordnance trials of July 1921, the famed ship bombing trials. The overall story is too well known to repeat here, but some comments on the Langley scene are pertinent.

General Mitchell was determined to prove his points in regard to aircraft and seacraft and made every effort to assemble sufficient strength to prove the superiority of the former over the latter. The 1st and 5th Observation Squadrons from Mitchell Field, New York, and the 49th and 96th Bombardment Squadrons from Kelly Field, Texas, were brought in and added to the 1st Provisional Air Brigade. According to Aviation magazine for that Spring of 1921, there were 20 SE-5s, 40 DH-4s, 21 Martin bombers, 6 Handley Page bombers, 6 Caproni bombers, 20 flying boats and a few airships. Although the strength reports have not come to light, most of those aircraft listed appear to have been present except for the Handley Page and Caproni machines. There were three of the former on hand that took part in the bombing, but only one Caproni has been confirmed, probably serial number 40070 which flew down from McCook on 4 June. As near as can be determined, it took no part in the trials.

The Martin bombers, which were to be the big punch, were brand new and had just come off the production line at Martin's Cleveland plant. By mid-March, two of these MB-2s had been delivered to Langley, some 16 or 18 more being on hand by July. In addition, there was at least one of the old Martin GMB machines available. This was Air Service serial number 64308, an ex-air mail aircraft and one which was to become quite famous in years to come--in 1923, with 49th Bomb Squadron markings, it won its class at the National Air Races at St. Louis and repeated the victory in 1924 at Dayton.

On 10 March, another odd shape was added to the air space over Langley, the one and only LWF Owl. The Langley Field Times for 12 March 1921 noted its arrival by stating that it was the largest plane in the United States and added, "The plane appears to be of equal size to the ill-fated Johns Multiplane except that this outfit actually flies and is not just good to look at." (The unsuccessful, but startling, Johns Multiplane is



During the mid-1920s, two Loening Air Yachts were assigned to Langley Field with the first being serial number 23-6. (Photo - Major Fred Retter)

one of the most elusive of the early aircraft. Its presence at Langley is known, but little else.) Like the Caproni, the Owl apparently took no part in the bombing trials.

During the bombing of the ships, which entailed considerable over water flying, at least three aircraft were lost--a Handley Page which ditched at sea, one of the new MB-2s, and the Army airship D-2. The latter two both made landfall before crashlanding along the shore, and crews of all three survived the crashes.

Unlike most Army air bases, Langley had a long association with flying boats and amphibians. Another part of General Mitchell's air brigade for the bombing trials was the 1st Provisional Surveillance Squadron equipped with F-5-L flying boats. It was used for scouting and, along with the airships, for rescue work. We know, also, that an Army man, Sgt. Biggerstaff, was struck by a propeller when he climbed out of the cockpit during a takeoff run in one of these machines. Although badly injured, he apparently survived. The F-5-Ls of the 1st Provisional Surveillance Squadron are mention-

ed in General Mitchell's report, but these Army F-5-Ls have been very elusive to track down and no photos of them have yet come to light.

Another rare type of flying boat assigned to Langley Field was the Loening Air Yacht, at least two of which were in use during the mid-1920s. These were Air Service serial numbers 23-6 and 24-1, but what their mission was is not known. The Loening COA-1 Spoonbill was fairly common, the first one being delivered on 21 September 1925 by Lt. C. C. McDonald and Grover Loening. In January 1926, Lt. McDonald set four world seaplane records at Langley in one of these COA-1s.

Adding non-aeronautical spice to Langley Field history, and possibly a commentary on Army pay scales of the day, was the daring robbery by two men of the 58th Service Squadron. Heavily armed, Corporals John Wood and James Harvey held up the base finance officer on 30 January 1923 and relieved him of the \$43,000 payroll. Caught within hours, both men were court martialled and sentenced to 10 years in a government prison.

The years between wars saw the dominant role of Langley Field to be in bombardment aviation, and it was surely the cradle, if not the birthplace, of the U. S. heavy bomber. Beginning in 1922, and for 20 years thereafter, the story of Langley and that of the 2nd Bombardment Group are inseparable. The 2nd Group was a descendant of the old 1st Day Bombardment Group of the AEF and arrived at Langley from Kelly Field in June 1922. Composed of the 11th, 20th, 49th and 96th Bomb Squadrons, it absorbed the personnel and aircraft of the 14th Bomb Squadron and was equipped with the new Martin bombers. During most of the 1920s, the 49th Squadron was on detached service at Aberdeen Proving Grounds, Maryland, but returned to its home base in January 1928 to help fill the gap left by the departure of the 11th Squadron. This unit had transferred without aircraft eight months previously to form the core of the new 7th Bomb Group at March Field, California.

The 2nd Bomb Group had had its new Martin bombers less than a year before one was involved in a tragic low altitude collision with a Fokker D-7. It was the 6th of December 1922. A formation of five bombers led by Capt. Benton Doyle in an 11th Squadron machine had



The Fokker D-7 involved in the tragic low altitude collision with a Martin Bomber, 6 December 1922. (Olmsted Coll.)



Curtiss NBS-1, serial 68508, of the 20th Bomb Squadron and carrying McCook Field number P 293. Engine radiators are underslung, in the position used with turbo superchargers, though they are not installed here. (Olmsted Coll.)

just taken off and were climbing out, still at a low altitude. The Fokker D-7 had been landing on an approximately parallel course with the bombers, and the pilot apparently had not seen them until this moment. When he did notice the bomber, he opened up his throttle and took off again, making a climbing turn to the left, across the nose of the Number 2 aircraft, and struck the fuselage of the leading Martin near the wing trailing edge. Both aircraft fell to the ground and burned, killing the five man crew of the bomber and the pilot of the Fokker. Witnesses felt that the fighter pilot had seen only part of the formation of bombers, Capt. Doyle's machine being obscured by his top wing during the climbing turn. The Air Service accident report is unusual in that the name of the Fokker pilot is not mentioned and the serial number of the bomber is not given. Names and serial numbers of the enlisted men of the bomber crew are given, however. From other sources it has been found that the pilot of the D-7 was Major Guy Gearhardt. Another interesting aspect of this accident is the fact that the Fokker appears to have been in its original German paint job, crosses and all, four years after the end of the war.

Another collision, but with a happier ending, took place on 10 May 1926. Two SE-5s collided while engaged in practice attacks on a bomber. Both aircraft were reduced to junk on impact with the ground, but Majors Hickam and Geiger both bailed out successfully. Today, major Air Force bases are named for both men.

Although Langley suffered its share of accidents during those formative years, the accomplishments were also many. The 2nd Bomb Group piled up an impressive list of pioneering flights in bringing about the operational development of the bomber in the United States, and this it did despite being plagued by a serious shortage of personnel, not to mention the need for more

and newer aircraft. At one point in the 1920s, the 2nd Group, although authorized 36 pilots, had but 22 (the 11th Squadron had only 2). The entire Group had only one observer-gunner assigned, and for many years most of the observer cockpits were filled with eager ground crewmen.

In the later Summer of 1922, the non-rigid C-2 from the 19th Airship Company at Langley completed the first airship crossing of the U. S. by flying to Ross Field, California in 67 hours flying time. The C-2 was lost, as a result of high winds while being removed from the hangar at Brooks Field, on the return flight, however, and therefore did not complete the round trip.

A little over a year later a Curtiss-built NBS-1 of the 2nd Bomb Group did complete an 8,000 mile round trip to the west coast. The aircraft was serial 68510, and the crew consisted of Lts. J. F. Whitely and H. D. Smith, and Sergeants Jewell and Widekamp. The aircraft and crew had been on from there across the central portion of the country to Crissey Field, California. Without turbo superchargers, which had been tried with little success, this type of airplane was definitely not a high altitude machine, and the crew found it impossible to climb over some of the 10,000 foot and higher peaks of the Sierra Nevada Mountains and were forced to follow the passes. Flying over Nevada at 200 feet with strong headwinds, they reported that a herd of antelope outran them! Before the successful return flight by the southern route, both engines (and the tailskid) were changed at Rockwell Field.

Throughout the 1920s and in each of his annual reports, the Chief of Air Service/Air Corps stressed the fact that the equipment problem was acute. The 2nd Group is a good illustration of this. The heavy attrition rate reduced its aircraft strength to the point



This Curtiss NBS-1, serial 68516, carries the 2nd Bomb Group insignia on its nose. (Photo - Olmsted Coll.)



Martin Bomber of the 11th Bomb Squadron at St. Louis for National Air Races, 1923, with cowl and spinners.



Huff Daland LB-1 of the 11th Bomb Squadron during its short service life, 1925-1926. (Olmsted Collection)



Keystone B-6A, aircraft 182, of the 49th Bomb Squadron during the mid-1930s. (Photo - Bob Esposito Coll.)

where even the personnel problem was not so important. At the end of fiscal 1927, the Group had only 11 NBS-1s remaining (the 49th Squadron had three more at Aberdeen). Keystone bombers, soon to arrive, weren't much of a step forward, but it's a safe bet that they received a hearty welcome when they began to arrive in that golden year of 1927. The re-equipment had actually begun in the Summer of 1926 when eight (later another) Huff Daland single engine LB-1s were issued to the 11th Squadron for service testing. They were found to be structurally weak, and in October, five civilians from McCook Field and a company representative met to consider changes. Testing was resumed in December with a limited bomb load and continued until the departure of the 11th Squadron in May 1927. Detailed results of the service test are not known, but no more LB-1s were procured and the others were withdrawn from service.

During 1927 Huff Daland became Keystone, and in the Spring of that year the first Keystone XLB-5, serial number 26-208, came to Langley and the 2nd Group. Its life was short, however, and its end violent. While in flight near Columbus, Ohio on 27 May 1927 a propeller shattered forcing the crew to bail out, but Pvt. D. L. Yeager of the 20th Squadron did not clear the plane in time and was killed in the crash. One of those who jumped successfully was Major (later General) Lewis H. Brereton, and his name is to be found in the records of the 2nd Group over a period of many years.

It was September before production LB-5s and LB-5As began to arrive. A comparison test in November showed only marginal performance improvement over the NBS-1, and re-equipment proceeded slowly. At the end of May 1928, the 49th Squadron still had NBS-1s, but it is fairly certain that transition to Keystones was completed in that year.

Various models of the biplane Keystone comprised

the 2nd Group's equipment for the next seven years, and flying, training and life in general, proceeded much the same as it had during the earlier years with MB-2s and NBS-1s. No significant operational changes took place or were possible due to the similarity of performance between the new and old planes. Soon after receiving LB-5s, however, the Group had the rare peacetime opportunity to bomb a real target, not just a bullseye on a bombing range. Across the Pee Dee River in southern North Carolina there was a long highway bridge slated for demolition, and the Group used its new Keystones to knock it down, thereby saving the state a considerable part of the demolition cost.

As usual, during the first half of the 1930s, the amount of training was somewhat restricted by the ever present economy waves which sometimes caused shortages of gasoline, ammunition and other equipment. During fiscal 1936, the last year of the biplane bomber, and the first year of the monoplane bomber, the 2nd Group expended less than 250,000 rounds of .30 caliber ammunition on moving targets. Broken down per gun and per gunner, it was certainly an inadequate amount and, as might be expected, a gunnery test at the end of this period showed quite poor scores.

Since the inception of the Army air arm, considerable difficulties had been encountered in determining just who should control aviation combat units--air officers or area ground officers. This resulted in much inefficiency and friction, and on 1 March 1935 the General Headquarters Air Force (GHQ AF) was formed in an effort to overcome these difficulties and to create a mobile and more efficient striking force. Its headquarters were at Langley and it was composed of three combat wings, each a balanced force of pursuit, attack, bombardment and observation units. The 1st Wing was at March Field, California, the 3rd Wing at Barksdale Field,



Martin B-10 of the 2nd Bomb Group in blue and white camouflage at Langley during Summer of 1937. (J. R. Pritchard)

Louisiana, and the 2nd Wing was at Langley. Units of the 2nd Wing were the 2nd and 9th Bomb Groups, 1st and 8th Pursuit Groups, the 18th and 21st Observation Squadrons (long range, amphibious), the 41st Observation Squadron (long range, light bomb) and the 37th Attack Squadron. Actually based at Langley were the 2nd Bomb Group, 8th Pursuit Group with 37th Attack Squadron, and at least one of the observation squadrons (probably the 18th which later became the 18th Reconnaissance Squadron). Other 2nd Wing bases were Mitchell Field, New York (9th Bomb Group) and Selfridge Field, Michigan (1st Pursuit Group).

Formation of the GHQ AF coincided roughly with the arrival of new aircraft for the 2nd Bomb Group. Late in 1935, after the Army had proven beyond any doubt that it had reached the end of the line on the biplane bomber, the aging Keystones began to pass from the scene. The fast, new Martin B-10s were their replacements, and they were on hand for the Winter maneuvers of January 1936 at Concord, New Hampshire. Soon after the arrival of the B-10s, the 2nd Group began to strike out on long range formation flights which attracted a great deal of attention in the press. However, only a year later the new darling of the Air Corps, the immortal Boeing B-17, thundered onto the scene as some 10 of these heavy bombers joined the Group, and little more was heard of the

B-10 thereafter. The coming of the B-17s affected runway construction, begun in October 1936, and a great deal of difficulty was encountered in finding a surface that would hold the weight of the new bomber--concrete runways and taxiways were not laid until 1941.

After fifteen years of riding in open cockpits in 100 mph biplanes, the leap forward in performance (and comfort) for the 2nd's crews must have been difficult to believe. With the delivery of the YB-17s (and the XB-15 to the 49th Squadron in 1938), the Group flew at least six missions into various parts of South America in the late 1930s plus many other special projects. The South American flights were all goodwill or mercy flights, such as that to Buenos Aires in February 1938 by six B-17s for the presidential inauguration there, and all provided excellent crew training, not to mention the garnering of publicity which convinced the U. S. public, right or wrong, that the B-17 was the wonder of the century.

The 2nd Bomb Group received the Mackey Trophy in 1938 and 1939 for its long range, special operations. However, these special projects were always superimposed on the unit's regular training mission, which was bound to, and did, suffer.

During the Spring of 1938, Langley Field bombers were again involved with ships which, as in 1921, caus-



One of the original Flying Fortresses, Boeing B-17 of the 96th Bomb Squadron, 2nd Group, 24 Mar 1938. (NACA)



The only Boeing XB-15, at Langley on 13 September 1938 and assigned to the 2nd's 49th Bomb Squadron. (NACA)

ed another flareup with the Navy. During the GHQ maneuvers in May 1938, three B-17s of the 49th Bomb Squadron searched for and intercepted the Italian liner Rex while it was still over 700 miles out to sea from New York. The Navy felt that long range search at sea was its mission, not that of the Army, and this episode is said to have resulted in the agreement that limited Army aircraft to the performance of their duties within 100 miles of the coast.

Although Langley was best known as a bomber base, a pursuit group was formed there in the early 1930s. The 8th Pursuit Group was activated on 1 April 1931 but remained a skeleton organization until late in June 1932 when the 33rd and 35th Pursuit Squadrons were activated and the 36th Pursuit Squadron was transferred from Selfridge Field. In September 1933, the Group received a fourth unit with the addition of the 37th Pursuit Squadron.

During the eight years it was to serve at Langley, the 8th Group was equipped with nearly every type of pursuit the Army owned during the 1930 era. Boeing P-12s were standard at first, including the P-12K model for which the Group did the service testing. Later there were some P-6Es, in 1935 the Group equipped with Consolidated PB-2As and then added some Curtiss P-36As at the end of the '30s as the days of crisis approached. In the Fall of 1937, Lt. Col. Hugh Knerr of the 2nd Wing gave a candid estimate of the ability of each of Langley's units to carry out its duties in case of war. It was a rather dismal picture, the PB-2A equipped 8th possibly faring the best. In a classic statement, Col. Knerr said the 8th Group was "in fair shape and would do all right if left alone."

In the Fall of 1940, most of the 13 Curtiss P-37s were assigned to the 8th, probably on service test. A short time later, the superior Curtiss P-40s began to arrive and the P-37 soon disappeared from operational service. The group was entirely equipped with P-40s when it was transferred to Mitchel Field in November 1940 with its 33rd, 35th and 36th Squadrons.

The 37th Squadron had enjoyed a checkered career. With formation of the GHQ AF in 1935 there were no attack units available for either the 1st Wing (west coast) or the 2nd Wing. The Air Corps' only attack group, the 3rd, was to form the core of the 3rd Wing at Barksdale Field, so new attack units were needed for the other two wings. For the 2nd Wing, the 37th was redesignated as the 37th Attack Squadron in March 1935 but remained attached to the 8th Pursuit Group. For its first several months the Squadron appears to have been equipped with the Curtiss P-60, a comparatively rare type with high altitude turbo supercharger and frequent fuel system troubles. During May 1935, four Curtiss A-8s arrived for the Squadron, to be followed by five more in the next three months, plus a single Curtiss A-12

which arrived in May 1935. In August 1936, the Squadron re-equipped with Northrop A-17s (which at one time were hangared in the large balloon hangar) and later A-17As.

Other than normal training flights, the 37th carried out many chemical and smoke laying demonstrations at Army bases along the east coast, disposing of over 26,000 pounds of chemicals in fiscal 1936 alone. If surviving inspection reports are a true indication, the 37th Squadron was seldom up to full strength in aircraft or personnel. On 31 January 1938, after less than three years of service, it was deactivated and became another part of Langley Field's past.

When war came to the United States in December 1941, Langley Field was still primarily in the bomber business, as it had been since 1921, with the 2nd Bomb Group and the 3rd Reconnaissance Squadron as the main tactical units. Both of these outfits began flying maritime patrols on 8 December. However, these early missions were very much patchwork affairs, and it was not for several weeks that an operational pattern began to evolve when two patrols a day were being flown, usually by three aircraft each. Gone now was the 100 mile limit of the late '30s, but even so, these operations remained largely ineffective with the few B-17s patrolling to a radius of 600 miles and the Douglas B-18s and some B-25s handling short range missions.

Langley Field's activities during WW II can be divided broadly into two phases, the first running from December 1941 until September 1943. During this period the mission was that of anti-submarine patrol, training of crews in this specialty, and the development and testing of weapons and tactics needed to kill U-boats. In September 1943, the Navy took over responsibility for all anti-submarine warfare (ASW), and the second phase of Langley's activities began, research and training in the use of radar bombing techniques. It continued, on an ever expanding scale, until the end of the war.

The full story of the U. S. anti-submarine effort in WW II is beyond the scope of this piece, but since Langley Field was closely tied to the effort, a few words on the subject are in order. Although German use of the U-boat in WW I, and its future potential were equally clear in the first two years of WW II, the U. S. efforts to counter this well known threat were scant. The damaging Army/Navy rivalry of the interwar years had restricted Army aviation to land areas and to a narrow band of water along our coasts, and consequently the Army air arm was not equipped or trained to conduct operations against enemy submarines with any chance of success. Even worse, the Navy, which had felt that over-water aviation was their responsibility alone, was totally unable to counter the submarine menace that developed along the U. S. Atlantic coast when war finally came. Heavily engaged in the Pacific, the Navy was able to maintain only 20 surface vessels in the area, a num-



Curtiss P-60, 29-366, 37th Attack Squadron, crashed at Langley on 11 July 1935. (USAF from Bob Cavanagh Coll.)



Consolidated PB-2A of the 33rd Pursuit Squadron of the 8th Pursuit Group at Langley during the late 1930s.

ber inadequate for the job.

Naval air in the area was also unequal to the task, and the Army, therefore, was compelled to provide what forces it could to assist in anti-submarine work. Although some of the Army aircraft were better suited to the mission, especially the long range B-17s, their numbers were small, training for the job had been non-existent, and there were no depth charges or detection devices available.

Throughout 1942 and most of 1943 serious differences of opinion between the Army and the Navy regarding tactics and control delayed any real progress toward effective cooperation between the two services. The almost complete disagreement between Army Air Force head, General H. H. Arnold and the Chief of Naval Operations, Admiral E. J. King, also hampered the solution, and U.S. efforts against enemy U-boats did not prove as successful as those of RAF Coastal Command when it had been confronted by the same situation two years earlier. However, two Army anti-submarine groups, the 479th and 480th (some of whose squadrons had originated at and been trained at Langley Field), had considerable success operating with the British in the Bay of Biscay.

Until November 1942, the 2nd Bomb Group's submarine patrols were all flown as part of 1st Bomber Command, a descendant of the GHQ AF, and were under operational control of the Navy. Sightings and attacks were few and no subs were sunk, but the patrolling no doubt contributed to the U-boats "keeping their heads down" with a resultant loss in efficiency. In October of 1942, the 1st Bomber Command was inactivated and the Army Air Force's Anti-submarine Command was formed to take its place. Soon after, a paper transfer removed the 2nd Bomb Group from the Langley scene. After being a part of the peninsula family for 20 years, the 2nd exchanged designations with the 304th Bomb Group at Ephrata, Washington on 29 October 1942. The 304th's existence was very short, however, as it was deactivated at Langley the following month, its squadrons becoming the 1st, 18th and 19th Anti-submarine Squadrons of the 25th Anti-submarine Wing. After training and equipping, the 1st and 19th soon departed for England and Newfoundland. The 18th remained at Langley as an Operational Training Unit, training often being done in conjunction with actual patrols.

Even though it was overshadowed by its beautiful stablemate, the B-17, the versatility of the Consolidated B-24 had been recognized early, and its suitability for long range operations recommended it for ASW work. As a result of its versatility there were never enough to go around in the early days, and everyone wanted B-24s, each thinking his mission was the most vital, be it bombardment, recon, transport or maritime patrol. The Anti-submarine Command received its first B-24 in September 1942 and as others became available, replaced the less suitable types. In October, the Command had 148 aircraft at its bases along the Atlantic coast, but only three were B-24s, and there were 12 B-17s.

In December of that same year, the 3rd Sea Search Attack Squadron (SSA Sqdn) was formed to begin testing and modification of the B-24. This squadron was part of the 1st Sea Search Attack Group which had formed at Langley in June 1942. Its other unit, the 2nd SSA Sqdn was a tactical outfit equipped with Douglas B-18s. Before the B-24 became available in quantity, the aging B-18s had played an important part in U-boat patrols, ten of these aircraft being fitted with pre-production sets of the 10 cm radar units. Secretary of War, Henry L. Stimson is said to have flown a patrol in one of these aircraft and was an enthusiastic supporter of airborne radar.

In the Fall of 1942 and Spring of 1943, the 1st SSA Group maintained a number of RB-18s, and two B-24Ds in the Key West, Florida area where they conducted extensive tests with various types of ASW equipment. The RB-18s were fitted with Mk. IV Magnetic Anomaly Detection sets (MAD), and had retro-bomb racks under their wings

which fired the bombs backward in a pattern. The RB-18s did the bulk of the testing as the B-24s were not as extensively equipped. The USN submarine S-15 was assigned as the target sub throughout the tests, and although there were about nine RB-18s on hand, five of them did the majority of the testing (serial numbers 37-470, 37-538, 37-561, 37-593 and 38-590).

Besides its ASW research, the 1st SSA Group flew almost 1500 hours of patrol during its life of less than a year, sinking two subs and probably sinking three more. An interesting example of the combined training/operational concept took place on 28 May 1943 when a B-24 crew under Lt. J. M. Vivian, having had only one week of training, depth charged a U-boat only three miles off Cape Hatteras and was credited with a probable kill.

By the Fall of 1942 the submarine activity along the east coast had been greatly curtailed as German Admiral Doenitz moved his U-boats to other waters. The decline in submarine activity took place about the same time the Langley units were beginning to acquire the proper equipment and know-how, and was responsible for the units' low number of successes over enemy U-boats.

When the Summer of 1943 rolled around it appeared certain that no workable solution could be found to the differences in operational opinion between the Army and the Navy, and by mutual agreement, the Navy took all responsibility for ASW, while the Army concentrated on long range, strategic bombing. A mutual exchange of Liberators also took place, the Army ASW aircraft being exchanged for the bombers the Navy had accumulated. On 31 August the Army Anti-submarine Command passed out of existence and became, once more, 1st Bomber Command. The 18th Squadron remained at Langley but was assigned to the 1st SSA Group to conduct training on radar equipment, and thus Langley Field passed into its second phase of WW II activities.

As we have seen, airborne radar had been installed in a few RB-18s in 1942, but training in this relatively new science increased rapidly after Langley went out of the ASW business and so became the major mission of the base. In the summer of 1943, the 3rd SSA Sqdn furnished personnel and equipment to form a unit of ten B-24s which trained in low altitude radar bombing and left in August for the Pacific. Two other similar outfits were formed and sent to the Pacific before the end of the war. During 1944 and the first half of 1945, training in both high and low altitude radar bombing was intensified, and the base also served as a staging area for radar equipped bombers enroute overseas.

In April 1944 came the first of the confusing and morale destroying changes, the type that is still with us today. Gone now were the colorful designations such as "Sea Search Attack Group", and in September 1944 the Eastern Technical Training Command took over and the main unit became the 3539th AAF Base Unit (Technical School). It remained such until a B-29 and a mushroom-shaped cloud 8000 miles away changed the world and launched Langley Field into its next era.

AUTHOR'S ACKNOWLEDGMENT AND SOURCES: For their assistance on this article, I would like to thank Mr. Ben Goldman of the Langley AFB Historical Office who made available many of the old reports and records covering Langley's past, and Mr. J. Raymond Pritchard who, as a boy, was a "watcher" at Langley in the 1930s and later an NACA employee, and whose comments and suggestions were a great deal of help. Important sources for this work were: "Brief History of Langley Field", USAF Historical Division, 1957; "Langley Field History", Historical Office, Langley AFB, 1945; Chief of Air Service, Annual Reports; Langley Field Times, 12 March 1921; Diary of Events, various years, Historical Office, Langley AFB; U. S. Air Service Accident Reports; THE ARMY AIR FORCES IN WW 2, Univ. of Chicago Press; and various reports and records in the Langley AFB Historical Office.