



Vickers Armstrong Assembly Plant Byley – 1941 to 1944





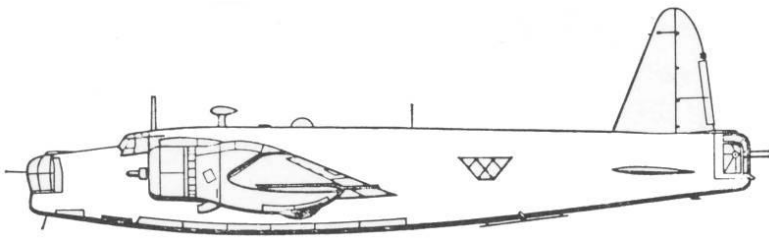
Vickers – Armstrong's LTD. Broughton and Byley Factories

- In November 1935 the government decided to create a “shadow” aircraft industry. They would finance the construction of new factories , which would then be run and managed by existing firms .
- Land was requisitioned at Broughton near Hawarden to build a factory and a new airfield from which the completed aircraft could be test flown.
- Construction of the Vickers plant at Broughton began in November 1937 and the new factory was fully operational in September 1939.
- The first Broughton contract was for 20 Wellington bombers to be delivered for service between August 1939 and May 1940. This was followed by 80 Wellington MK.1c which were delivered April – June 1940. Some 1,668 of this Mark were assembled Broughton . The other shadow Factory for Wellington's for Vickers was at Squires Gate near Blackpool . By September 1940 the Factories at Weybridge , Blackpool and Broughton were 134 months .
- The Blackpool factory was to build to manufacture the complete aircraft , while Broughton assembled rather than manufactured , using parts made by sub-contractors
- In addition to Broughton another assembly factory was constructed at Byley near Middlewich and linked to the nearby RAF Cranage airfield by a taxi way.
- The Byley factory had a floor area 80,000 sq ft and was constructed in a period of six months with production starting in September 1941 with the first aircraft flown in December 1941,
- By the end of September 1943 the number working between Broughton and Byley was 7,046.
- 68% of employees were female



Wellington Bomber MarkX

Image



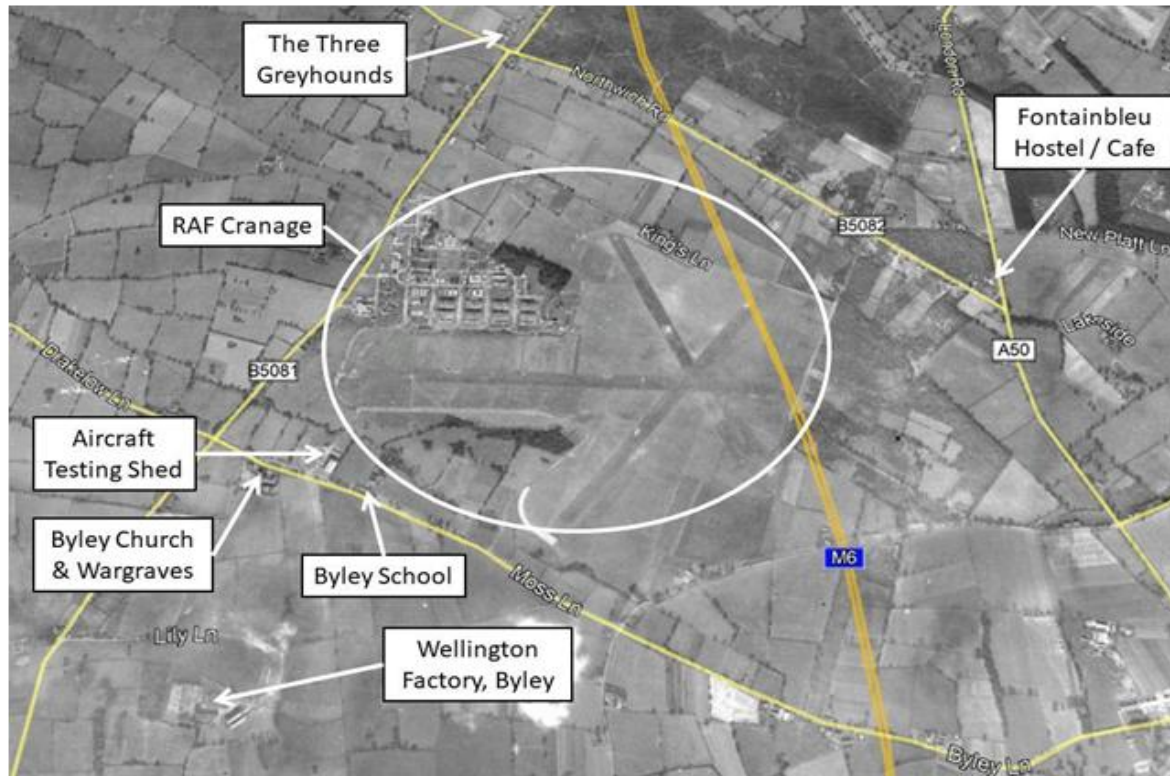
Details

- Dimensions 61ft 10in
- Wingspan 86ft 5ins
- Height 17ft 5ins
- Bomb load 4000lb
- Speed 235 mph
- Powered by Bristol Hercules X1 1675HPx2
- 3803 Mark X built



Location

- RAF Cranage
- VA Assembly Factory





RAF Cranage 1939 - 1958

1939 1940 1941 1942 1943 1944 1945 1946 1947 1948 1949 1950 1951 1952 1953 1954 1955 1956 1957 1958

| Groundworks starts on the airfield

|—| No.5 Flying Training School

|—| No.2 School of Air Navigation

|—| No.96 Squadron

|—| No.2 S.o.A.N. renamed as Central Navigation School [C.N.S.]

|—| 1531 Beam Approach Training Flight

|—| Repair & Inspection Squadron, Service Wing

|—| 14th Liaison Squadron, 9th U.S.A.F.

|—| No.190 Gliding School

|—| No.4 Aircrew Holding Unit

|—| No.61 Maintenance Unit

No.20 Personnel Transit Camp |—|

620th. Engineers U.S. Army |—|

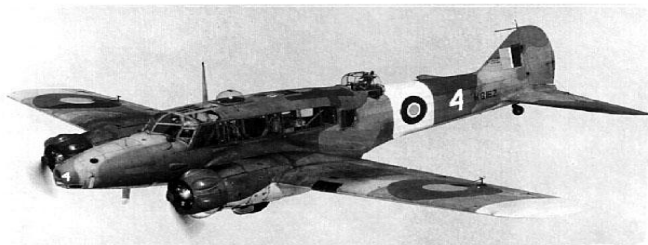
No.1 Motor Transport Squadron (Maintenance) |—|

R.A.F. Cranage closes |



RAF Cranage

Examples of operational aircraft used



Period Used

- Hawker Hurricane
- At R.A.F. Cranage 1940 - 1941
- 12 March, Merseyside is attacked by 486 aircraft of Luftflotte 2 & 316. 303 tons of high explosive bombs, 1,982 incendiaries and 60 parachute mines are dropped throughout the night. Over 600 people are killed with nearly as many injured. Sgt. Robin McNair from No.96 Squadron was on patrol over Birkenhead in Hurricane V7752 when he spots Heinkel He.111P-4 No.2989 ahead of him. Coming up from the lower rear of the German plane he closed to around 75 yards before firing two 4 second bursts causing both of the Heinkel engines to fail. He follows the plane down to 3000 ft before pulling away to avoid the barrage balloon cables. This is the first confirmed 'Kill' for No.96 Squadron.
- Avro Anson School of Air Navigation 1940 to 1942



RAF Cranage

Examples of operational aircraft used



- Boulton Paul Defiant 96 Sqd 1940 – 1941
- Fl. Off. Victor Verity attacks Ju.88A-6 over mid-Cheshire just before midnight. When the port engine of the Junkers is in fire the pilot orders the crew to bale out. Two of the crew, pilot Lt. H. Glaenzinger and wireless operator Ufz. G. Harmgart are killed, one as a result of chute failure and the other as a result of not fastening his harness. The engineer, Feldwebel H. Richter lands safely and is taken prisoner when he enters a farm building and comes face to face with the farmer and his farm hands. The observer and co-pilot Feldwebel (Sergeant) Hans Stettwieser also survives and after leaving the burning aircraft, damaging his knee in the process, he lands in a river [this could have been the Dane, the Weaver or even the Wincham Brook] and is captured by the Wincham Home Guard. The Junkers finally crashes in a field at Park Farm, Lostock Green. Fl. Off. Verity claims this as a 'Kill' for No.96 Squadron, the first using a Defiant.





Women In Work

In March 17th March 1941 the then Minister of labour , Ernest Bevin , urged 100,000 women to step forward and volunteer for filling vital jobs in industry and the auxiliary services

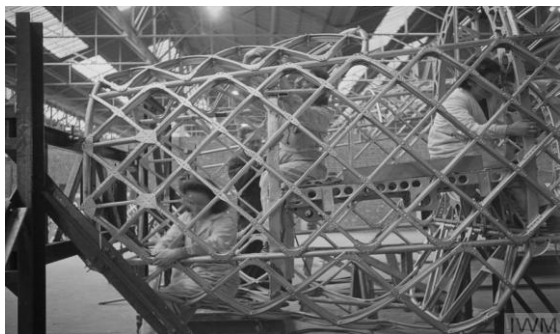
Registration of 20 to 21 year old women would begin in April 1941 . By December 2 , 1941 unmarried women between were called . Up to 1,700,000 women were involved in government 's new conscription plans, with the registration of women both married and single . Girls 16 to 18 also registered.

**Vickers- Armstrong LTD Broughton / Byley built 5,548 aircraft out which 60% were female .
Production of Wellington Bomber stopped in October in 1945 in Broughton . Production at Byley stopped at the end of October 1944.**



Women at Work

Geodetic section

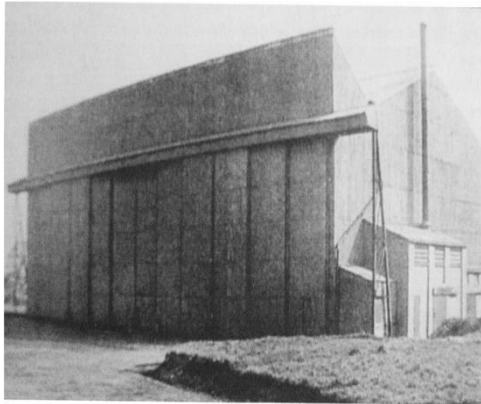


- **Joan Sullivan** aged 22 in 1942 worked at the **finished parts department**. She travelled daily by the North Western Bus Company from Northwich to Middlewich working from 8;00 to 6:00 with one hour . Saturday mornings were part of the working week
- **Marjorie Maddock** and at 18 she worked at the VA Broughton factory . In 1943 Marjorie moved to the Byley site working at the **fuselage assembly section** starting at the starting point of the assembly line where she bolted together the floating spar centre section of the fuselage, ready to accept the wing and tail section. She left when product stopped at the end of 1944 .
- **Dorothy Woods** lived in Middlewich and when she was 18 started work war at VA Byley at the assembly line . One of Dorothy's jobs was fitting long wooden strips to the Geodetic panels of the fuselage , wing and tail. **She was part of the carpentry section** . The aircraft used aluminium section, wire , wood and linen in the final airframe structure
- **Ellen Bagshaw** stated working the VA Factory at aged 18 in 1941. She Travelled by coach from Northwich . Ellen worked on the **Fabric and Sewing Section** using Irish linen which included other insulation materials on various pipes within the aircraft. Sometimes she cycled to Vickers from her home at Wincham . Her job was also to apply dope on the fabric and as the resin dried stretched the fabric over the wing frames tight



Women at Work - The Final finish Section

(This was commonly the “flight shed” and was located between Byley School and the church some 700yds north of the VA factory.)



Enid Jackson [

Started working at the VA factory the summer of 1941 until production stopped in October 1944

- The final finish section could accommodate two complete aircraft. Engine tests and final checks were carried out
- Enid had to work with crape soled sandals so not to damage the dope covered Irish linen surface areas, she would walk on top of the wings, fuselage and tail areas.
- If testing delayed one of the aircraft it was moved outside of the shed and was worked so that the next aircraft in line could continue final checks
- Enid worked in all weathers and at times had to work longer hours so that the aircraft was ready for final flight. It was important that the free flow of aircraft through the flight shed continued, preventing hold-ups regardless of the weather
- Enid also had to camouflage painting around the engines at the end of final checks
- When production at Byley finished in 1944 Enid moved to the VA factory at Broughton working on Lancaster bombers



Women in Work - Ascilla Bickerton

Farmers daughter Ascilla Bickerton, talks about her experience working at the Vickers Armstrong Wellington Assembly Factory at Byley.

In the summer of 1942 I left **school at the age of 14. Within weeks I started work at Vickers-Armstrongs** Assembly Factory at Byley, this was approximately one mile from my home, Pear Tree Farm. I cycled to work which started at **8am finishing at 5-30pm until I was fifteen, then it was 6-30pm**. My starting wage was £1-8-0d*, increasing to £1-10-0d* on my 15th birthday.

I worked in the Drawing Office, this was really a Drawing Store of all the plans to assemble the Wellington bomber, the masters were drawn up or updated at the Broughton Factory, a car brought daily news and amended drawings to us. My job was to fold, in a special way, number and record receiving them using a card index system, if a drawing was taken out on the shop floor the foreman had to sign for it. When a new one came in I had to take these drawings to the foreman and make sure I collected the old ones to be shredded. There were hundreds of drawings filed in number order in racks, Bosses and Foremen came daily to look up something, sometimes leaving a real mess for me to tidy up, we had a ten minute break mid-morning and afternoon, a canteen was provided; I mostly cycled home for lunch. **We assembled approximately two bombers per week which were towed across two fields to the Flight Shed near Byley School, they were given a final check, after which a Test Pilot would fly them two or three times, when satisfied they were flown to the required R.A.F. Stations.** I was always interested in all stages of assembly, from the nearly empty Jigs to the testing of engines and final spraying of camouflage before they left the factory, as one more Wellington bomber.

I had to leave on Doctors orders after about two and a half years of interesting work.



Transporting from Broughton to Byley via Middlewich

The sub – assemblies were delivered from Chester to Byley via Middlewich . The streets were narrow and the railings at the church had to be removed

The wing sections , fuselage sections and tail fins were loaded. Linen martial , wood , wire also need.

Engines , turrets , undercarriages all need transporting

All the drawings were delivered every day by car and there and over the period there were 7 variant of bombers , 5 costal command variants , 4 training variants and 2 types of transport types.

It was common for the workers who walked to work were picked up by the “Queen Mary” on the way

- Queen Mary lorry low loaders





Women at Work – VA Factory Byley

(Travelling to work)





The Wellington's Significant Role in WW2

- On September 4 1939 Fourteen Wellington Bomber from N9 and 149 attacked shipping at Brunsbittel on the Elbe estuary
- From then on Wellingtons carried the bulk of Bomber Command's night bombing offensive , until the emergence of the four -engine heavy bombers , the Short Stirling in February 1941 , the Hadley Page Halifax in March 1941 followed by the Avro Lancaster in march of 1942.
- The last Wellington operation with RAF Bomber Command took place on October 1943 using MK3 and MK 10
- The Wellington continued in operation with commands both at home and overseas.
- Most of Bomber Command's 27 Operational Training Units (OTU 's) used Wellington's .Without this the main bomber forces could not have been supplied with enough crews to replace those lost in squadron service .
- Coastal Command used 17 Squadrons of Wellington during in WW2
- The first 1000 bomber raid in may 1942 was with 1047 aircraft and out of these **607** were Wellington's
- The last Wellington built was RP561 from the Blackpool factory in October 1945
- The total of **11,461** Wellington were built more than any other number of any British bomber produced ,It represents a massive effort on the part of all concerned in the Wellington design , development , production and indeed operation . There are no records of numbers the of aircraft built at by VA Byley but assuming that two aircraft a were that it is likely the number was around 380 – 480 . VA Broughton had a target of 60hrs to complete a single aircraft
- In 1932 specification B9/32 resulted with the having the Vickers Wellington , Armstrong Whitley and the Handley Page Hampden
- A total of **1,759** Whitley's were built
- A total of **1,466** Hampden's were built
- Without the Wellington bomber the course the Second World Word may have taken a very different path for the RAF





In Coastal Command Service - Wellington



RAF Coastal Command fitted Air to Surface Vessel (ASV) Air-to-Surface Vessel (ASV radar) to various aircraft, including Vickers Wellington,



Memorials for the loss Aircraft and Crews at Byley and Bridgemere

In December 2006 **Mrs Nancy Kershaw** who worked at VA Byley at the time remembers at a “ A great sadness fell across of the whole workforce after the tragic accident”

The loss of HE819 Cranage



The loss of HF465 Bridgemere



- 29 July 1943 newly built aircraft built Wellington Mk.X HE819 crashes when the port wing drops and touches the ground during its third test flight. The aircraft crashes into the ground, bursting into flames immediately, killing R.A.F. pilot Fl. Off. Ruoff and Ministry of Aircraft Production Test Inspector Mr. Edward Booth. The accident is thought to be caused a 'freak' weather condition which occurs on hot days at the south-eastern approach to the airfield. In a report recorded by No2. S.o.A.N. it is thought that both the pilot and the inspector were pulled from the wreckage. Unfortunately Mr. Booth passed away in the ambulance as it journeyed to the medical centre at R.A.F. Wilmslow. Fl. Off. Rouff passed away at 20:00hrs that evening.
- On Saturday October 28, 1944 HF465 of No 12 O.T.U took out from RAF Chipping Warden Airfield near Banbury with a crew of seven to take in a cross country exercise. Three hours and ten minutes later while over the area of Bridgemere South Cheshire , the Wellington disintegrated during a severe thunderstorm . Sgt Wilson the navigator was thrown clear tail broke in mid – air. And was made unconscious on leaving the aircraft he regained consciousness in time to deploy his parachute.. Sgt Wilson sustained a serious back injury the rest of the crew were lost . The exact reason the aircraft disintegrated will never be known . A copy of HF465 movement card shows that in November 16th 1943 HF 465 was involved in a serious accident but had been repaired. The aircraft was out of service until April 1944. This might have weakened the airframe.



VA Byley was a small part of a international effort



Halifax : Number of aircraft built 6,178



Lancaster : Number of aircraft built 7,377



Wellington : Number of aircraft built 11,462



B17 : Number of aircraft built 12,731



B24 : Number of aircraft built 18,188



Legacy – VA Broughton – Airbus Industries

VA Byley – H W Coates / L&R Storage / Byley Warehousing / Lowes Farm Shop

- Mr Jack Garston was one of the Managers of the Byley Assembly Factor and become Production Manager at the Broughton Factory in 1961. He became Works Manager 1962 – 69, Executive Director and Works Manager 1970-71 and Executive Director and General Manager 1972 – 77. BAe became Airbus in 1977
- Jack Garston is in the middle front row

