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Europe's Problematical Airbus

UNITED KINGDOM Can the European airbus survive? There are strong indications that it cannot, despite the encouragement and support it has received from the governments of three nations.

Of the four large-capacity transport aircraft discussed in the 'Jumbo Jet' supplement of this issue, three are firmly committed to production and are backed by contracts which may not represent break-even quantities but do show a healthy airline interest. This leaves the A-300 in limbo—a European enigma.

The trouble with the A-300 is that no single European airline can yet commit itself to a very large quantity of aeroplanes of this type. Precisely to overcome this difficulty, France, Britain and Germany joined forces, with the hope that BEA, Air France and Lufthansa together could order a total of 75. This also now seems improbable and even though the three governments have modified their original requirement to encompass letters of intent as well as firm commitments, and to embrace other airlines such as Air Inter and Condor Flugdienst, the target of 75 is as elusive as ever.

While the market for the A-300 thus remains unsure, other factors have entered the picture. Development costs, inevitably, have risen, and this trend has been aggravated by the steep rise in French production costs following settlement of the recent strikes. The new French government is bound to be looking for economies in State spending and among aircraft projects the A-300 must be counted the most vulnerable. There are clear signs that the A-300 is becoming a project which few will fight to save and many will be happy to drop.

But what are the alternatives? One is to renew the effort to tailor the A-300 to the specific needs of the major European operators—in terms of timescale as well as capacity and performance—and at the same time perhaps bring in additional European partners, notably Italy and the Netherlands, to take the place of France.

For Britain to 'go-it-alone' with a short-haul large-capacity transport is still politically unacceptable, but might not always be so. If it is, however, and in the absence of a European collaborative effort, there is renewed interest in a working-sharing deal with one of the American manufacturers of airbus type aircraft. As an alternative to a simple purchase of US equipment by European airlines, this idea is not without merit.—**Gordon Swanborough**

Concentration of the Aircraft Industry

GERMANY By comparison with her neighbours, Federal Germany has often been considered as an "undeveloped country" where aviation is concerned. The industrial capacity of the six most important aircraft constructors is considered of too little importance, scattered and insufficient to handle projects of much importance.

Only recently the Minister of Economy Schiller urged, on the occasion of the *Luftfahrtschau* at Hanover, a concentration of the aircraft manufacturers.

Industrial mergers are, however, costly affairs, even if they are to be compensated by larger markets. The almost total dependence of the German aircraft manufacturers upon military orders imposes a condition upon such mergers: that they are honoured by long-term contracts. At the present time, this condition cannot exist, because contracts of foreseeable duration are lacking. Consequently, the hoped for concentration of the industry is still awaited.

The exception is in the south of the country. Messerschmitt and Bolkow GmbH announced, on June 6, 1968,

their long-discussed merger.

The merger was brought about principally on the initiative of the State of Bavaria, which is participating, through an intermediate promotion company, to the extent of 12½%—the same as Boeing, Nord Aviation and Bolkow. Messerschmitt's share is 33½%.

Although the participating companies have thus demonstrated a fine example of concentration, it remains to be seen whether this action in the South will be honoured by the Ministry of Defence. The new organisation thinks it has a good chance in respect of the NKF project (new combat aircraft).

The NKF development programme is estimated to be worth DM 1,200m; the series production of 450 aircraft would cost DM 6,000m if, after all, it turns out to be a wholly-German project. Actually, a multi-national consortium is still engaged in exploring the possibilities of joint development of a European aircraft, which could mean production of 2,000 aircraft. Though this may be so, the "greats" of European aviation to-day must clearly look henceforth to their potential partners.—**Paul Gross-Talmon.**



a phoenix rises in poland

by norman willshire



IT WAS an uneasy night in 1943 and in the galleries of the Museum only slightly denser darkness marked the forms of the fighters and bombers of an earlier war, the famous aircraft of the between-Wars and the trophies of those successful early years of this War. In the main hall a Fokker Dr I once flown by Manfred von Richthofen stood in its place of honour, while the huge prototype Dornier DoX flying boat loomed over such aircraft as the Heinkel HE 5e seaplane, a Junkers F13 transport and the Curtiss Hawk so well known at Air Shows in the hands of Ernst Udet. In another area, posed in diving attack, stood a Messerschmitt BF 109E and a Messerschmitt BF 110 while a group of their victims, including a Polish PZL P.11C and a Dutch Fokker D.XXI, were nearby. The 1911 AEG "Euler" and the Geebic Möwe of 1913 vintage provided a startling contrast

with the two first jet-propelled aircraft in the world, the Heinkel He 176 and He 178.

This was the Berlin Air Museum, one of the world's great collections of aircraft. No accurate list of the aircraft on show has ever been published. Photography was forbidden and the few photographs ever printed had been taken clandestinely.

On that night in 1943, as on many another, Berlin heard again the wail of sirens; before long the night was full of the stomach-tightening crash of flak and the shuddering boom of bursting bombs. Flames and high explosive reduced the Museum to debris, along with its fabulous contents. At least, so aviation historians believed—until one day in October 1967.

The scene 24 years later shifts to a hangar half-hidden in trees on the edge of the old Krakow military airfield, now closed

to flying. A quiet and pastoral setting, drowsing in the autumn sun. Although surrounded on three sides by the industrial suburbs of this Polish town, the view from the hangar is still an unspoiled expanse of green hills and small woods.

A small door is opened and we enter the hangar. Directly in front of us is the indigenous MD 12F photographic survey prototype of 1962. Next to it is a Bucker Jungmann and a Piper Cub, together with the partly assembled airframe of a helicopter, a WSK SM-1. Behind them is a Tupolev Tu-2.

Past the MD 12F and there is the PZL P.11C we came to see. Rather knocked about, the many dents and creases are really a tribute to the strength of those corrugated panels. Alongside it is a PWS 26 biplane, an unexpected bonus. Three CSS 13s, the Polish-built versions of the

Top of page, two views of the PZL P.11C, which was at one time in the Berlin Air Museum in the markings of 122 Squadron, 2nd Air Regiment and which it is planned to restore. Below, the PWS 26, repainted in Polish Air Force colours but with the civil registration SP-408 still visible beneath the fast-track finish.





Left, the WD 12F on show at Krakow was the third example of this Polish designed transport, and was equipped for photographic survey; notice the camera notch in the fuselage. Right, this Yak-7 on trainer in Polish Air Force markings may be the only surviving example of one of Russia's earliest jet aircraft.



Polikarpov Po-2, are visible—one an ammunition version, one a crop-duster and the third an armed military variant. Some interesting aircraft are behind them, an Ilyushin Il-10, a Yakovlev Yak-11, a Yak-17, a Yak-23 and an ILM-2, Polish built MiG-15. All are in Polish Air Force markings. Mixed up with these Russian types are a few Polish light aircraft, a pre-WW I, and LWD Zuch-2 and an LWD Sepak-41 from the post-War years when the Polish aircraft industry was feeling its way back into original design work.

In the middle of all this veteran company is a striking sight indeed, a Farman F-4 in magnificent condition. Close inspection reveals it to be an accurate modern replica, in flying condition.

And then we reach the innermost recesses of the hangar, and what treasure is here? A Curtiss Hawk II comes into view, an Albatros C I, a Rumpler Taube, an Antoinette, a Fokker Spin, a Halberstadt CL II, an Aviatik C III and, beyond all belief, the Messerschmitt Me 209 V1. This, without doubt, is the World Speed Record holder, its registration D-1NJR clearly visible in white on the dark black fuselage. These can only be exhibits from the Berlin Air Museum.

Not all the aircraft in the Museum were in fact destroyed in that night of fire in Berlin. Rescued were 23 aircraft, all damaged to a greater or lesser degree by burning and unavoidably rough handling. These were carefully hidden away in East Germany where they were discovered by the Polish Army. Shipped back to Poland, they were stored at Wroclaw until in 1963 they were brought to their present home in the old hangar at Krakow.

Ultimately the Polish National Aircraft Museum was created, based at Krakow and Marian Markowski was appointed its Director. A practising pilot, Mr Markowski is also keenly interested in rocket research and air law. Together with his assistant director, Zbigniew Baranowski, who is primarily an engine expert, they have brought to the creation of the Museum tremendous enthusiasm and a refusal to allow the frustrations of lack of funds, lack of staff and a chronic lack of space to deter them from undertaking the care and restoration of their enormous and important collection.

Aircraft from the Berlin Museum are listed below. They are all damaged to some degree, some badly, but all are capable of being completely restored. Not one is in an utterly hopeless state. Present circumstances at Krakow are such, however, that there is no likelihood of any work

being done on these aircraft in the foreseeable future.

The other aircraft in the Museum form a representative collection of Polish-built and flown aircraft since the War. A full list follows:

Albatros B III (Mercedes D III). A late example of the standard German trainer of 1917/18.

Albatros C I (Benz Br III). No. 197.15, a reconnaissance aircraft of 1915.

Albatros H I (Siemens Halber CL III). Although called the H I, this is actually a Siemens Schukert D IV fighter of 1918 modified in the early 1920s by Albatros for high altitude research. A pair of very long-span wings was fitted.

Albatros I III (Argus As 8A Series III). A parasol-wing 2 water monoplane of 1929/30 vintage, registered D-EKYQ.

Antoinette. In good condition, a genuine example of a 1910 model.

AEG "Euler". The first AEG aircraft built, in 1911, it uses a steel-tube fuselage construction of typical AEG design.

Aviatik C III (Mercedes D III). A 1917 reconnaissance aircraft, number C 1225/17.

Curtiss Hawk II (Wright Cyclone). One of two purchased in 1933 by Ernst Udet who named them "Iris" and "Iris". "Iris" crashed and was totally destroyed in 1934, so that this aircraft must be "Iris". At present the fuselage covering is almost entirely missing; however, the 1916 Olympic Games badge is clearly visible on the starboard fuselage side.

Some idea of the present state of the former Berlin Air Museum exhibits can be obtained from this picture, showing the fuselage of the Halberstadt CL II among the few substantial remains of other aircraft.



de Havilland D.H.9A (Liberts). A Westland built example, F1010 was operated by No 110 Squadron of the Independent Force. After 5 raids on targets in Germany, it was forced down during a raid on Kaiserslautern on October 5, 1918.

DIV C V (Benz Br IV). C.1707/17 is an Aviatik-built example of one of the later German reconnaissance aircraft.

Fokker Spin. A very spindly example of the 1914 Fokker design, in good condition.

Goesse Mose (Mercedes D II). A 1913 vintage Taube type.

Grigorovich M.I.S. (Higano). In very good condition, this Russian flying boat was built in 1917, as a perforce note in Russian on one wing rib indicates. The original paint, dark grey on upper surfaces and light grey below, is still good and the Cyrillic markings visible.

Halberstadt CL II (Mercedes D III). An excellent ground-attack aircraft of 1917/18, this example, 1348 9/17, was the personal aircraft of the Keimel General der Luftstreitkräfte, Grosses Hauptmann.

Heinkel HE 5c. Three-seat seaplane from the mid-20s.

Jeanin Taube (Argus As II). Another Taube of circa 1914.

LYG C IV. A two-seat trainer built in late 1918.

Messerschmitt Me 209 V1. The current holder of the Air Speed Record for piston-engined aircraft, this aircraft may not have been in the Berlin Museum. Only the fuselage exists and the wings and engine were reported to have been destroyed during an air raid on the Messerschmitt factory at Augsburg.

One of the five Po-2 variants at Krakow is shown here. Polish-built, it is an ambulance version with raised rear fuselage decking.

PZL P.11C (Bristol Mercury). Painted to represent an aircraft of No 122 Squadron, 2nd Air Regiment, but there is some doubt as to whether this aircraft did in fact serve with this squadron. The Germans have made up a number of panels on the forward fuselage, presumably to replace missing ones and have installed dummy guns in the old blast tubes, covering the original gun troughs with metal panels. It has been repainted twice in the same incorrect dark green. However careful examination of the paint on the fin revealed the original olive colour beneath the original vermillion letters "P.11C".

Roland D.VIII (Mercedes D.III). No 2225/18 is tail-less but otherwise in fair condition and the unique climber fuselage construction of this 1918 fighter can be readily examined.

Haupler Taube (Mercedes D.I). Another 1914 Taube in what appears to be Austrian markings.

Sepith Camel F.I. From No 210 Squadron, RAF, this aircraft 87780, was written off as missing on September 15, 1918. It then had 155 hours on the airframe and 15 hours on the engine. Since a German sickler seat is fitted in the cockpit, one can guess that these figures were increased by the Germans.

Stinson L-5. USAAC serial 42-98643. The presence of this aircraft is rather a mystery as it is hardly the type one would expect to be shipped back to Berlin for exhibition.

Bucker Jungmann (Hirth HM 504A). Although German built, this aircraft was completely rebuilt post-War by Z.S.L.S. at Poznan. It is registered SP-AFD and is on show.

BZ-1 GIL (Hirth HM 504A2). Prototype SP-GIL, stored.



BZ-4 Zak (WN-4). Prototype two-seat biplane. Stored.

CSS 13 (M.I.I of various models). There are five examples of this license-built version of the evergreen old Polikarpov Po-2 in the Museum. On show are SP-API modified for crop-dusting with a hopper in the rear cockpit, SP-AXT, an ambulance version with the stretcher carried under a raised decking behind the pilot and an armed version in Polish Air Force markings. Stored is another CSS 13 and a genuine Russian-built Polikarpov Po-2, identifiable by its wooden struts in place of the metal struts on the Polish built aircraft.

Farman F.4 replica (unidentified, modern, French radial). A flying replica built at Lublin by Pawel Zolotow and flown extensively by him before presentation of the replica to the Museum. Mr Zolotow was the only private pilot in Poland permitted to own his own aircraft, a Piper Cub. In his seventies, he has been flying since before World War I and is still fascinated by the early aircraft. He has recently completed a Bleriot XI replica, also using a small modern radial and a Piper Cub propeller.

Bryhnia B-10 (AM-42). In Polish Air Force colours. On show.

LIM-2 (RD-45F). Polish-built MG-15. On show.

LWD Junak-1 (M.I.II). The prototype SP-GLA. Stored.

LWD Szpak-2 (Siemens Halske Brano SH14A4). Prototype SP-AAA. Stored.

LWD Szpak-3 (Siemens-Halske Brano SH14A4). Prototype SP-AAA. Stored.

LWD Szpak-41 (Siemens Halske Brano SH14A4). Production model, SP-AAG. On show.

LWD Zak-3 (Circus Minor). SP-AXX, initially fitted with a Walter Mikron III but now with a Circus Minor 4-III. On show.

LWD Zuch-1 (Circus Minor 6-III). Prototype SP-BAD. Stored.

LWD Zuch-2 (Siemens Halske Brano SH14). A production version, SP-BAM. On show.

LWD Zuraw (M.I.III). SP-GLI, the prototype. Stored.

MD 12F 44 x WN-3C). The third prototype SP-PBL. On show.

Pegas (XL-GAD). Prototype powered glider, SP-590. On show.

Piper Cub (Continental A-65). A standard version, SP-AFP. On show.

PWS 26 (Wright Whirlwind). In spurious Air Force camouflage, the previous civil registration SP-AJH can be seen underneath the green paint. On show.

RWD 13 (Walter Major). Two examples of pre-War RWD light aircraft were brought back from Roumania. This one, SP-ARL, is in excellent condition. On show.

RWD 23 (Walter Major). The second RWD, SP-AGG is in very bad condition but is restorable. Under the royal blue civil paint can be seen Roumanian Air Force markings. Stored.

TS-8 Bies (WN-3). A standard production aircraft is on show, while the prototype, SP-GLJ, which broke a number of distance records in 1936, is stored.

Tupolev Tu-2 (2 x ASB-21/NV). Used by the Polish Air Force for trials with ejector seats. An open cockpit with a metal wind deflector is fitted aft of the wing. On show.

WSK SM-1 (AI-26B). A production example. On show.

Yakovlev Yak-11 (ASB-21). A standard production model. On show.

Yakovlev Yak-17UTI (RD-10A). Jet trainer based on the Yak-9. On show.

Yakovlev Yak-23 (RD-506). A standard production example, less canopy. On show.

Below, a well-preserved Yak-11, for many years the standard advanced trainer in the Polish Air Force. Bottom of page, the Farman F.4 replica built and flown in Poland by Pawel Zolotow, as described in the text.

