On the 'Wing...

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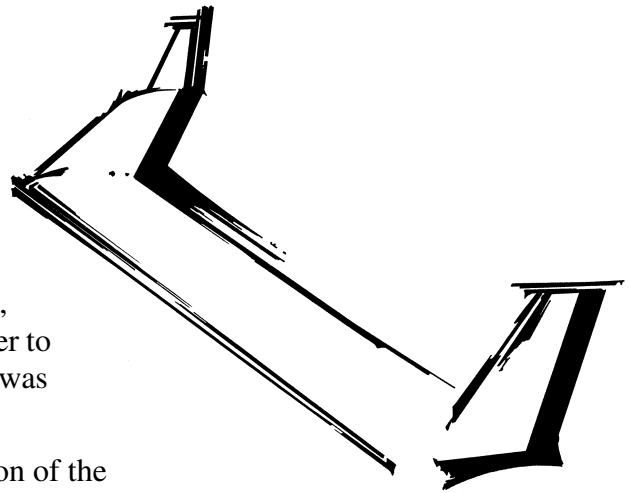
Alexander Lippisch' *Storch IX*



Alexander Lippisch had an early interest in aviation, having witnessed a flight by Orville Wright in September 1909 at the age of fourteen.

The tailless aircraft of Dunne and Etrich became the focus of his attention, and after the end of World War I he turned this interest toward the design of numerous gliders and powered aircraft.

Lippisch designed his first tailless glider in 1921, and the aircraft was built by Gottlob Espenlaub, a fellow glider enthusiast.

Although the resulting aircraft, the Lippisch-Espenlaub E2, was not a complete success, Dr. Lippisch went on to design more than 50 swept wing tailless aircraft.

As was the usual case with Pre-war German aircraft designers having limited resources, Lippisch found an efficient methodology for bringing his concepts to reality. The ideas were first tested by means of flying models, then as a man-carrying glider, and then as a powered aircraft. Lippisch believed this process would provide the same results as wind tunnel testing with less expenditure of time and money.

Two astoundingly successful series of tailless aircraft came from this paradigm: the Storch and the Delta.

In all, eight Storch aircraft were designed. All were high wing monoplanes incorporating sweep back.

The Storch I (1927) and the Storch II and III all suffered from lack of aileron effectiveness. At the suggestion of Igo Etrich, the ailerons were redesigned to more closely follow the outline of a Zanonia seed, as seen on Etrich's *Taube*, with excellent results.

The Storch IV (1929), the first Lippisch glider to utilize this planform, was a complete success.

A public demonstration of the Storch V led to the financial backing of Captain Herman Kohl. Captain Cole was interested in acquiring a tailless powered aircraft for trans-Atlantic flights. With Cole's backing, Lippisch temporarily stopped work on the Storch VI and began working on what would eventually become the Delta series.

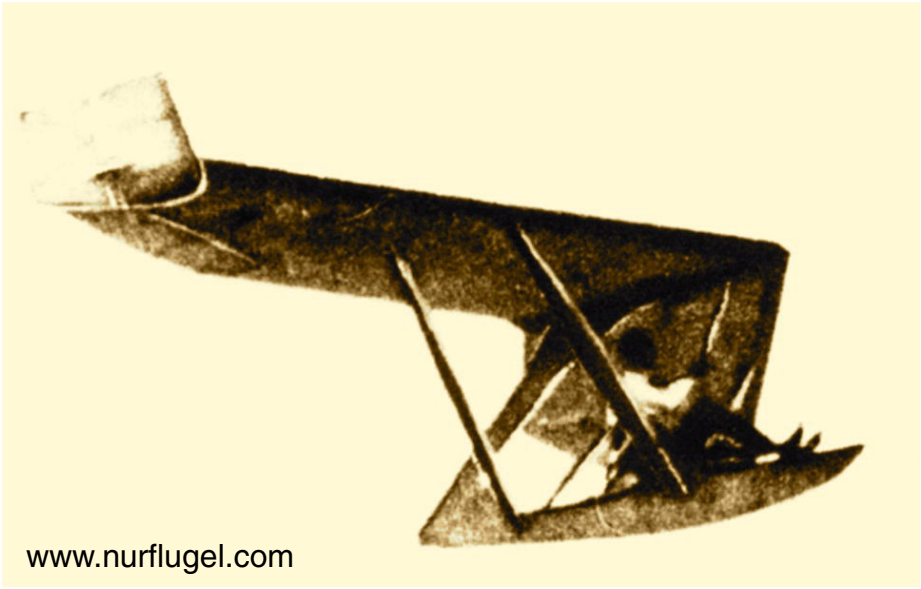
Although Lippisch became heavily involved in development of the Delta series, he remained interested enough in the Storch line to produce the Storch VII, powered by a 24 hp engine. This aircraft won a prize for the first tailless aircraft to fly non-stop for 300 km.

The Storch VIII, privately financed, was rather unique, as it was able to be flown either with or without a tail.

The Storch IX, the subject of this column, was the result of Lippisch's belief that a tailless training glider was necessary. It was successful enough that two variations were derived from it, the IXa and IXb.

The Storch IXa incorporated a streamlined fuselage hanging below the wing and a semi-enclosed cockpit. The IXb was a powered version of the same basic design.

Dr. Lippisch went on to design the Messerschmitt Me 163 *Komet* during World War II. There is some evidence to support the



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view the *Komet* was the first aircraft to exceed the speed of sound, although this feat was never officially recognized.

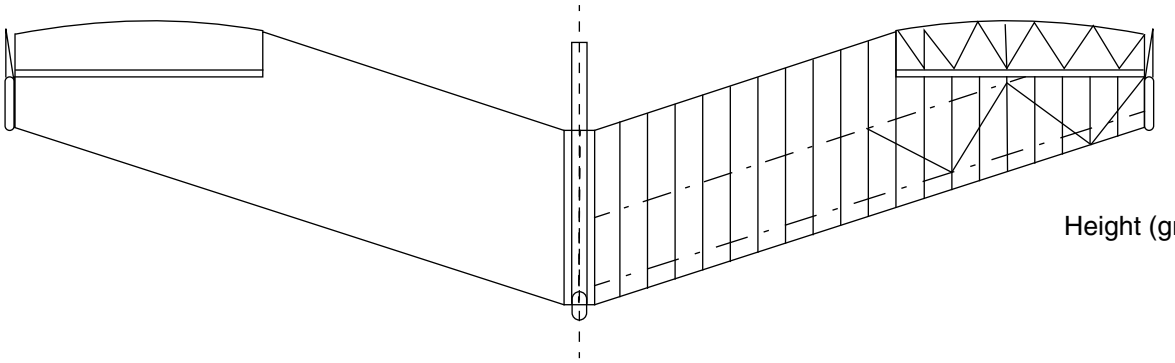
Construction of a scale model of the Lippisch IX would be a most interesting project. A quarter scale rendition would span 2.6 meters, a reasonable size for an aircraft with a deep fuselage.

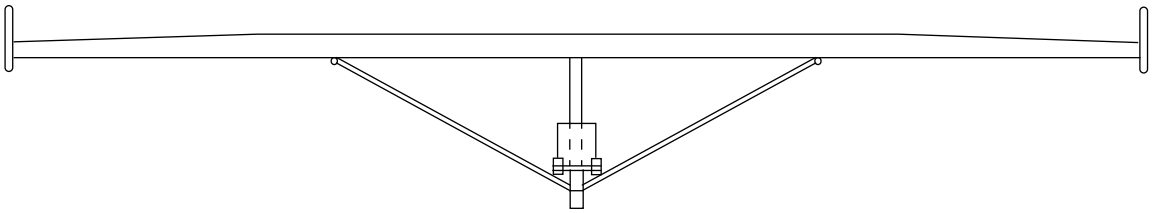
So far as airfoil, the root can be something along the lines of the Clark Y. In the area of the elevons, the airfoil should be a progressively modified Clark Y so the elevon itself becomes an extended area of reflex. This is in keeping with the airfoils used on the original.

The Storch IX, being a trainer, was usually launched by means of a short duration hand tow using a heavy weight bungie, primarily on gentle slopes so flying height was not an issue.

Simple control system, unique design, simple structure.

Sounds good to us!





Lippisch *Storch IX* (1933)

Span	10,400
Length (fuselage)	2,920
Height (ground to wing upper surface)	1560
Root chord	1600
Tip chord	890