

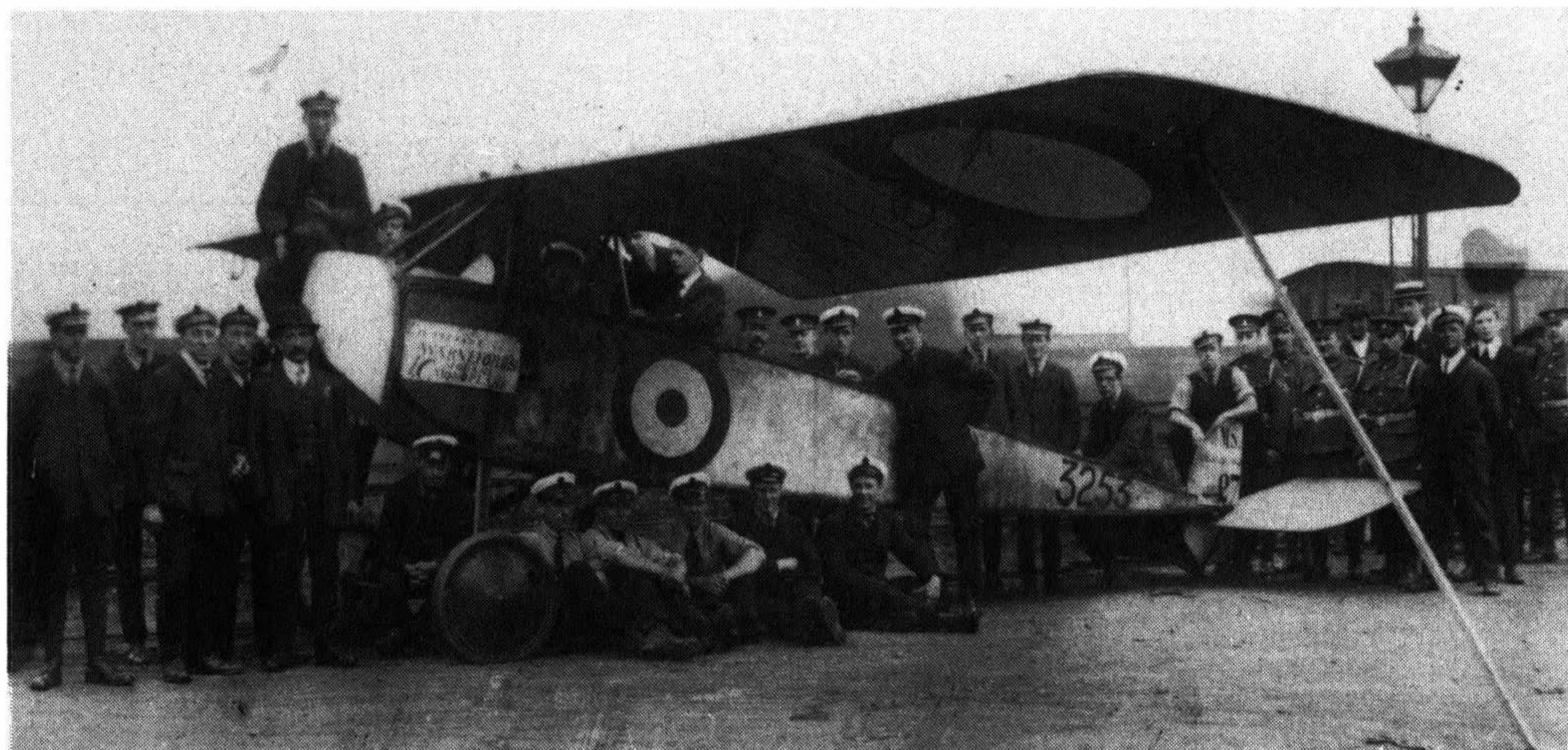
MORANE SAULNIER TYPE L

By J M Bruce



WINDSOCK DATAFILE 16

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ON THE COVER

'Wild Hawk' Warneford.
On the morning of June 7 1915 Sub Lieutenant R A J Warneford flying Morane Saulnier Type L 3253 attacked and destroyed the Army Zeppelin LZ37 over Ghent, Belgium. For this dramatic action Warneford was awarded the Victoria Cross. (Painting by Brian Knight G Av A of the Guild of Aviation Artists)

Above, Warneford's Morane was set aside for preservation in 1918. This photograph was obviously taken in England after the machine's active use was over, possibly while on its way to or from the RNAS Central Store Depot at White City. The placard on the side of the fuselage bears the legend: 'Lieutenant Warneford's V C Morane monoplane'. (P J Matthews)

Opposite page: Dramatic study of 3260, one of No.3 Wing's Moranes, as it runs up its engine before take-off from Mudros. (RAF Museum)

FOREWORD

The Morane Saulnier Type L monoplane deserves an honoured place in the annals of World War One aviation history for an example of the type was destined to become the first operational tractor 'fighter' aeroplane to carry a fixed machine-gun firing forward through the airscrew arc. Further, it was a Type L that was flown by Flight Sub Lieutenant RAJ Warneford when he brought down the first Zeppelin in mid-air, a feat for which he was awarded the Victoria Cross. Sadly, no genuine example of a Morane Saulnier Type L is known to have survived while available records and photographic references are comparatively meagre, thus this

particular *DATAFILE* does not carry the usual high number of close-up detail photographs and original line drawings that have become such a hallmark of the series. In order to supplement the available pictorial references the author and publisher have therefore expanded the parameters of *DATAFILE* No. 16 to include extended coverage of Warneford's well-known 3253 as well as embracing the German licence-built Pfalz versions produced in 1915 and 1916. The result is a unique compilation of references, published collectively for the first time, which provide a valuable record for WW1 modellers and historians.

Ray Rimell, September 1989.

Data

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By J M Bruce, ISO, MA, FRAes, FRHistS.



AN INTRODUCTION

In the issue of *Flight* dated October 18 1913 there appeared a small sketch, drawn by the journal's editor, C M Poulsen, of (presumably) the prototype of the first form of Morane-Saulnier parasol monoplane. The caption ran:

'Sketch of the Morane monoplane built to the order of M Santos-Dumont, who is again taking up flying. Evidently M Santos-Dumont is still in favour of a comparatively low centre of gravity as... he has had the wings raised a considerable distance above the fuselage, so that the pilot is under instead of between the wings.'

That alleged connection with Santos Dumont seems highly improbable, for by 1913 the great Brazilian pioneer was a victim of multiple sclerosis, a sick man and already too disabled to fly as a pilot. Perhaps some analogy of configuration to Santos Dumont's *Demoiselle* of March 1909 was seen in the new Morane-Saulnier.

The Parasol's design dated from August 1913, and consisted essentially of a slightly modified Morane-Saulnier Type G fuselage above which was mounted a mainplane of typical Morane planform. Relatively liberal cable bracing was fitted, the landing wires being attached to a tall three-strut cabane structure. Lateral control was by wing-warpage. On the company's works drawing this first parasol monoplane was designated Type G-19; its designed span was 10.2m (33ft 5½in).

At the Paris Aero Salon that opened on December 5 1913 the Morane-Saulnier company exhibited a Parasol fitted with a 100-hp Gnome Monosoupape engine. It also had a central cut-out of generous size in the wing trailing edge to provide easier access to the rear seat.

Although contemporary commentators immediately recognised the suitability of such an aeroplane for reconnaissance purposes (and indeed the exhibited Parasol was pointedly and presciently equipped with a specially-made camera installed behind the observer's seat, pointing downwards to take vertical photographs), the French authorities did not order the type for the *Aviation militaire*. They did, however, grant official permission for Morane-Saulnier to accept from Turkey an order for 50 Parasols: these were to have only the 50hp Gnome engine, because all 80hp Gnoms were reserved for use on French aeroplanes. Production Type L Parasols had extended wings of 11.2m (36ft 9in) span and modified structure, a lengthened fuselage, and separate seats for the two occupants in place of the long communal 'bench' inherited from the Type G.

With war imminent and mobilization ordered in France, the Turkish Parasols were taken over by the French authorities and promptly used to equip two new *Escadrilles*, MS23 and MS26. Their primary task was, of course, reconnaissance, but a carbine was carried by the observer, and one of the pilots of MS26 was the great pre-war celebrity Roland Garros, who was of an offensive disposition and attacked German aircraft on several occasions but without success. Later in 1914 a few Parasols were provided with

Below, while it is uncertain whether this is the Morane-Saulnier G-19, the aeroplane undoubtedly is a very early example of the first form of Morane Parasol. The mainplane has no central cut-out in the trailing edge, though the leading edge has a small recess to improve upward view from the front cockpit; and the undercarriage has the early, wide V-struts. (Jean Noël)



a Lewis gun, though many still had only a rifle or carbine; nevertheless, the type was officially regarded as a fighter, and was referred to as the *Morane de Chasse*.

In November 1914 Garros was posted to Le Bourget. There he could readily contact Raymond Saulnier, who had been experimenting with a gun-synchronizing mechanism since the Spring of that year. Inequalities in available ammunition produced so many hang-fire rounds that Saulnier's device was rendered erratic, so he removed the gear and fitted the aeroplane's airscrew with armoured deflectors. When war broke out the machine-gun that had been lent to Saulnier was withdrawn and he had to abandon his work, but Garros came to him in December and, having secured the use of a gun (presumably a Hotchkiss), resumed experimentation where Saulnier had been compelled to give up.

Fixed guns

Thanks to the ingenuity and skill of Garros' mechanic, Jules Hue, improved bullet deflectors were developed, and Garros was able to make operational use of a Type L armed in this way. This Parasol was the first operational tractor fighter to have a fixed gun firing forward through the disc swept by the airscrew. His first armed Type L was destroyed in a gale, but on a second he had his first combat victory on April 1 1915. He shot down two more German aircraft on April 15 and 18, but on the afternoon of the 18th was himself brought down by ground fire near Ingelmunster. The uninjured Garros was taken prisoner, and the secret of his success was then in German hands — fortuitously, just at the right heaven-sent moment to allow Tony Fokker to pretend that the Saulnier-Garros-Hue installation inspired him to invent and create within 48 hours the first working mechanical

interrupter gear for a fixed machine-gun.

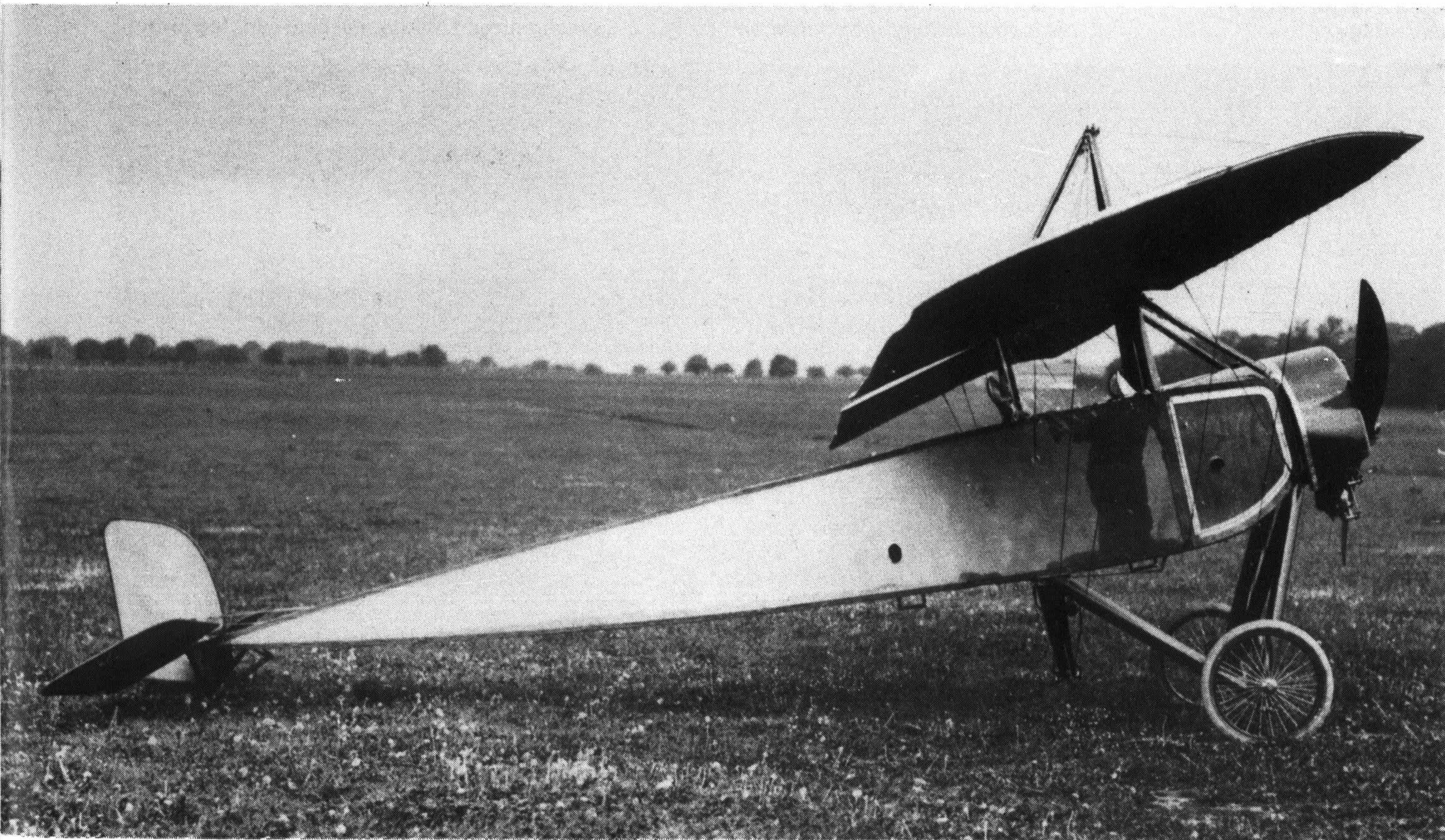
As a matter of historical fact, a much earlier design for such a device had been patented in 1913 in Germany, in the name of the Luft-Verkehrs-Gesellschaft, by Franz Schneider, a Swiss engineer. He had earlier designed several of the series of Nieuport monoplanes before joining the LVG. How little the German authorities thought of his invention may be reflected in the fact that less than two months after the outbreak of war, on September 30 1914, particulars of his patent (DRP 276.396), with diagrams, were published in the fortnightly German aeronautical journal *Flugsport*. The essential idea was there for all in German aviation — including Anthony Fokker — to see immediately.

It is therefore immeasurably more probable that the publication of Schneider's patent provided the inspiration for the creation of a similar device by Fokker's engineers than the fortuitous capture of Garros's Morane. Moreover, the six-month period that had elapsed since the publication of the Schneider patent is much more realistic than Fokker's fanciful (and alone-I-did-it) 48 hours as a development period for such a precision device.

A few more Parasols of the *Aviation militaire* probably had the deflector-airscrew installation, but its best-known, albeit limited, application and employment were in the Morane-Saulnier Types N, I and V single-seaters derived from the prototype Type N that Garros had flown at the Wien-Aspern meeting of June 1914. As for the Type L, it was built in quantity in France and flew on in the reconnaissance *escadrilles* until superseded by the Types LA and P in turn.

The early Parasol was not popular in French units. This opinion took stronger hold when

Below, this photograph illustrates the typical early Type L Parasol, with large central cut-out in the wing trailing edge to facilitate access to the rear cockpit. The wide V-struts are retained in the undercarriage. (Jean Noël)



Marc Pourpe of *Esc MS23*, a well-known pre-war French aviator, was unable to recover from a spin from 1200m (about 4000ft) in a Parasol on December 2 1914 and was killed. Commanding the training *Division Morane-Saulnier* at Villacoublay at that time was Capitaine le Révérend, who on December 28 1914 submitted a report vindicating the Parasol, while recommending that it be entrusted only to the most capable pilots. This report was endorsed by Colonel Barès, *Chef du Service aéronautique*, on December 31, and the Morane Parasol remained in service. In December 1915 a list compiled by the *Service des Fabrications de l'Aviation* attributed the official designation MS Type III to the Type L Parasol monoplane.

Into service

The military utility of the early Parasol readily commended the aircraft to the flying services of other combatants. The RFC in France ordered the type at an early stage: deliveries apparently started on December 2 1914, when 1829 (in the British numbering series) was delivered direct to No.3 Squadron, RFC, from Paris. At least 52 Type L Parasols were accepted by the RFC in France; most of them were used by No.3 Squadron, but a few went to Nos.1 and 12 Squadrons.

A batch of 25 Type L Parasols were ordered for the RNAS and were allotted the British serial numbers 3239-3263. At least eight of these (3241-3244, 3247, 3248, 3252, 3253) were used by No.1 Wing, RNAS, at Dunkerque, and 3257-3262 went to Mudros with No.3 Wing. These last were evidently not popular: in his book *Fights and Flights* the late Air Cdre C R Samson (who in 1915 was commanding No.2 Wing on Mudros) wrote:

'The Moranes were brutes to fly, and two good fellows were killed on

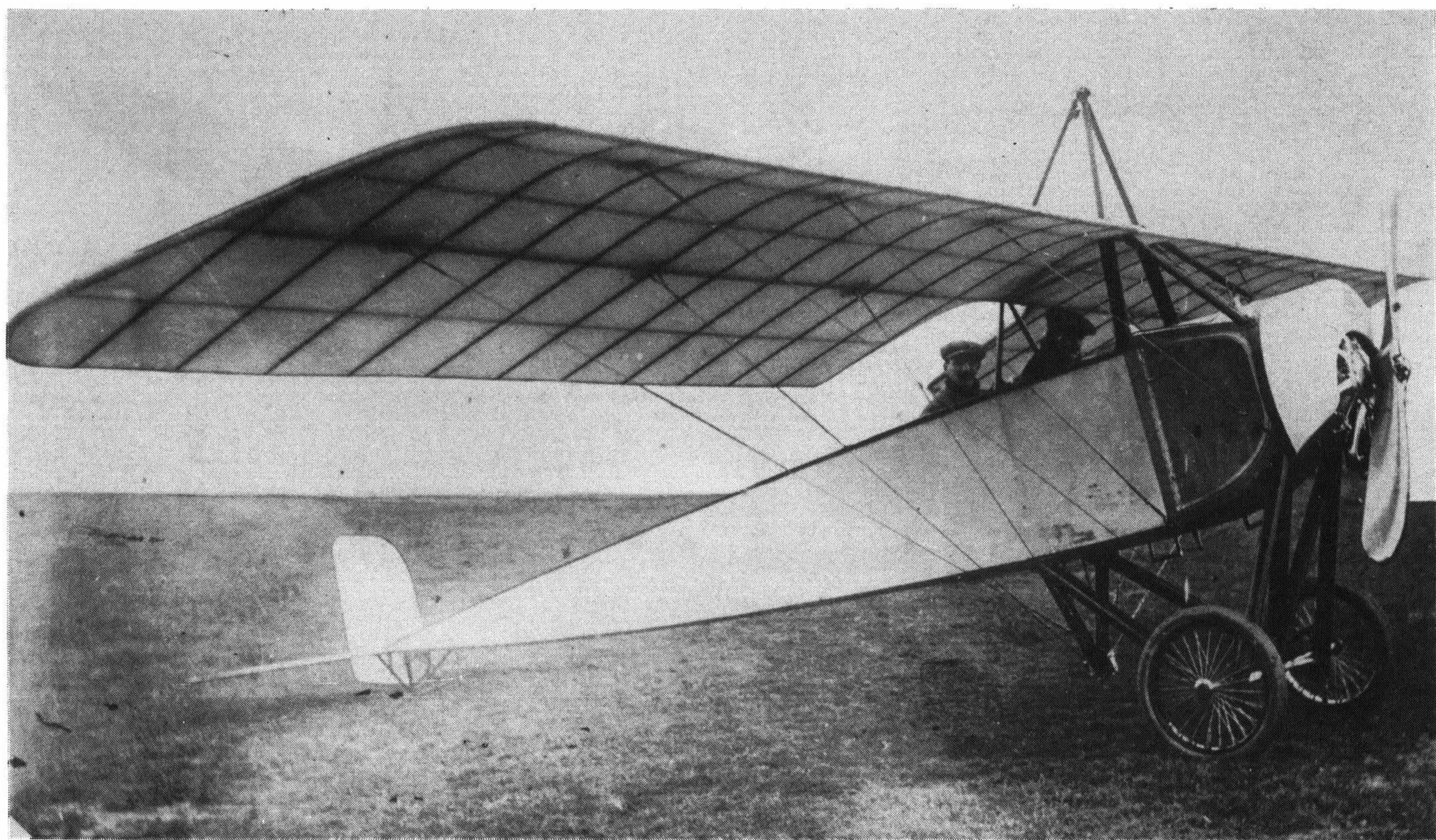
them. Gerrard soon stopped them flying, and replaced them with some Voisins I gave him.'

The most spectacular action by a Morane Type L in British service was the destruction of the Zeppelin LZ37 by Flt. Sub-Lt. RAJ Warneford on June 7 1915. His aircraft was No.3253 of No.1 Wing, RNAS, Dunkerque, and he was awarded the Victoria Cross for the feat. Tragically, Warneford was killed only 10 days later while flying a Henry Farman F.27, but his Morane survived, for a time at least.

On December 18 1917, Lord Rothermere, the President of the Air Board, ruled that 'for record purposes' specimens of all types of aircraft used in the 1914-18 war should be preserved. Throughout 1918 some 60 aircraft were gathered together for this purpose, and the specimen Morane Parasol was Warneford's 3253. On March 30 1918 the aircraft was in the RNAS Central Stores Depot, recorded as having been deleted but retained 'For exhibition'. On or shortly before September 14 1918 it was delivered to the Plane Repair Park, Agricultural Hall, Islington, to join many other wartime types. Instead of going to a national museum, however, all but the Short 184 flown at Jutland were destroyed within a few years of the Armistice, and the nation lost irredeemably a collection that was almost wholly irreplaceable and would now be beyond price and without equal.

The Type L Parasol was built in Germany by the Pfalz Flugzeugwerke GmbH, which had secured a licence for the building of the Morane-Saulnier Types H and L early in 1914. Three Parasols had been completed by the outbreak of war, and the type was used in two versions (Pfalz A.I with 80hp Oberursel, A.II and E.III with 100hp Oberursel) and in modest numbers by Bavarian flying units. The E.III was a single-seat fighter version with a fixed, synchronized LMG.08 machine-gun; few were

Below, another early Type L Parasol with the large wing cut-out seen to advantage.



converted from A.IIs and at least one had an 80hp Le Rhône engine. At the end of June 1916, one A.II and eight E.IIIs were still operational.

Production in Russia was undertaken by the Aktsionernoye Obshchestvo Vozdukhoplavaniya Duks of Moscow and the AOV V A Lyebedeve of Petrograd; their respective outputs of the Type L have been

reported as 400 and 30. Russian units flew the Type L as a reconnaissance aircraft; as elsewhere, the Russian Parasols ended their days as trainers after they were operationally obsolete.

In general terms, the Morane-Saulnier Type L was a not particularly remarkable aeroplane, but in the history of fighter aircraft its place is unique and secure. □



Left, the most historic Type L Parasol was Roland Garros' machine, seen here at Dunkerque, the bullet deflectors on its airscrew just visible. Obviously an early production aeroplane, it had the wide V-struts in its undercarriage; more remarkably, it had no central cut-out in the trailing edge of the wing.

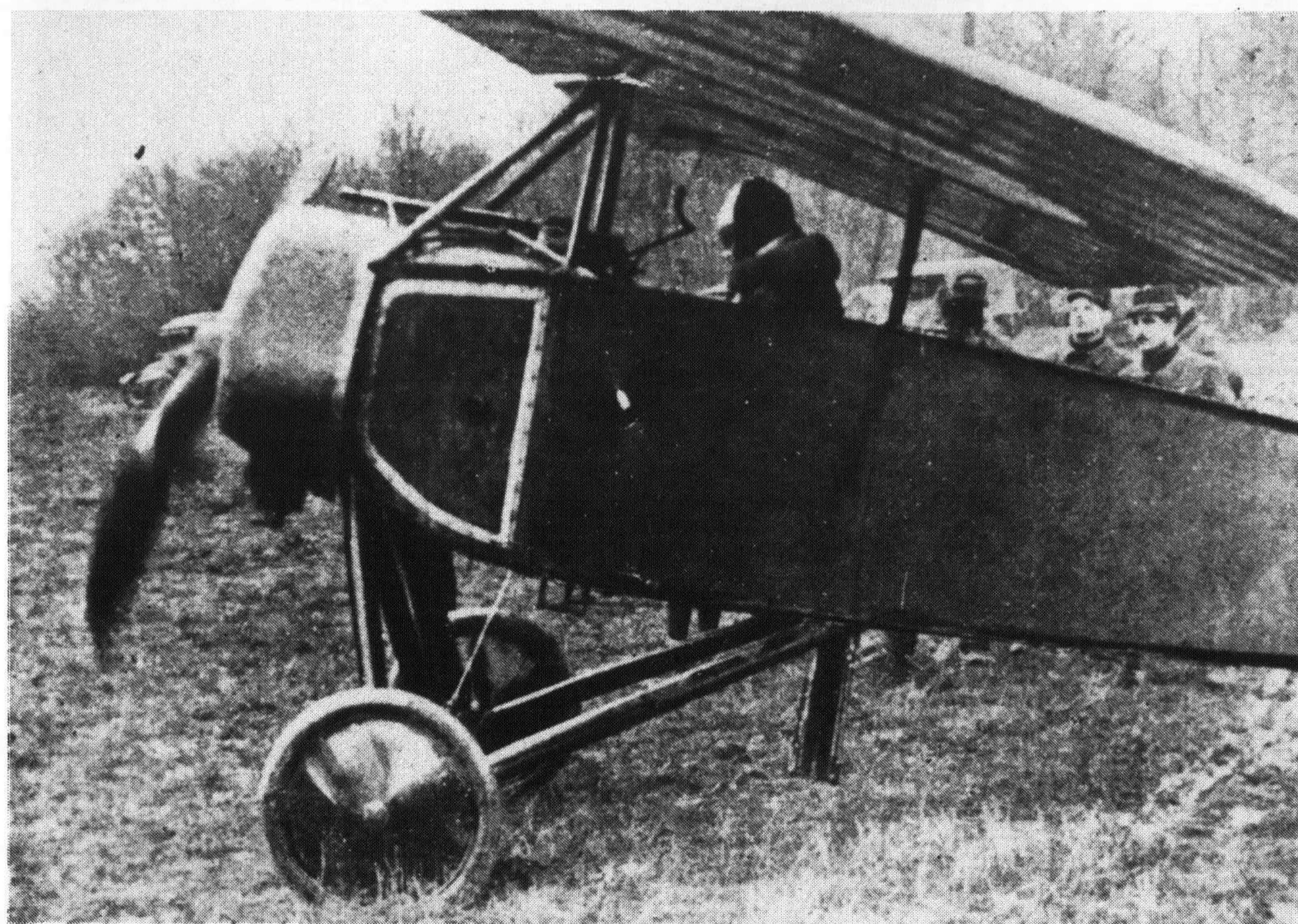
Below, an early Type L that was captured intact on Rheims aerodrome, and was given German markings.



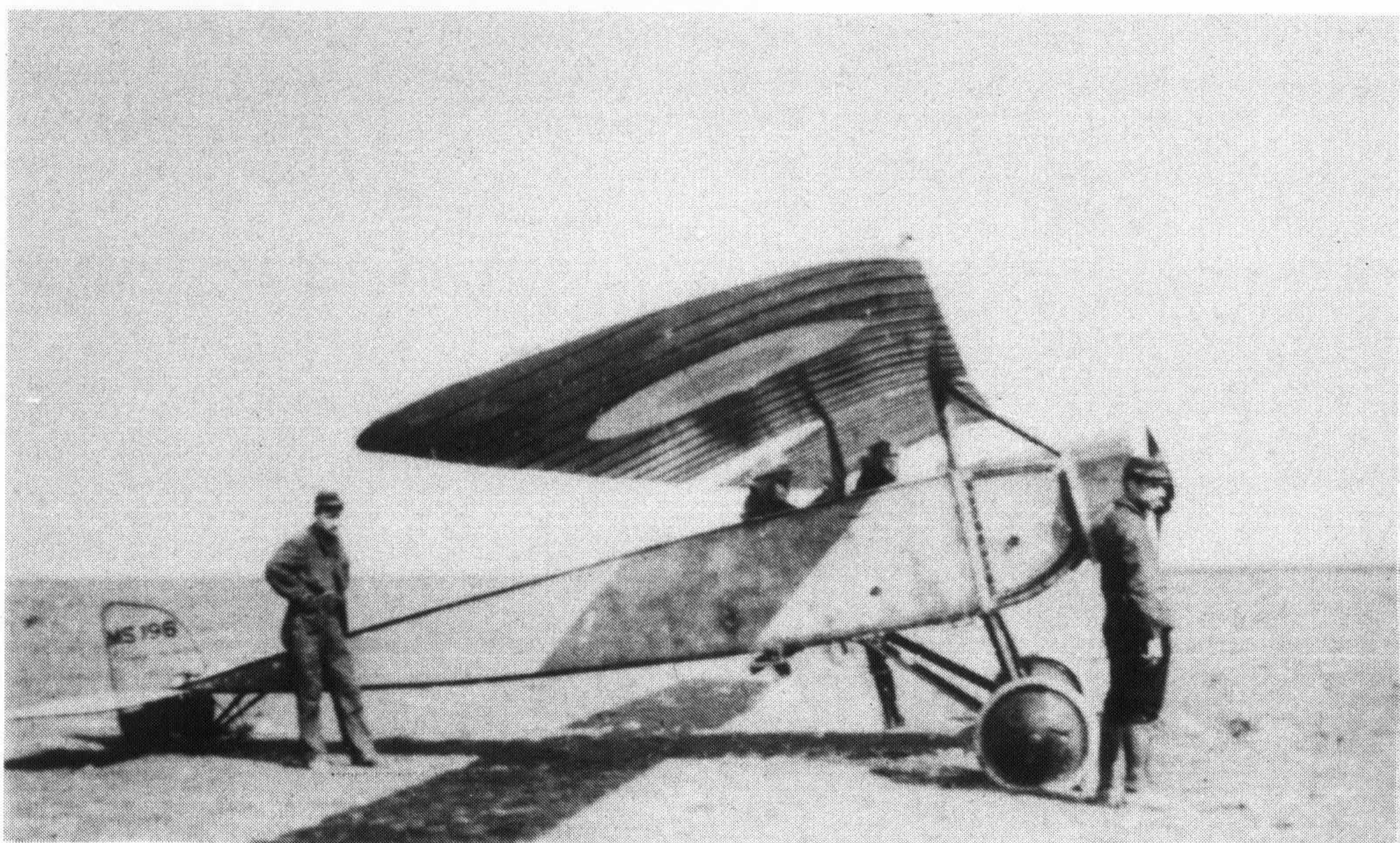


Top, Garros runs up the engine of his Type L Parasol at Dunkerque.

Centre, a more intimate view of Garros in the Hotchkiss-armed Type L Parasol. The object between him and the gun is believed to have been a head-rest fitted in the belief that it would improve accuracy of aiming. (*Alex Imrie*)

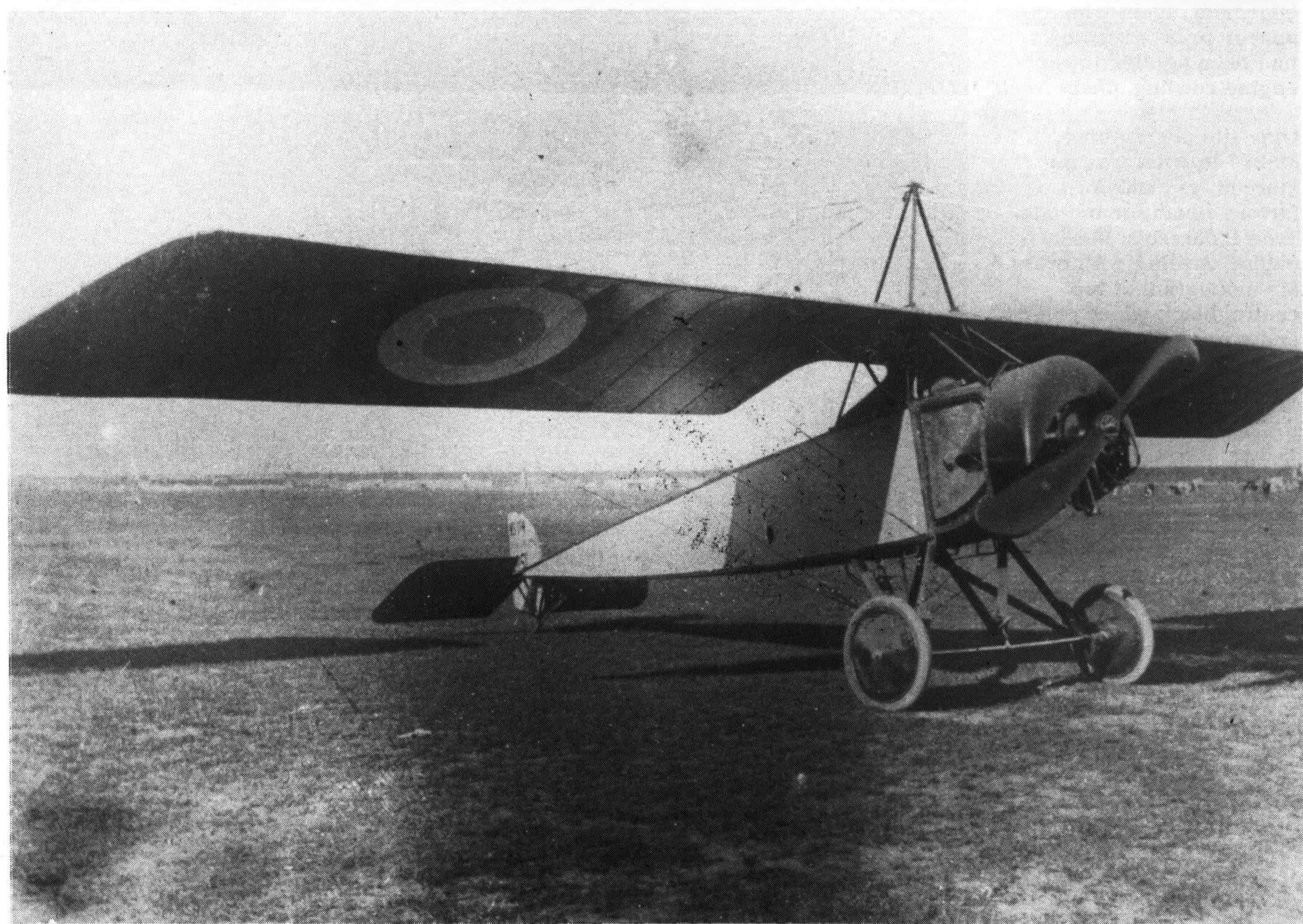
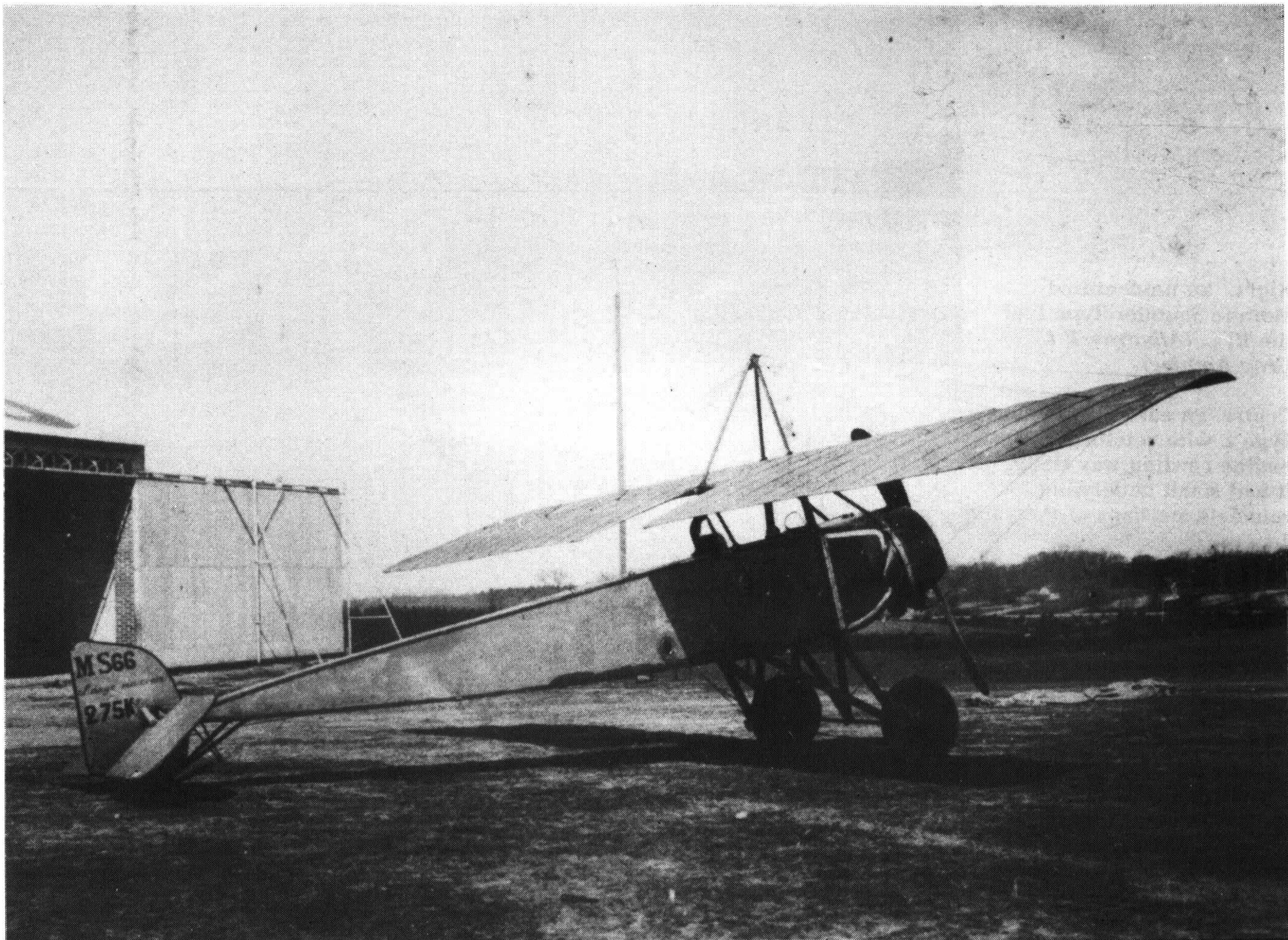


Below, the later production Type L had narrower V-struts in the undercarriage, the attachment of the forward strut in each V being moved aft to the position of the first upright spacer aft from the engine mounting. Subject of this photograph is MS196 of the *Aviation militaire*.

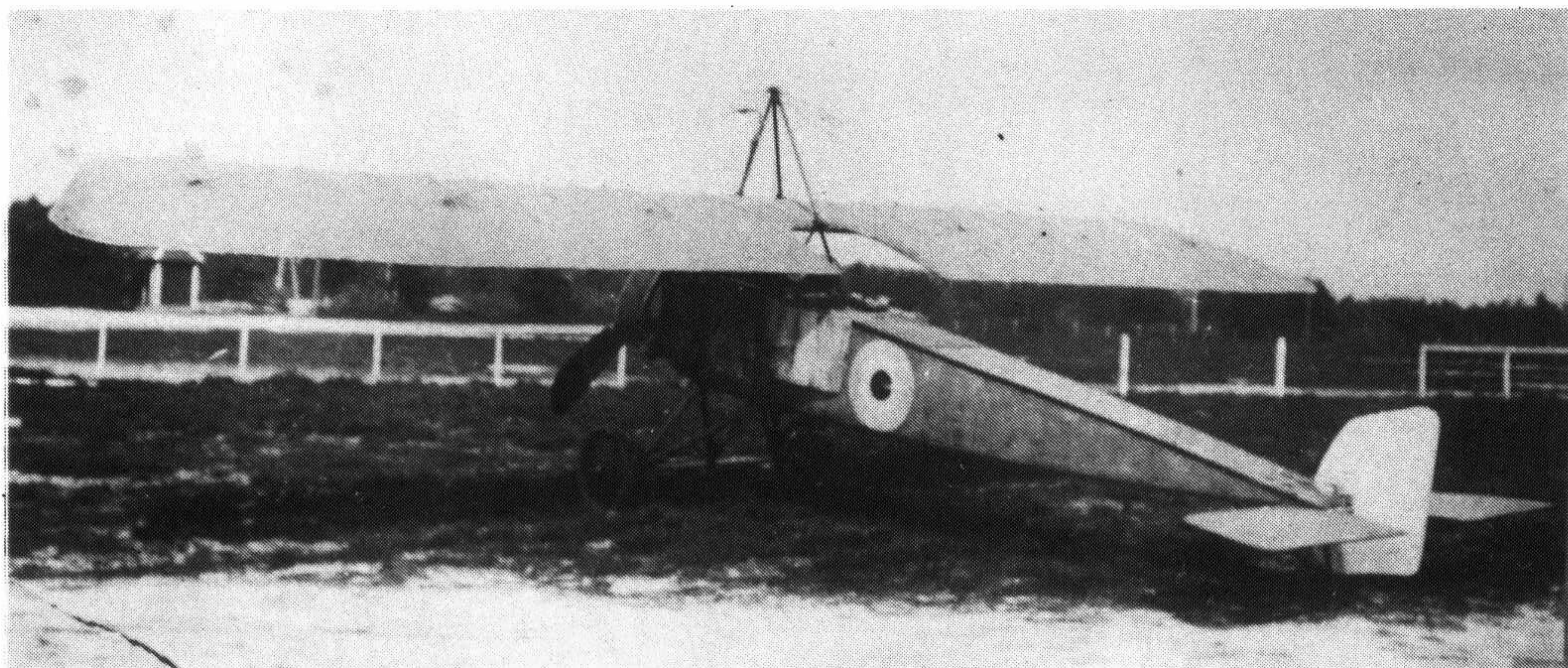


Opposite page: Top, photographed on April 29 1915, MS66 bore no national markings on surfaces visible to the camera. The inscription on the rudder below the serial number reads 'charge maxima 275K' (maximum load 275kg/606lb). (*Jean Noël*)

Below, MS114 in German hands; French roundel proportions are of interest. (*Dr. V Koos*)



Right, an unidentified Morane Saulnier Type L of the RFC. (*Albatros/P L Gray Archive*)



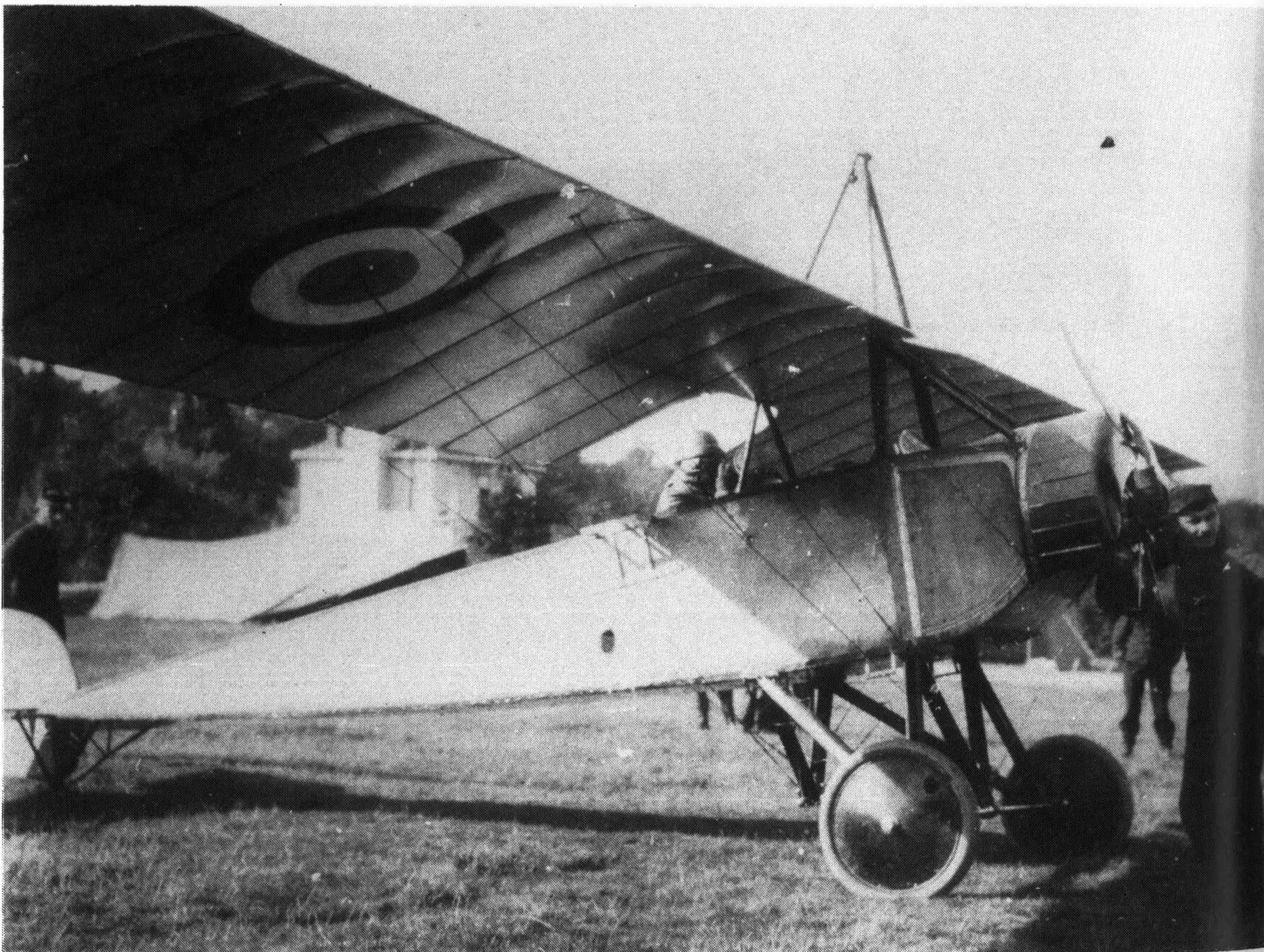
Centre, an early production Type L with reinforced engine cowling was MS39. It had small underwing roundels, perhaps of the 1-metre diameter and proportions defined, as early as July 26 1912, in *Décision* No 4.710 of the Permanent Inspector of Military Aeronautics. Within the 1-metre red ring, the white was to have a diameter of 0,70m, the blue 0,4m. (*Jean Noël*)

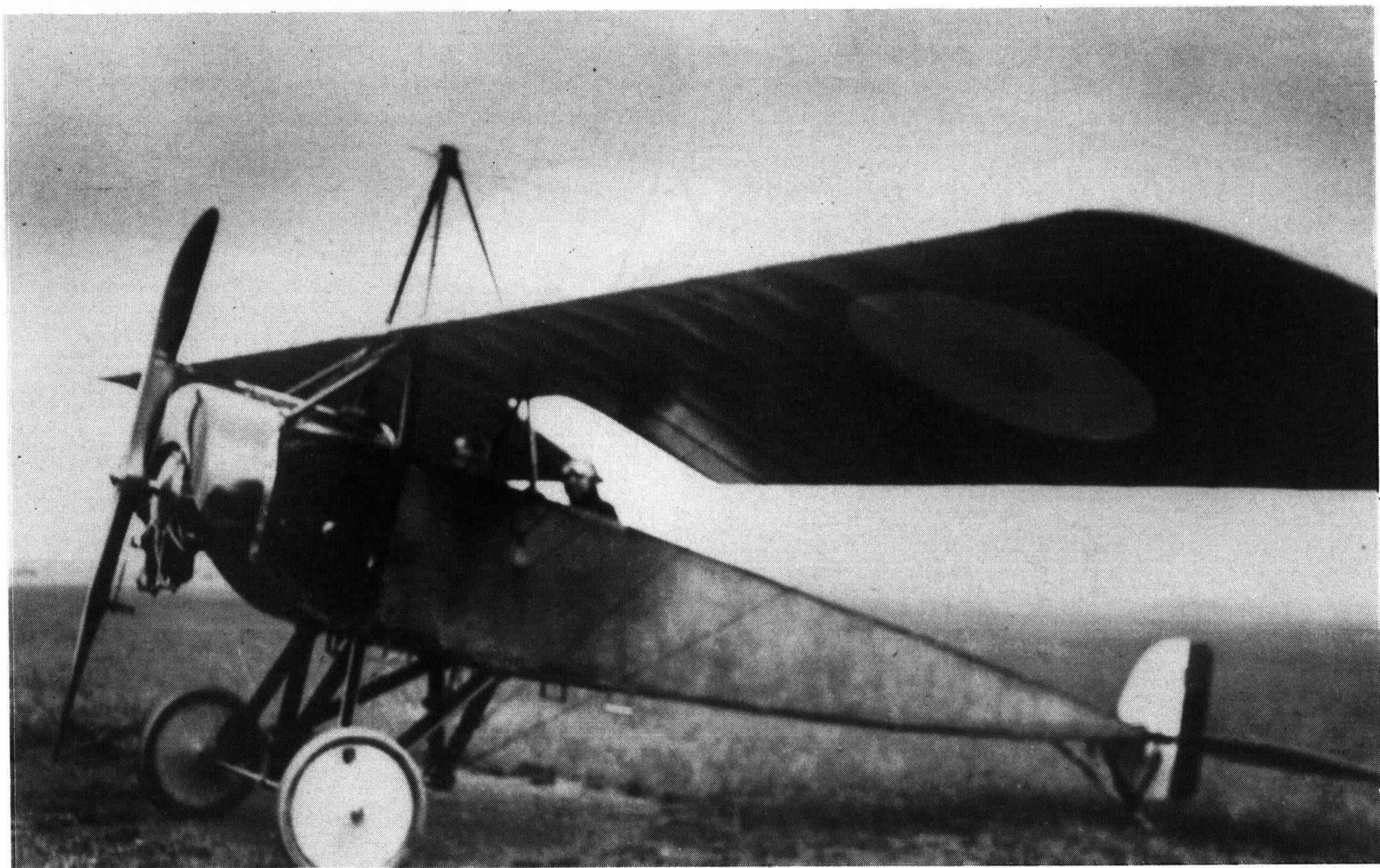


Below, MS30 bore unusually small roundels under its wings but had no rudder stripes when photographed. It had a small recess in the leading edge, and, again what appear to be stiffening ribs had been applied to the engine cowling. (*Jean Noël*)

Opposite page: Above, MS274 in what was the more-or-less standard factory finish for the later Type L Parasols: black engine cowling with brass MS monogram at top centre, black wheel covers and struts, and black outline to fuselage sides. Full French national markings were applied to wings and rudder. (*Jean Noël*)

Below, Garros's Type L was not the only aeroplane of its type to be armed with a fixed forward-firing machine-gun and deflector airscrew. This one had the later form of undercarriage and was armed with a Lewis gun. The presence of an ASI pressure-head on the cabane suggests that it may have been an RNAS aircraft; and one such Morane, thus armed, was tested at RNAS Eastchurch in June 1915. (*R D Layman*)

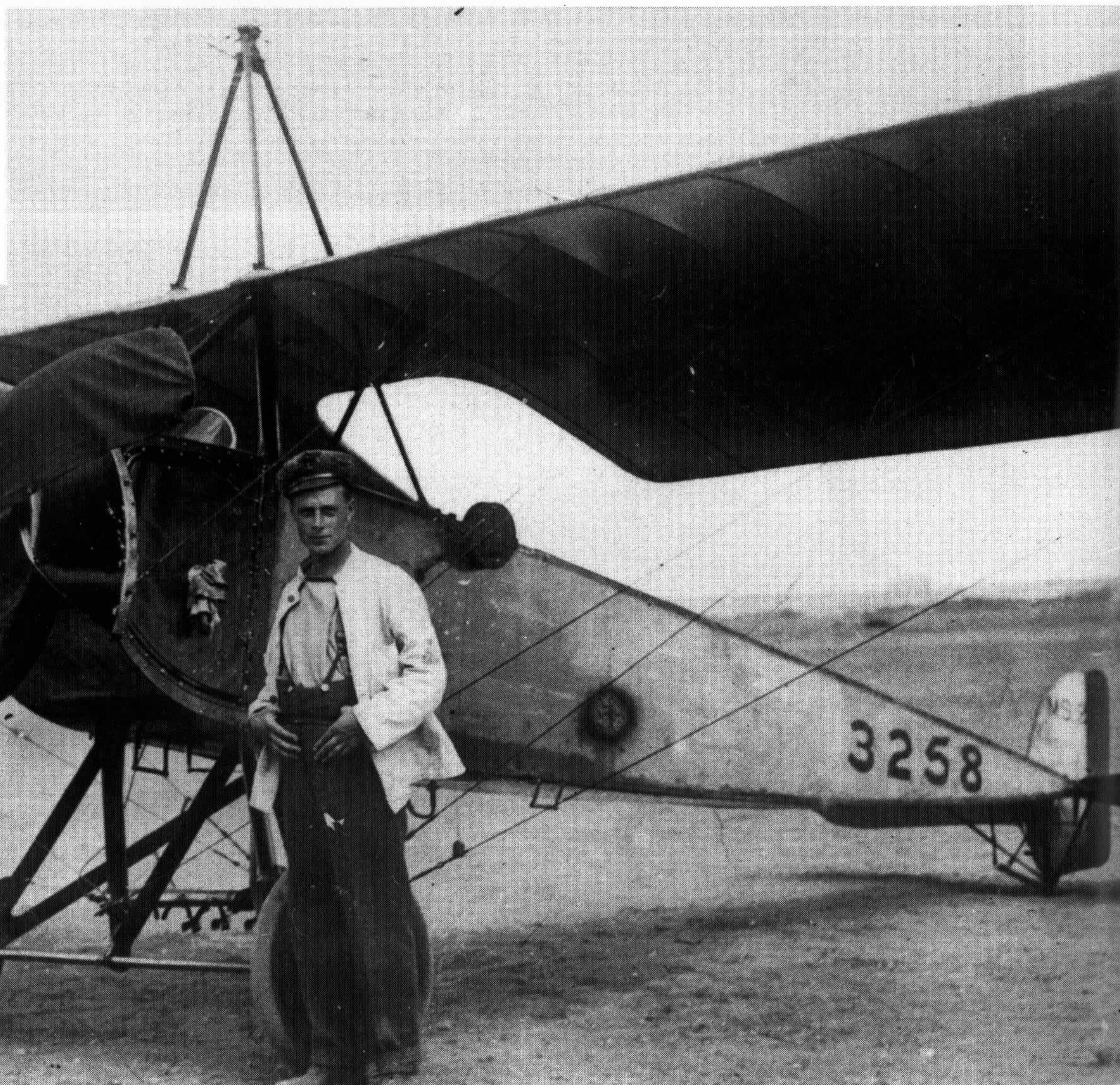


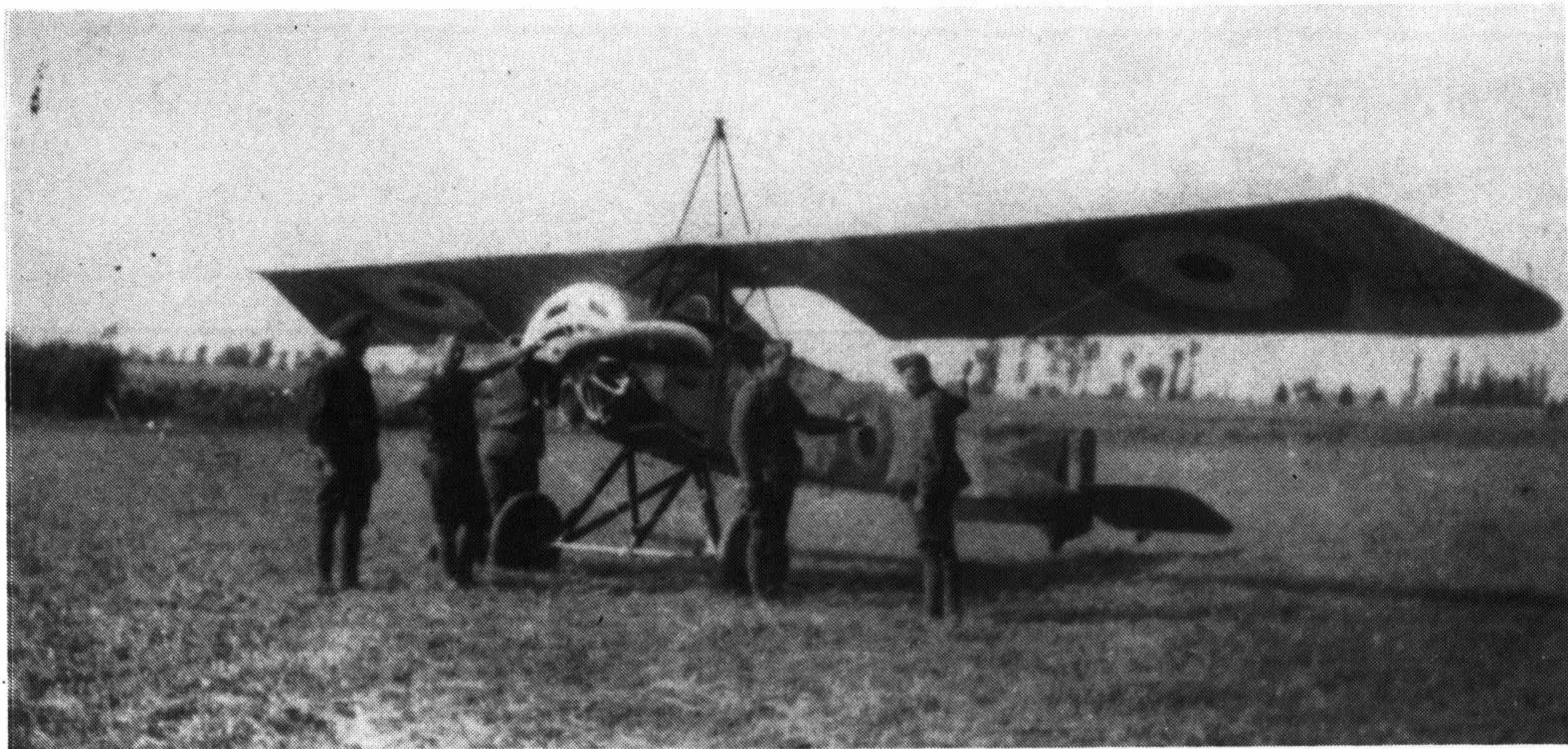


Right, on acceptance by the RNAS, MS311 was given the British serial number 3241. This Morane was with No.1 Squadron, RNAS, at Dunkerque by May 1915, but on September 2 was lying in temporary store at Dover, dismantled. It was sent to Eastbourne on December 11 1915, and was subsequently reported to be 'Ready' there. It was still in service in March 1916, but evidently went to Eastchurch, where this photograph was taken. The double application of the serial number on the fuselage was unusual, but 3241 had obviously been stripped of its engine, fuel tank, flank panels, wheels, and doubtless much else.

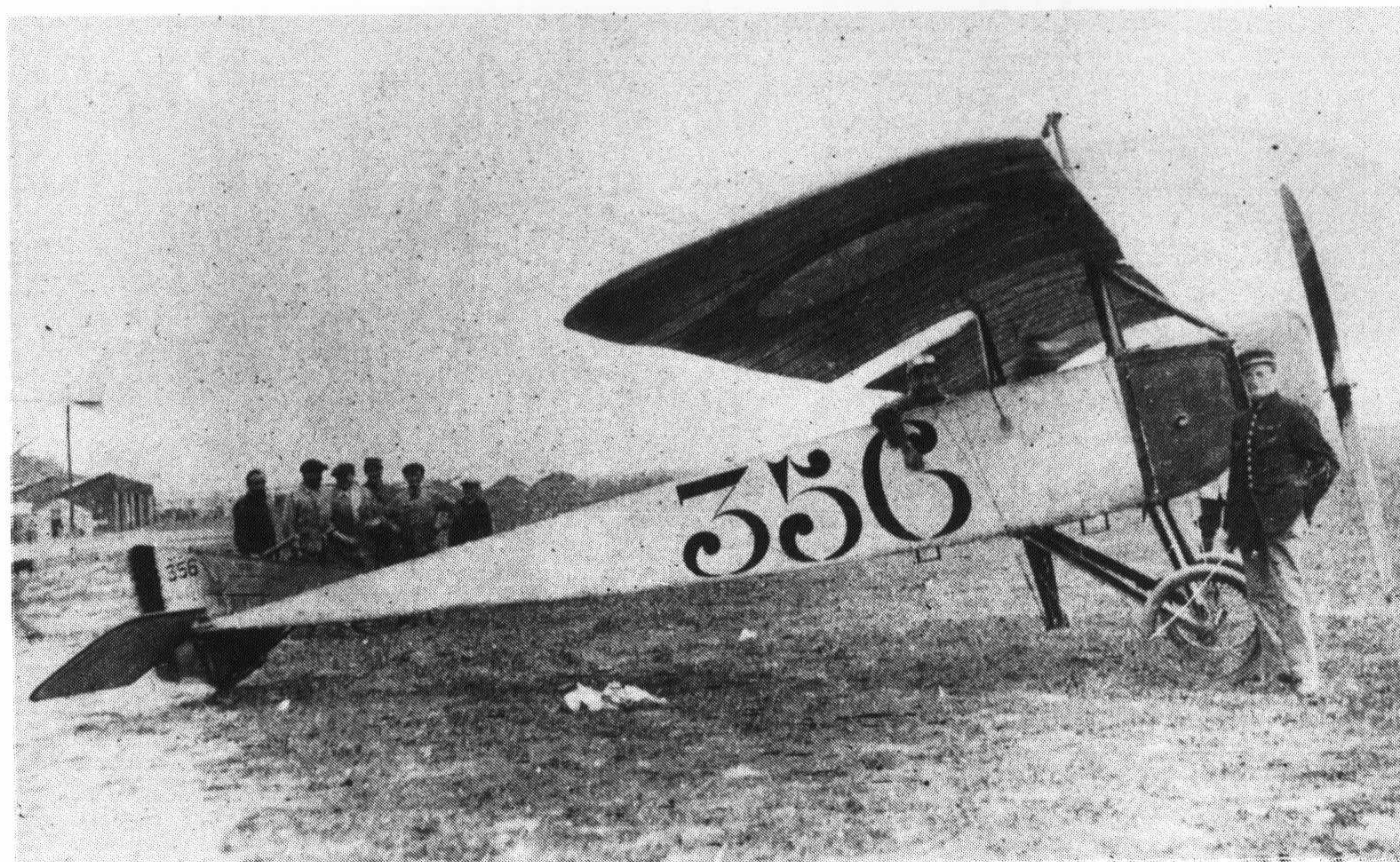


Below, on May 10 1915, six RNAS Type L Parasols, 3257-3262, were at Dover awaiting erection. By July 1 all but 3262 were reported 'Ready', but on July 27 all six were being crated for shipment to the Aegean, where they formed part of the equipment of No. 3 Wing. Here 3258 is seen at Mudros, with bomb rack installed and a reel for a trailing aerial on the port upper longeron by the rear cockpit.





Left, at least 52 Type L Parasols were delivered to the RFC from December 2 1914. This is believed to be 1881, which was delivered to No. 3 Squadron, RFC, on March 22 1915, remaining with the squadron until September 25 1915. In addition to its roundels, it had the Union Flag painted under each wing tip. (RAF Museum)



Centre, late production Type L Parasols had a fin surface added to the tail unit. MS356 was one of these and featured the small central recess in the leading edge of the mainplane. It also had its serial number repeated, in the largest characters possible, on the fuselage side. (Jean Noël)

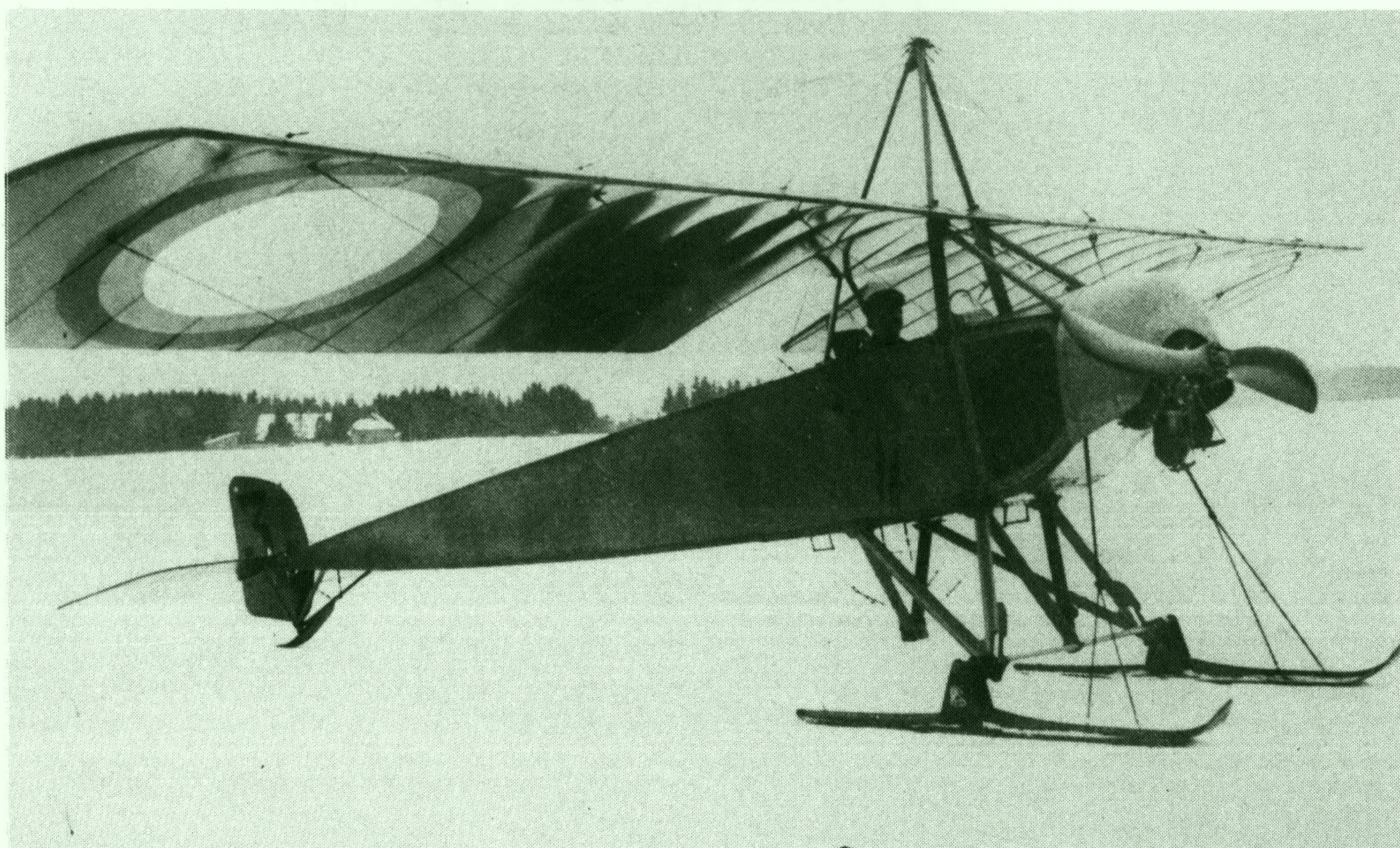
Below, another late production Type L, this one also had a primitive pivoted mounting for a Lewis gun in the observer's cockpit. (M Passingham)



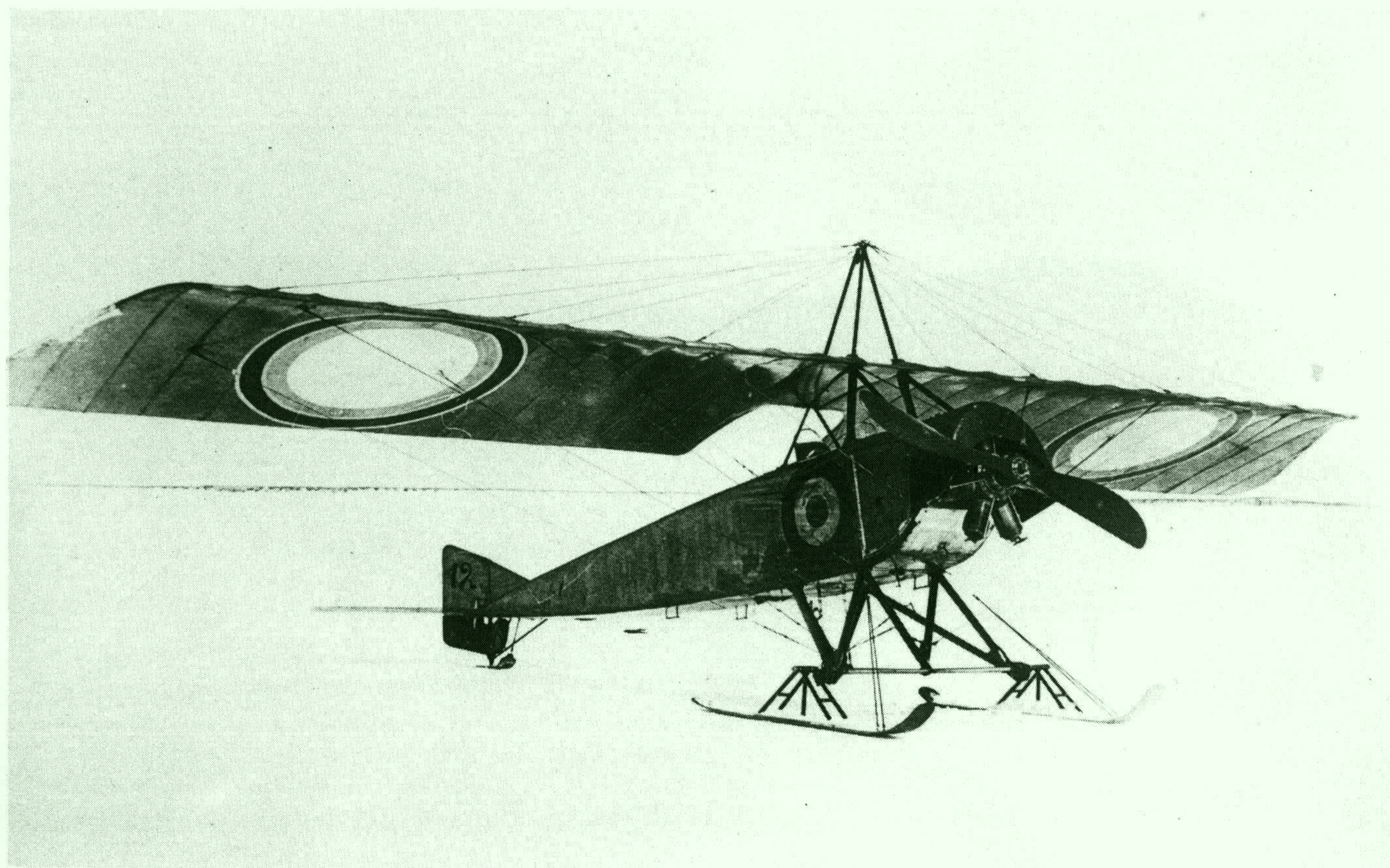
Right, one of the last Type L Parasols to be delivered to the RFC was 5051, which arrived at the 1st Aircraft Park on August 12 1915. Eight days later it went to No. 1 Squadron, returned to No. 1 AD on December 28 and was sent to England on December 30. By April 1916 it was at Central Flying School, probably the locale of this photograph, which shows the aircraft with a non-standard four-blade airscrew.



Centre, a Type L in Russian service at Gatchina airfield. This Morane has the early tail unit without fin; its ski undercarriage needs no comment, but the engine is a Gnome, probably of 80 hp. (*Riaboff Collection, via H H Wynne and K M Molson*)



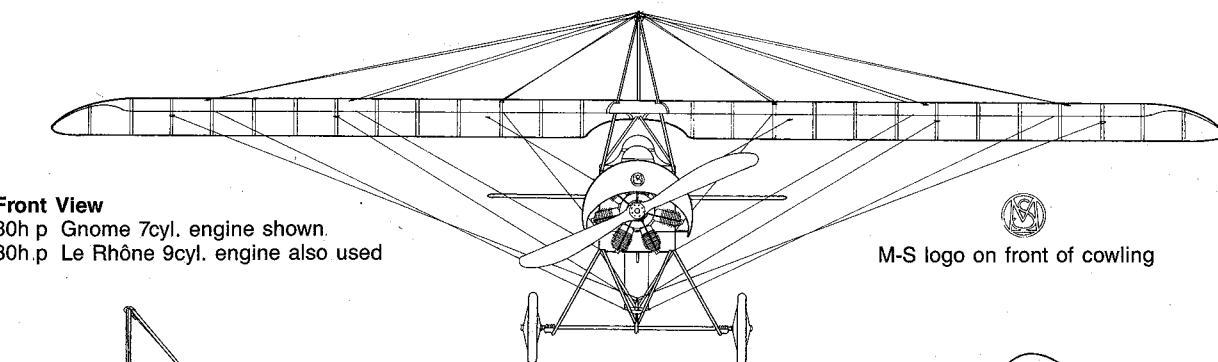
Below, also Gnome-powered, this Russian Type L had a fin, and its ski undercarriage differed slightly from that of the aeroplane in the preceding photograph. (*Jean P Alexander*)



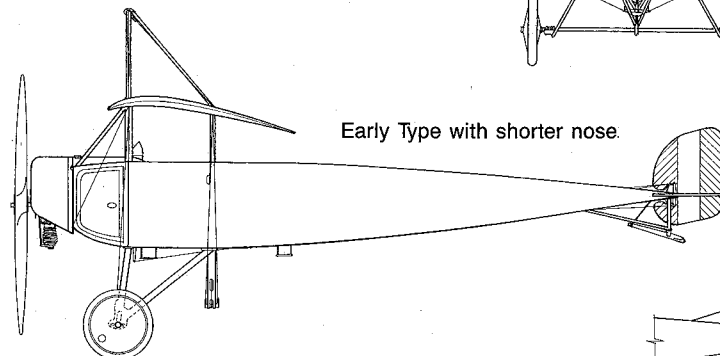
Front View

80h.p. Gnome 7cyl. engine shown.
80h.p. Le Rhône 9cyl. engine also used

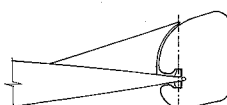
M-S logo on front of cowling



Early Type with shorter nose.

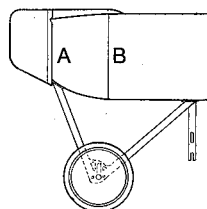


Scrap view of early undercarriage

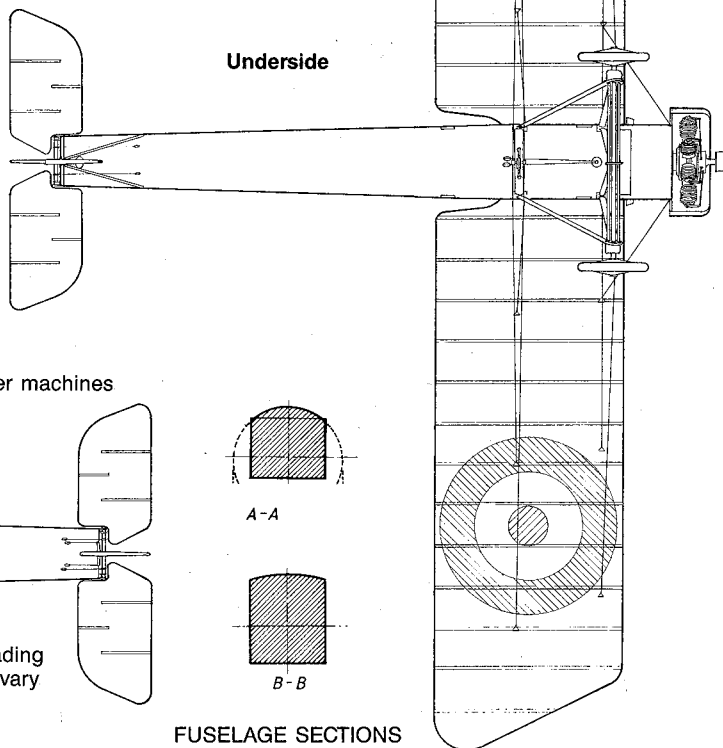


Fin on some Type Ls
Tailplane & skid omitted

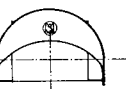
British Roundel



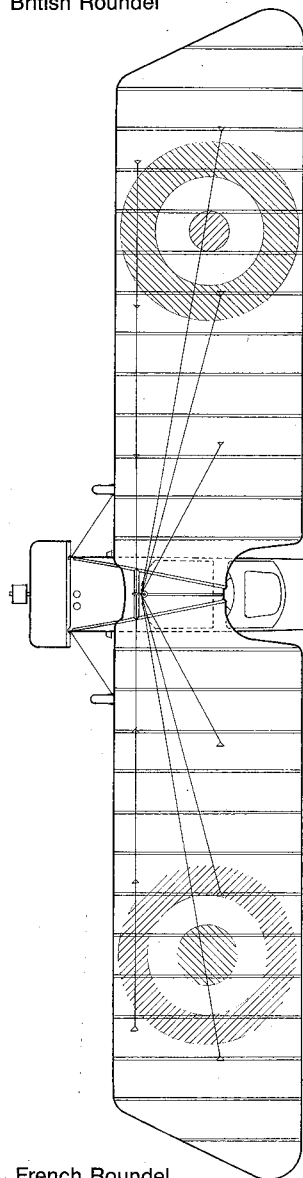
Underside



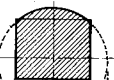
Alternative cowling on later machines



Plan



Shape of cut-outs in leading and trailing edges may vary



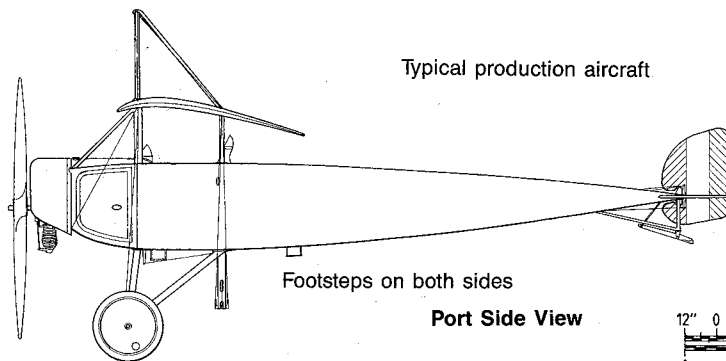
A-A



B-B

FUSELAGE SECTIONS

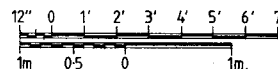
Typical production aircraft

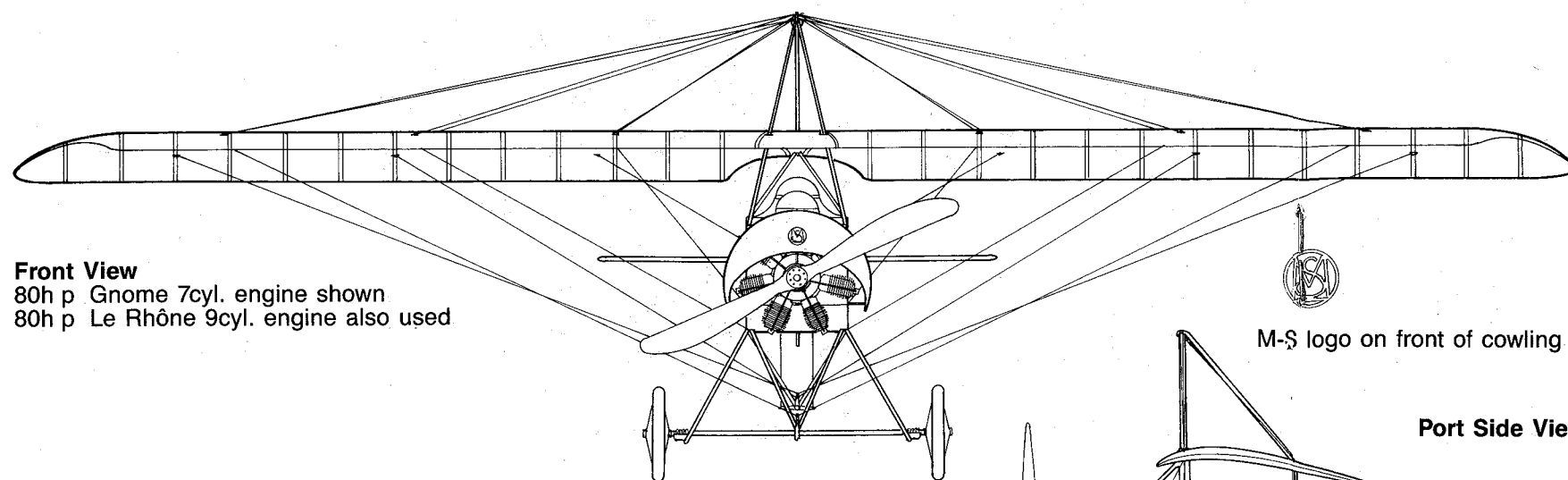


Footsteps on both sides

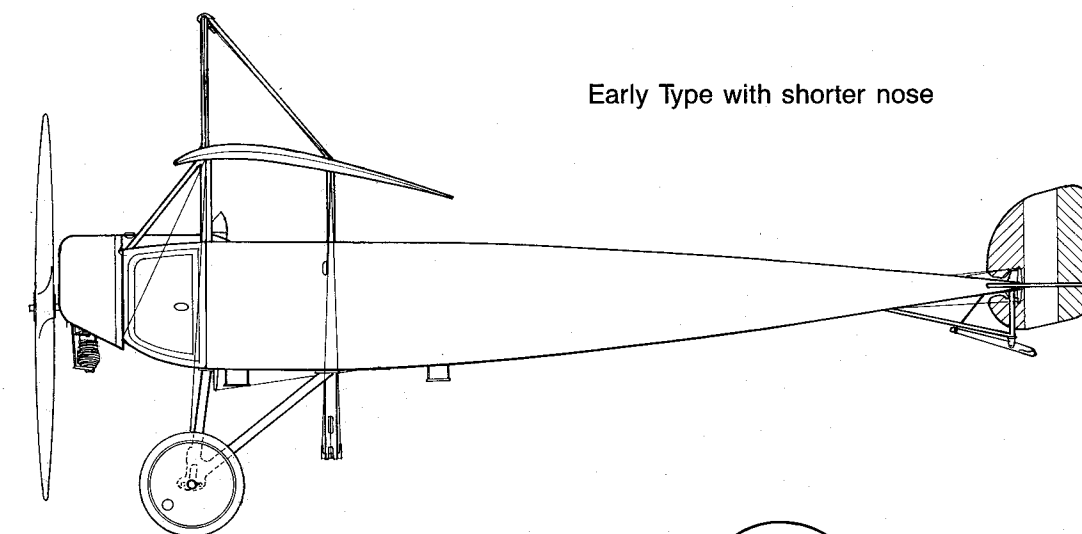
Port Side View

French Roundel

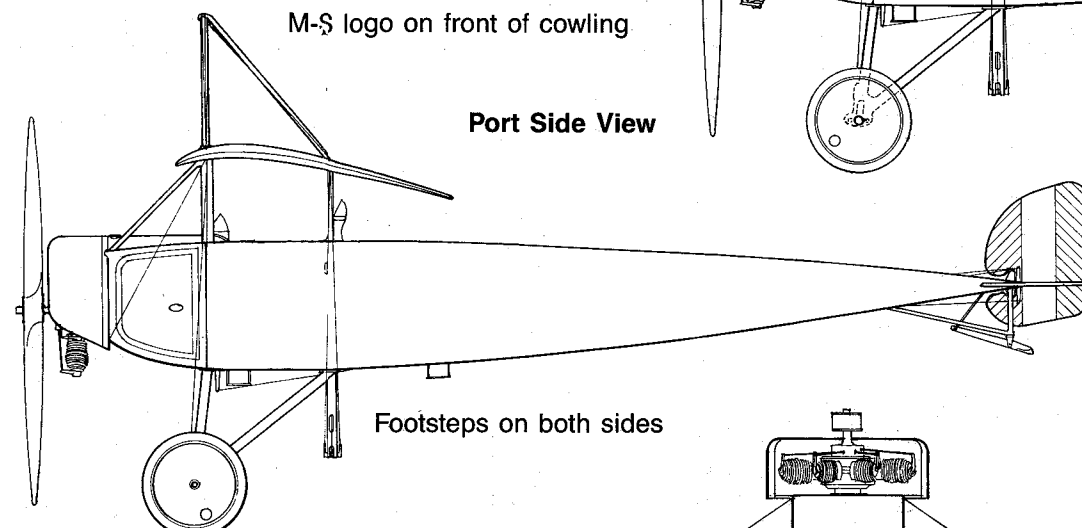




Front View
80h p Gnome 7cyl. engine shown
80h p Le Rhône 9cyl. engine also used



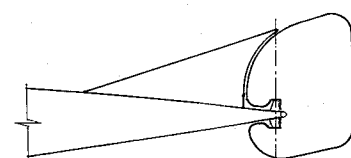
Early Type with shorter nose



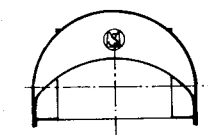
Port Side View

M-S logo on front of cowling

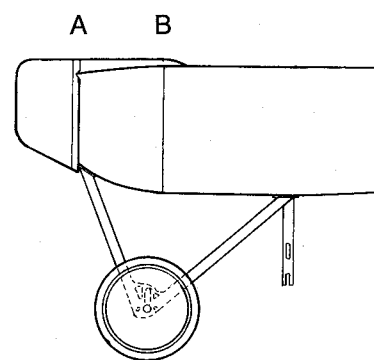
Footsteps on both sides



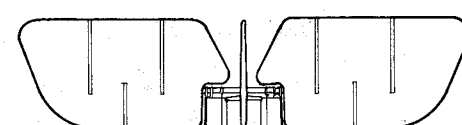
Fin on some Type Ls
Tailplane & skid omitted



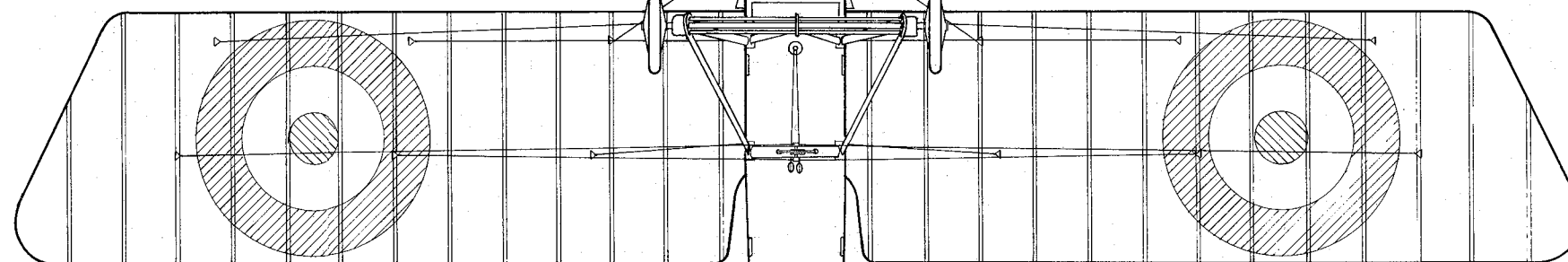
Alternative cowling on later machines



Scrap view of early undercarriage

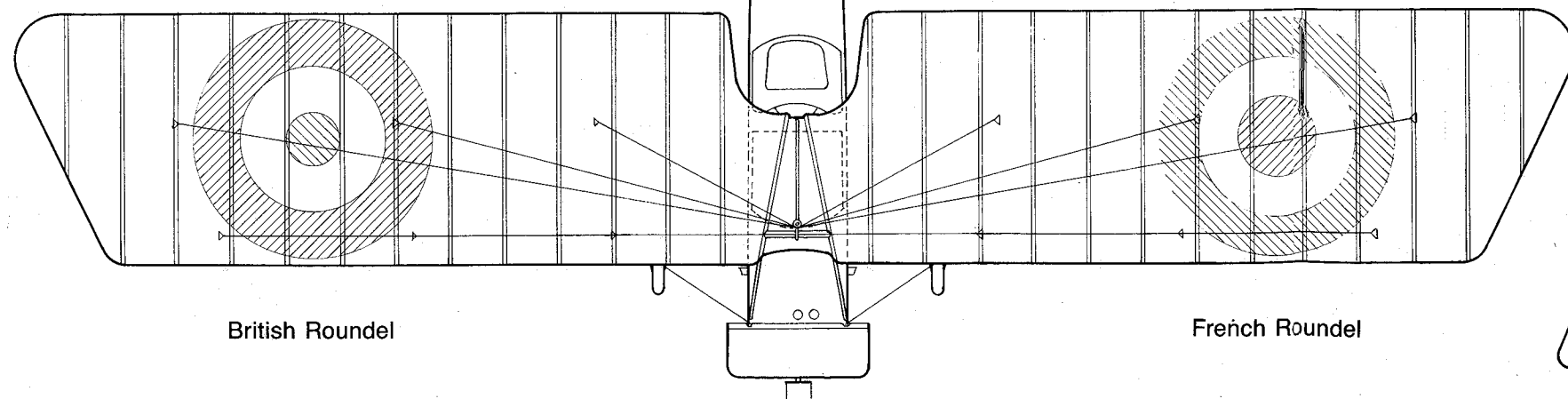


Plan



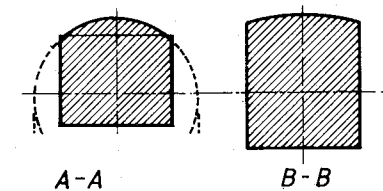
Underside

Shape of cut-outs in leading and trailing edges may vary



British Roundel

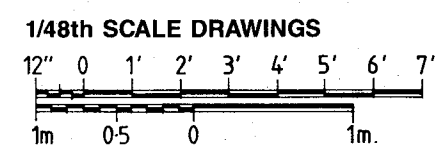
French Roundel



A-A

B-B

FUSELAGE SECTIONS

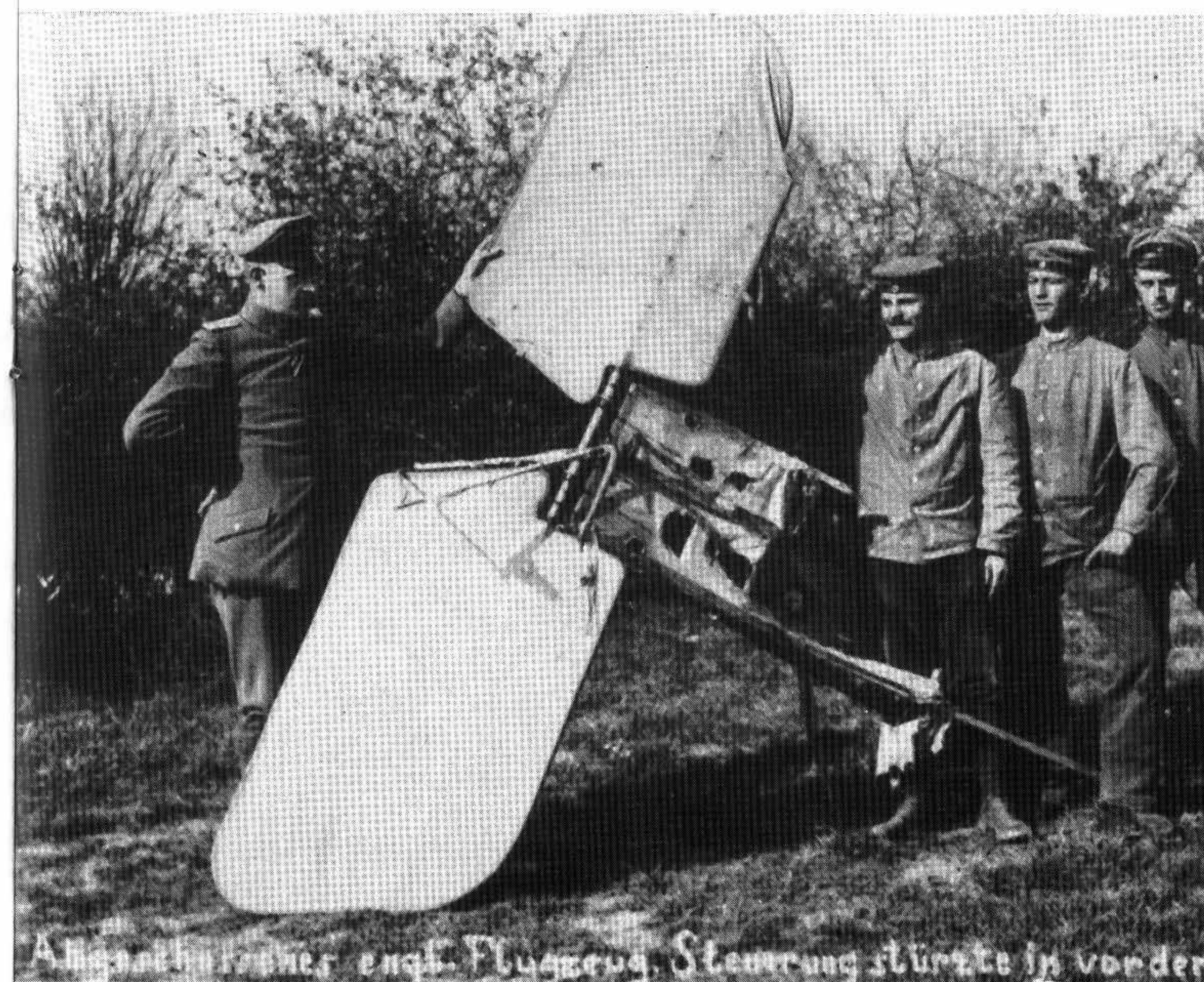
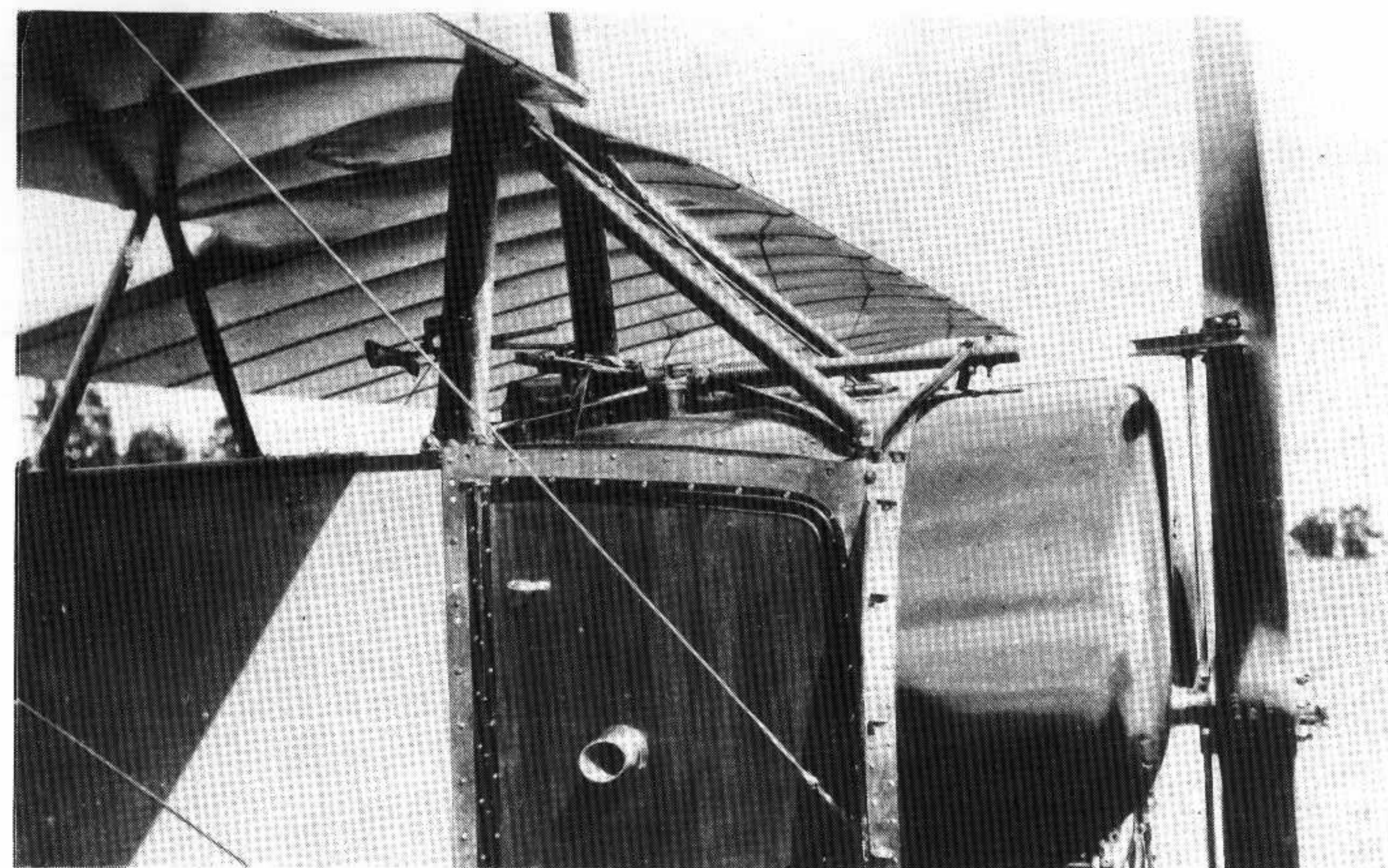


1/48th SCALE DRAWINGS

Right, a clearer view, on a different Type L Parasol, of the Garros-Hue installation of fixed Hotchkiss machine-gun and deflector propeller. What appears to be a different form of frontal headrest is carried on a transverse support between the upright cabane struts; it was apparently adjustable. Doubtless found to be of no practical use as an aid to aiming, it also threatened facial injury to the pilot in the event of a crash. (*Musée de l'Air et de l'Espace*)

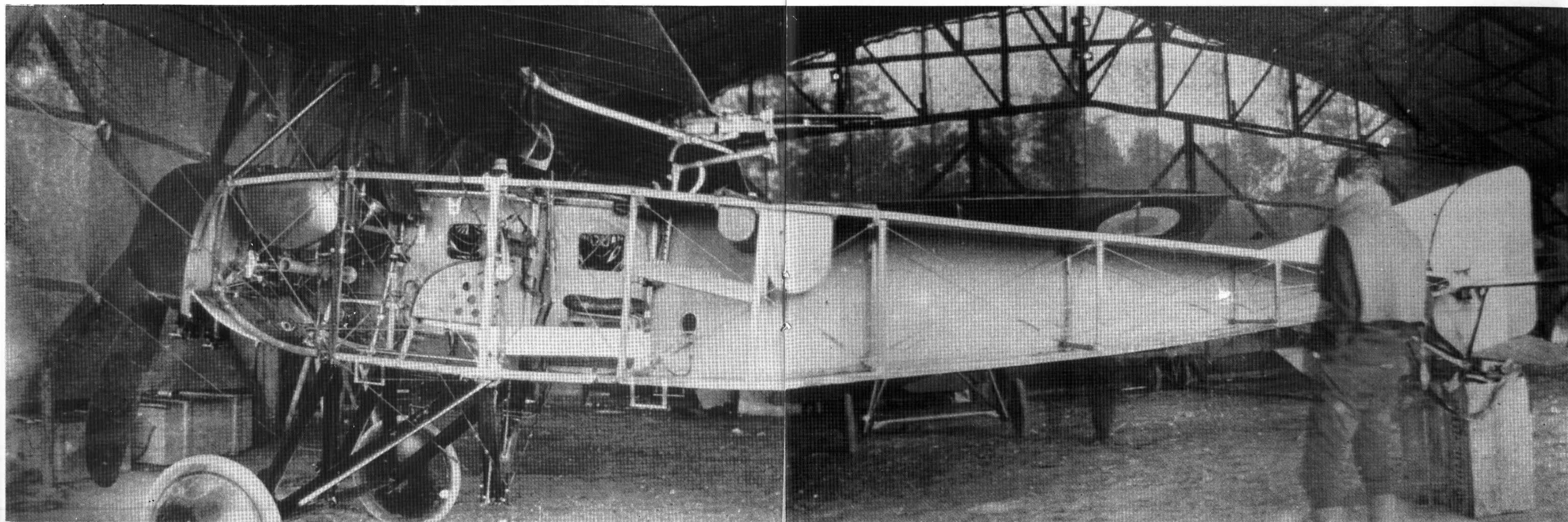
Below, despite the less-than-perfect alignment of its two halves, this composite photograph provides a detailed insight into the interior of a Type L Parasol. The mounting for the observer's Hotchkiss machine-gun somewhat resembles a British Strange mounting, as used on many BE2cs, 2ds and 2es of the RFC; and its lower end appears to be centrally pivoted.

THE TYPE L IN DETAIL



Left, remains of a Morane Saulnier behind German lines reveal detailed aspects of the elevator and (damaged) tail skid pylon. (*Dr V Koos*)

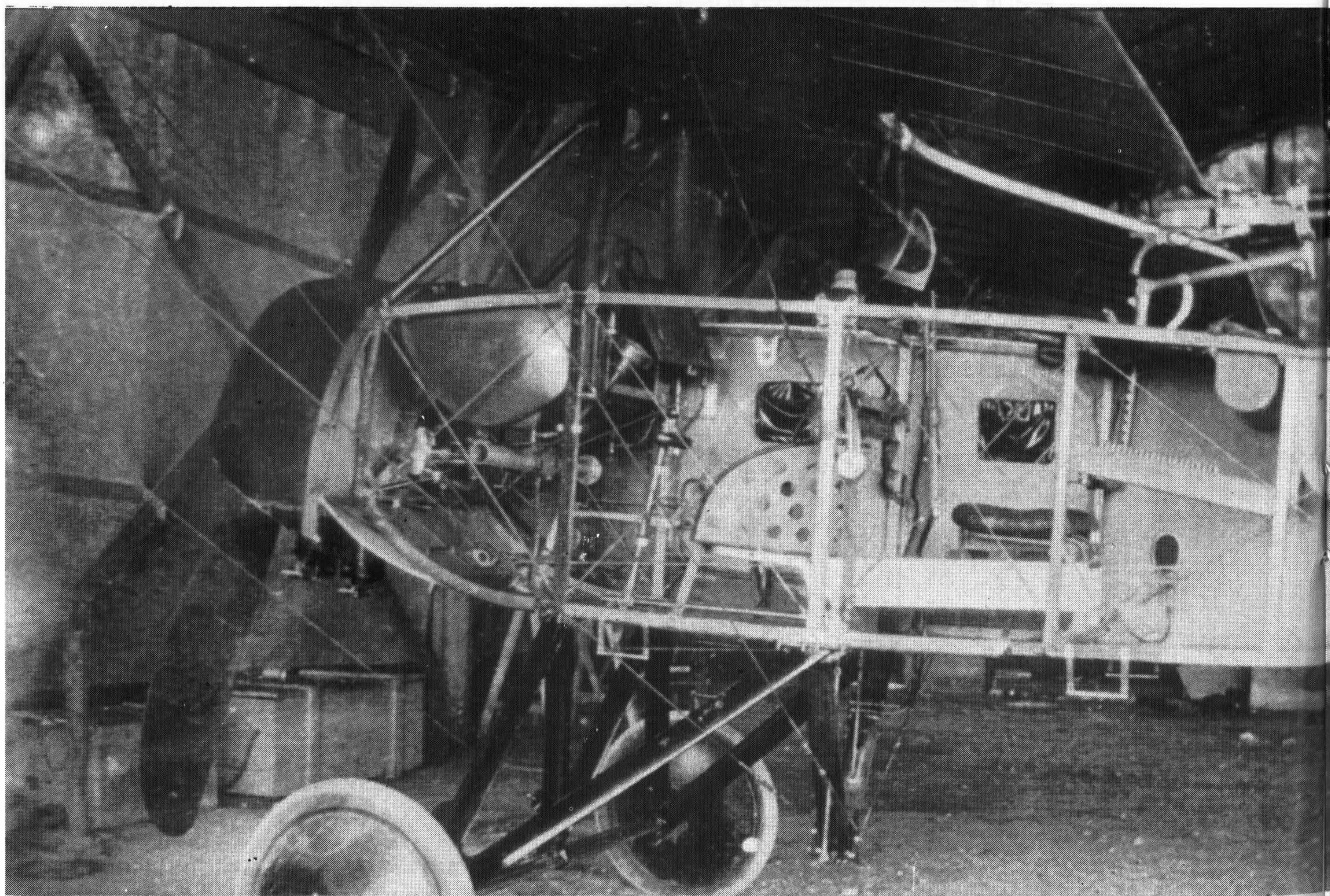
Overleaf; the fact that the observer was given a prominent windscreen suggests that the Type L was a draughty aeroplane. Some impression of the primitive accommodation provided by the aircraft can be gained from this photograph of Capt E L Conran standing beside a Parasol of No. 3 Squadron, RFC.

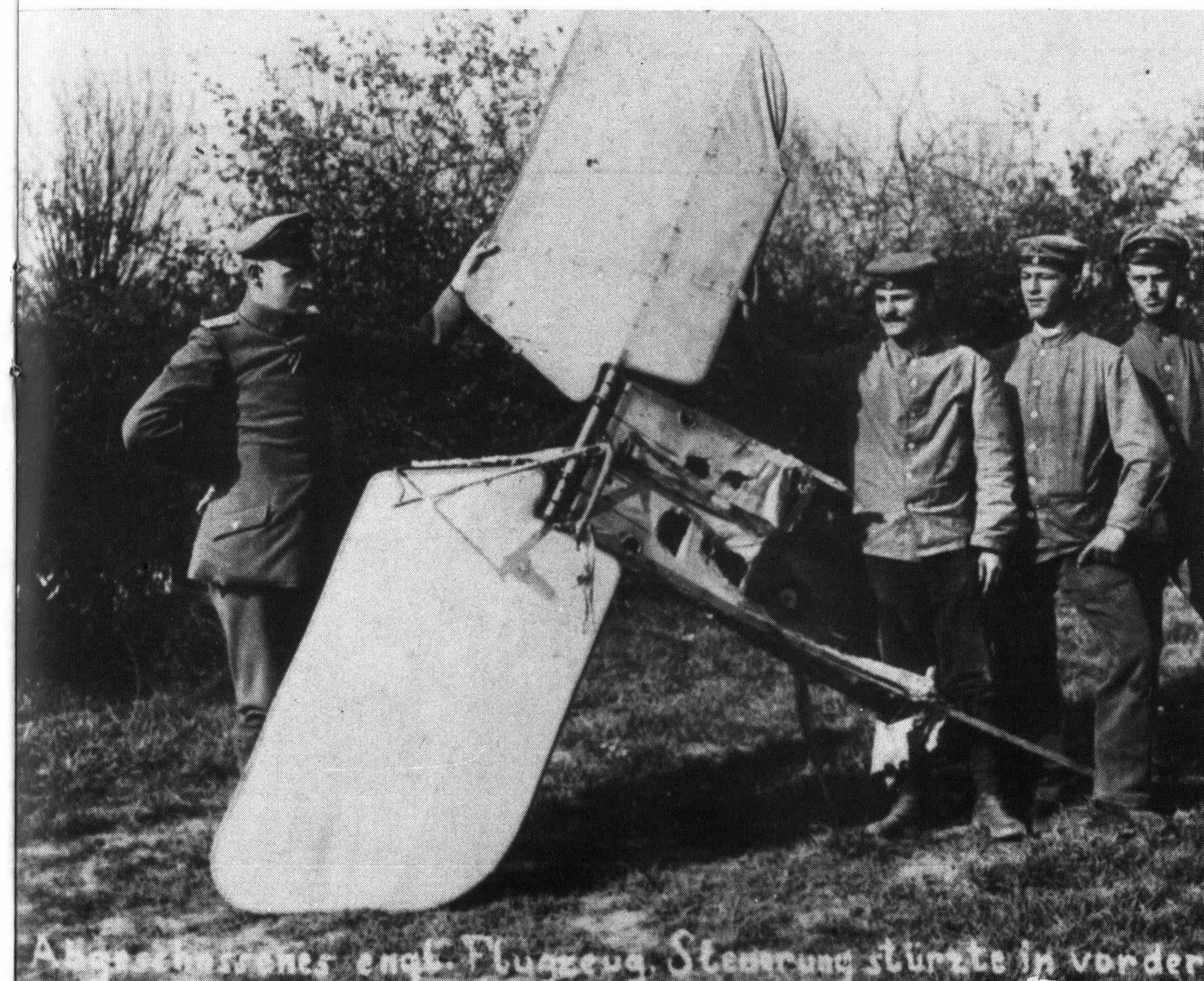


Right, a clearer view, on a different Type L Parasol, of the Garros-Hue installation of fixed Hotchkiss machine-gun and deflector propeller. What appears to be a different form of frontal headrest is carried on a transverse support between the upright cabane struts; it was apparently adjustable. Doubtless found to be of no practical use as an aid to aiming, it also threatened facial injury to the pilot in the event of a crash. (*Musée de l'Air et de l'Espace*)

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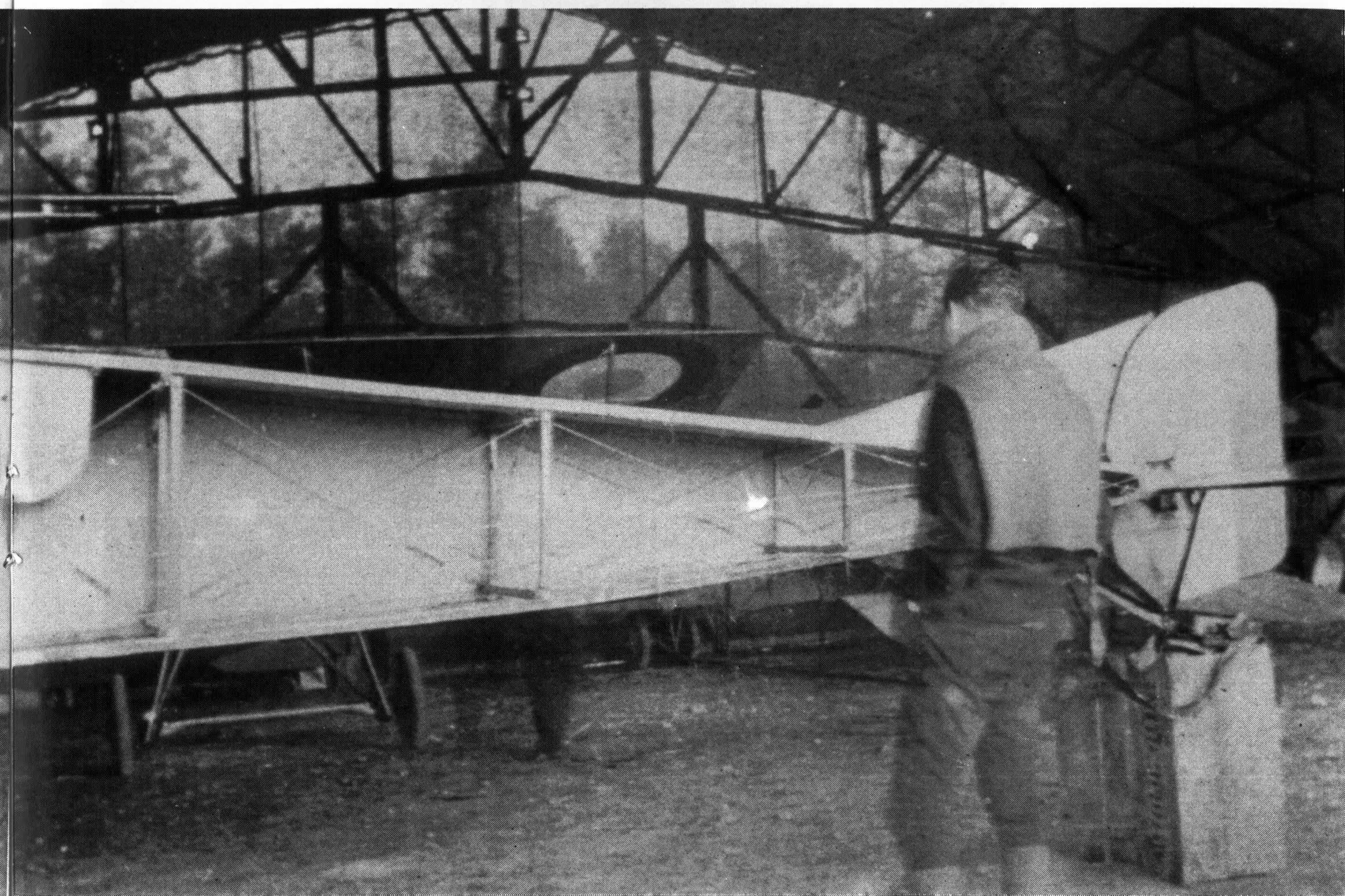
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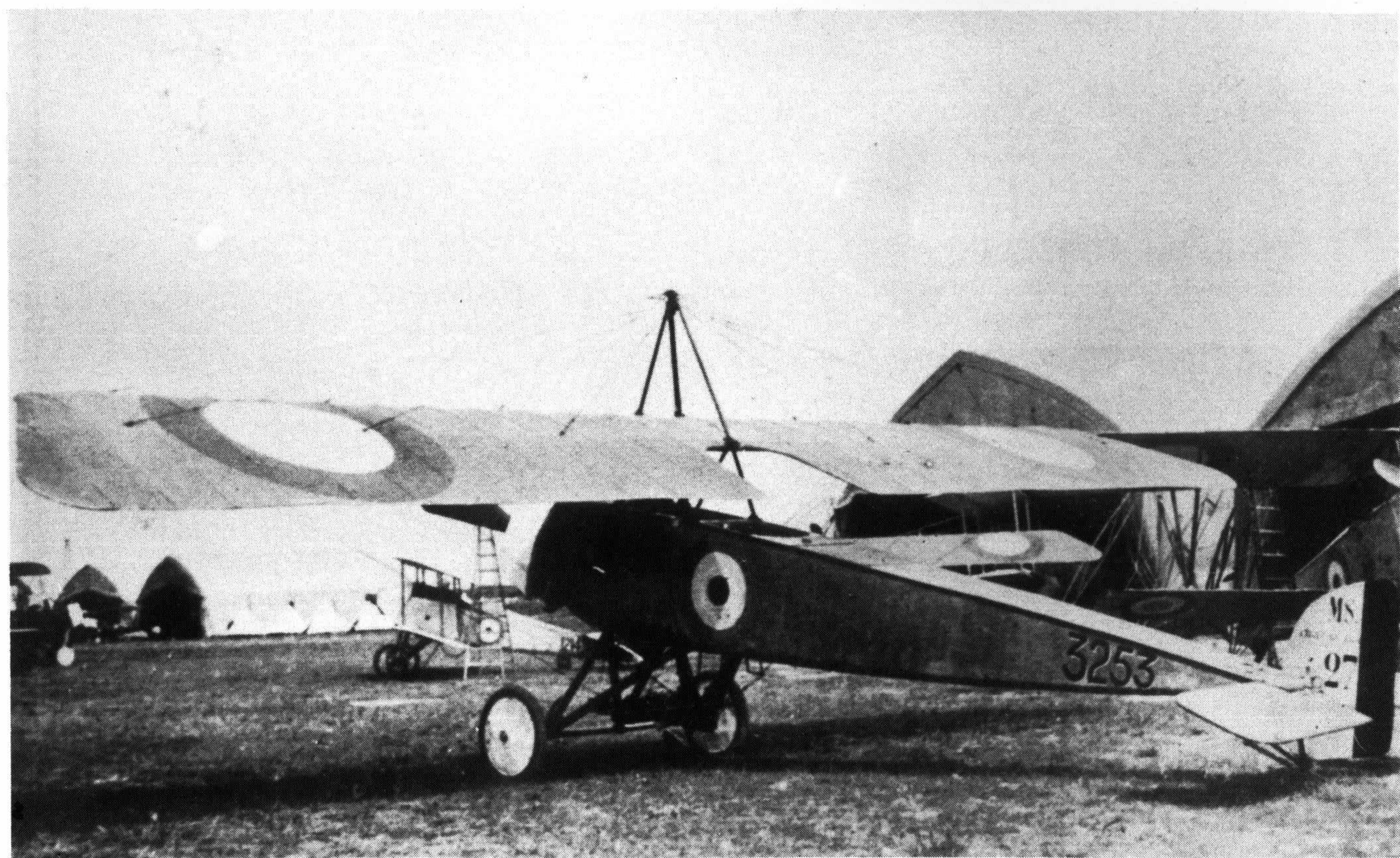


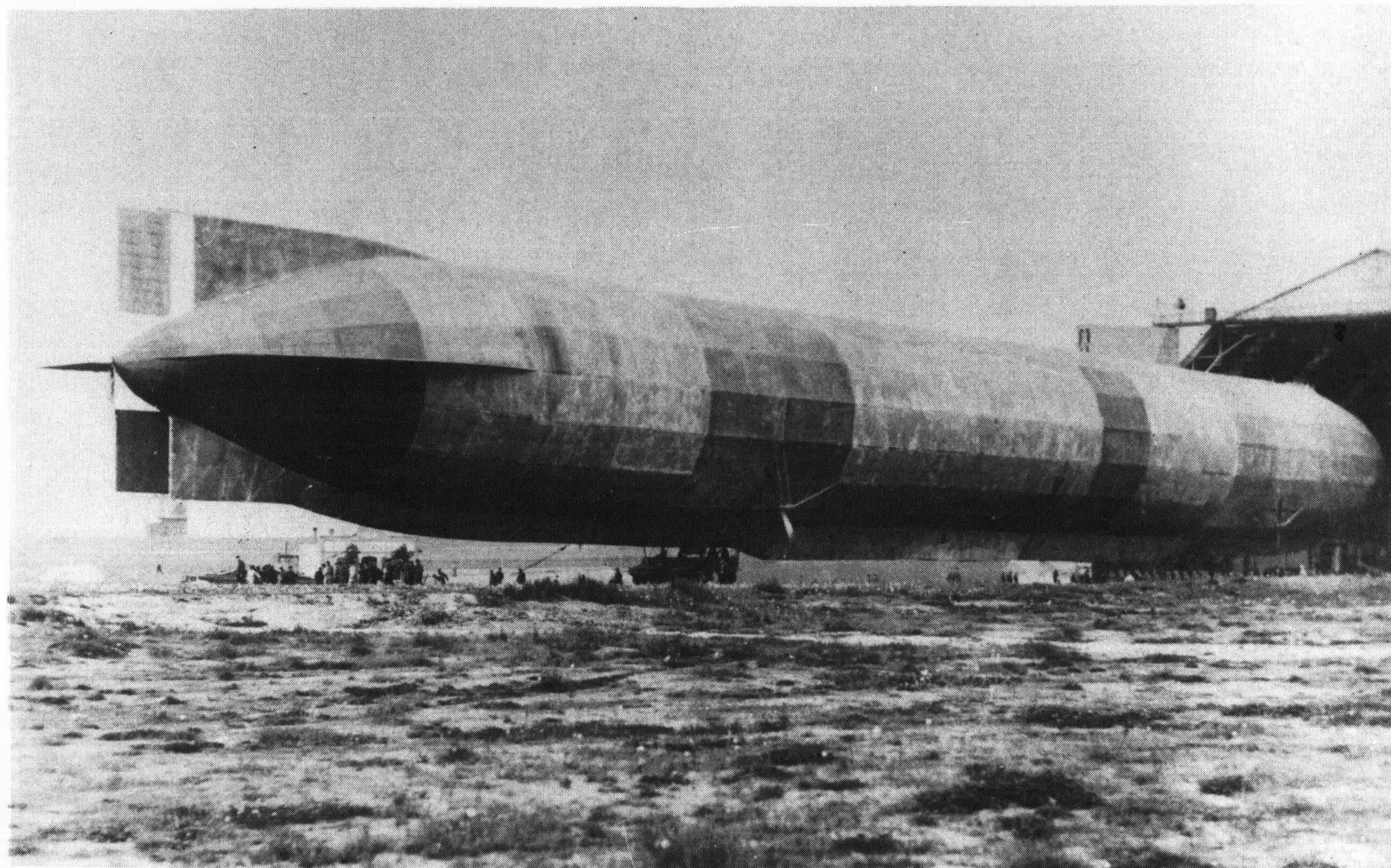
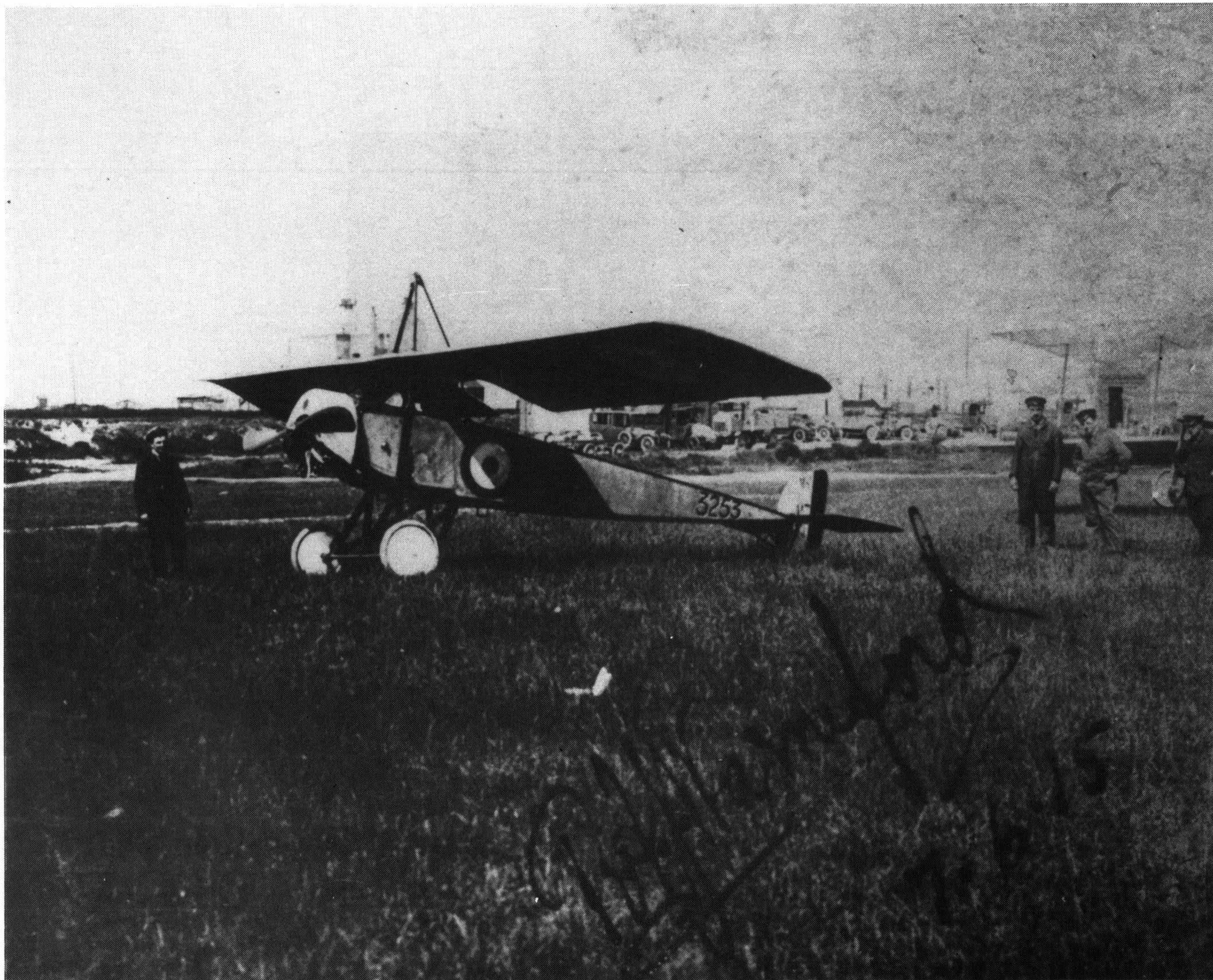


WARNEFORD'S 3253



Below, well known view of 3253 with undercarriage bomb racks plainly visible; note Sopwith Gordon Bennett racing biplane 1214 in background.





(Copy Extract from AH/No.17/122/14)
No.1 Naval Aeroplane Squadron,
7 June 1915

Wing Commander Longmore,

Sir,

I have the honour to report as follows:-

I left Furnes at 1.0am on June the 7 on Morane No.3253 under the orders to proceed to look for Zeppelins and attack the Bercham St Agathe Airship Shed with six 20lb bombs.

On arriving at Dixmude at 1.15am I observed a Zeppelin apparently over Ostend and proceeded in the chase of the same.

I arrived at close quarters a few miles past Bruges at 1.50am and the Airship opened heavy Maxim fire, so I retreated to gain height and the Airship turned and followed me.

At 2.15am he seemed to stop firing and at 2.25am I came behind, but well above the Zeppelin; height then 11,000 feet, and switched off my engine to descend on top of him.

When close above him, at (7,000 feet) I dropped my bombs, and, whilst releasing the last, there was an explosion which lifted my machine and turned it over. The aeroplane was out of control for a short period, but went into a nose dive, and the control was regained.

I then saw that the Zeppelin was on the ground in flames and also that there were pieces of something burning in the air all the way down.

The joint on my petrol pipe and pump from the back tank was broken, and at about 2.40am I was forced to land and repair my pump.

I landed at the back of a forest close to a farm house; the district is unknown on account of the fog and the continuous changing of course.

I made preparations to set the machine on fire but apparently was not observed so was enabled to effect a repair, and continued at 3.15am in a south-westerly direction after considerable difficulty in starting my engine single-handed.

I tried several times to find my whereabouts by descending through the clouds but was unable to do so. So eventually I landed and found out that I was at Cape Griz Nez, and took in some petrol. When the weather cleared I was able to proceed and arrived at the aerodrome about 10.30am.

As far as could be seen the colour of the airship was green on top and yellow below and there was no machine or gun platform on top.

I have the honour to be, Sir
Your obedient servant
(Sgd) RAJ Warneford,
Flt Sub-Lieutenant

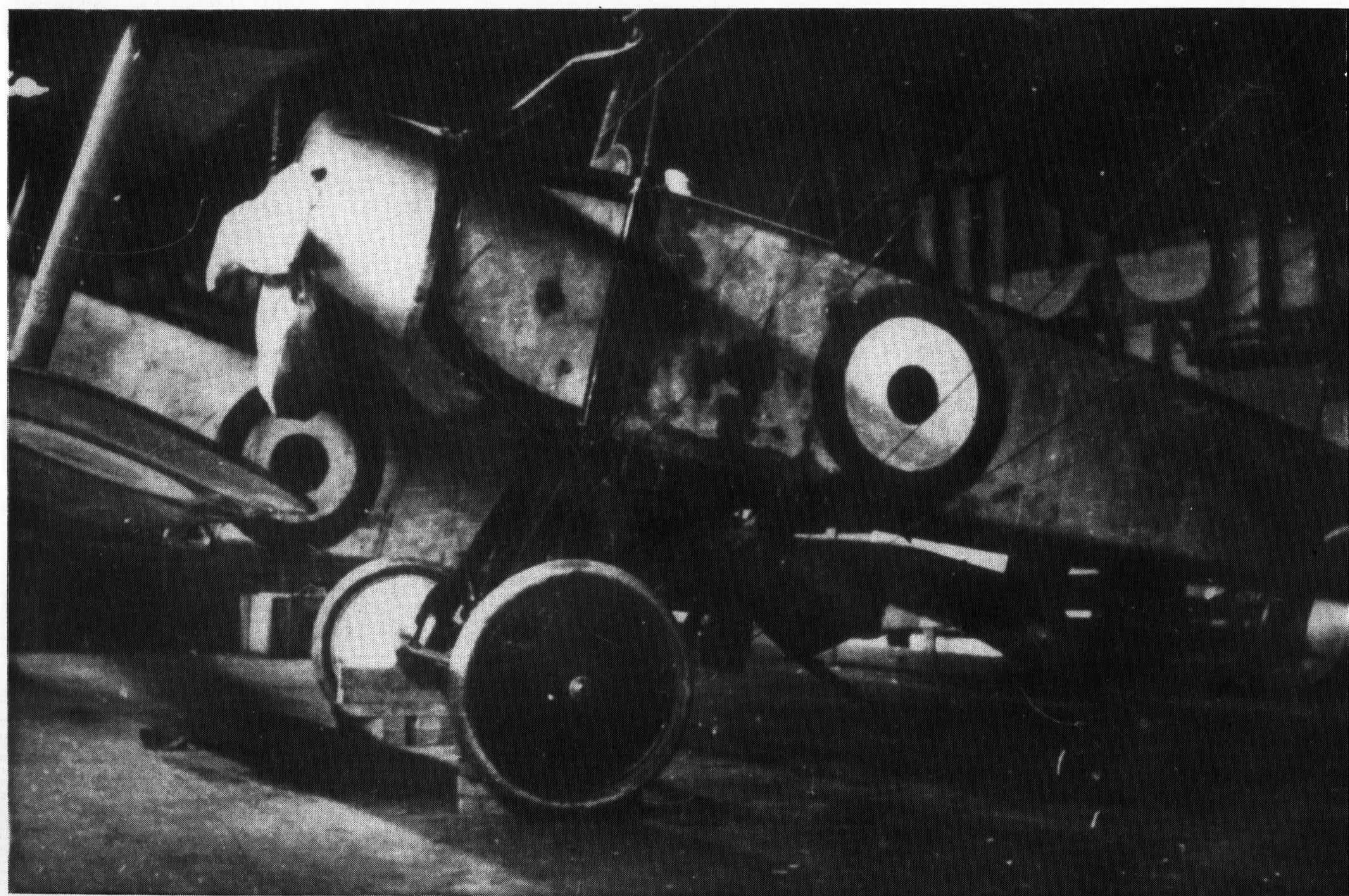
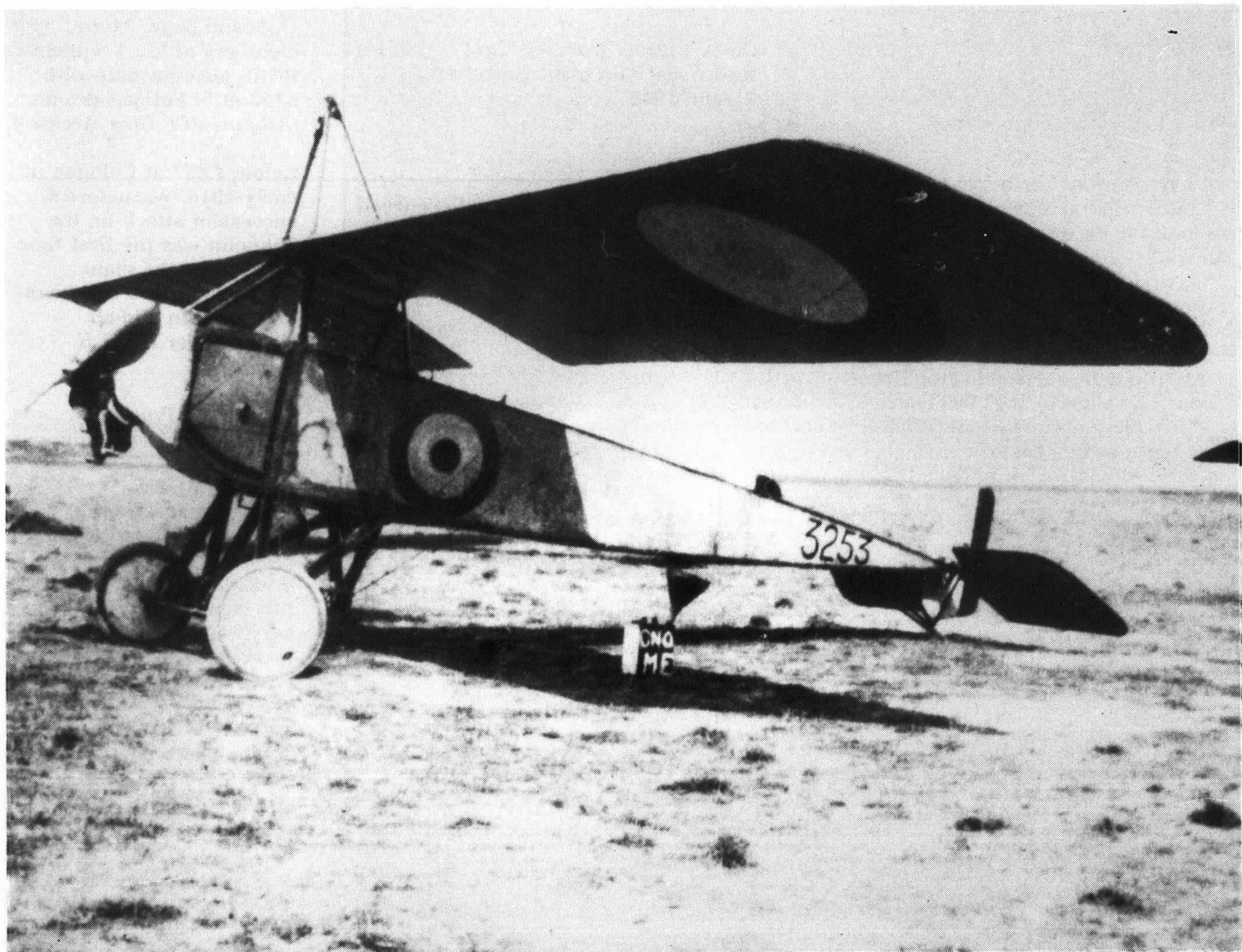
Opposite page: Above,
members of No. 1 Squadron
RNAS pose proudly with
3253 at St Pol aerodrome.
(Albatros/PL Gray Archive)

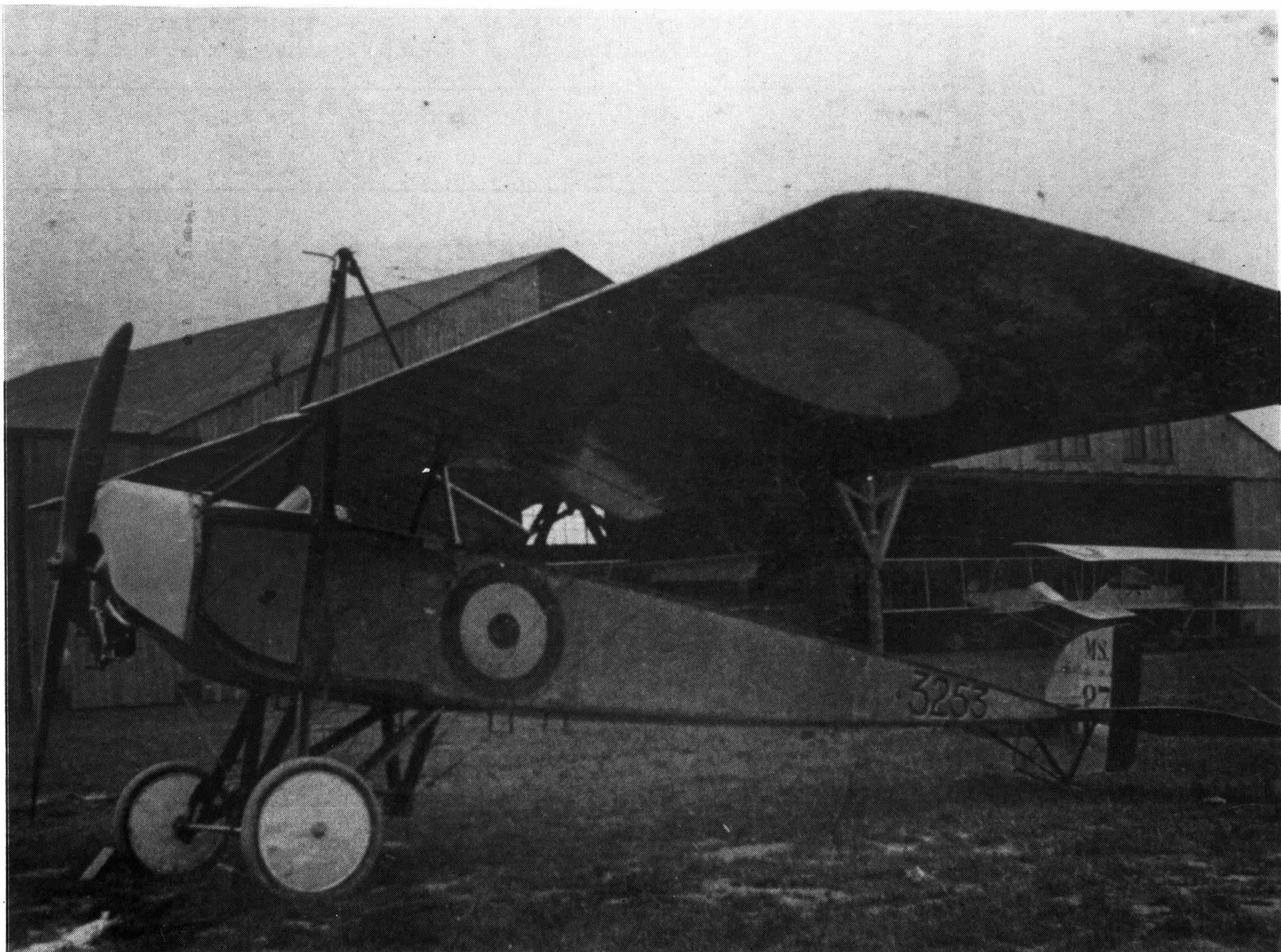
Below, LZ37 at Cologne in
early 1916. Warneford's
successful attack on the
Zeppelin was the first time
that one of the giant
airship bombers had been
destroyed in mid-air.
(Elias/Miller via D H
Robinson)

Below, two Type L Parasols
at St Pol, 3253 at right.

Overleaf: these
photographs, taken at
Dunkerque, illustrate the
presentation of the serial
number on the rear
fuselage and the size and
position of the national
markings: the roundels on
the wings had the outer
ring in red. It was on this
aeroplane that Flt Sub-Lt R
A J Warneford brought
down Zeppelin LZ37
with the last of the six
20-lb Hales bombs that his
Morane carried on the
bomb rack seen, between
the undercarriage struts, in
the lower photograph on
page 23. Also visible is the
bomb release-cum-sight on
the fuselage side by the
pilot's cockpit.







Right, Sub Lieutenant
Reginald Alexander John
Warneford VC stands
before Morane Saulnier
Type L 3253. (*Albatros/PL
Gray Archive*)

Below, Warneford VC poses
with 3253 for the press
cameraman in June 1916.
The aeroplane's cowling
has been painted white,
care being taken to
preserve the brass
manufacturer's nameplate.
(*Fleet Air Arm Museum*)



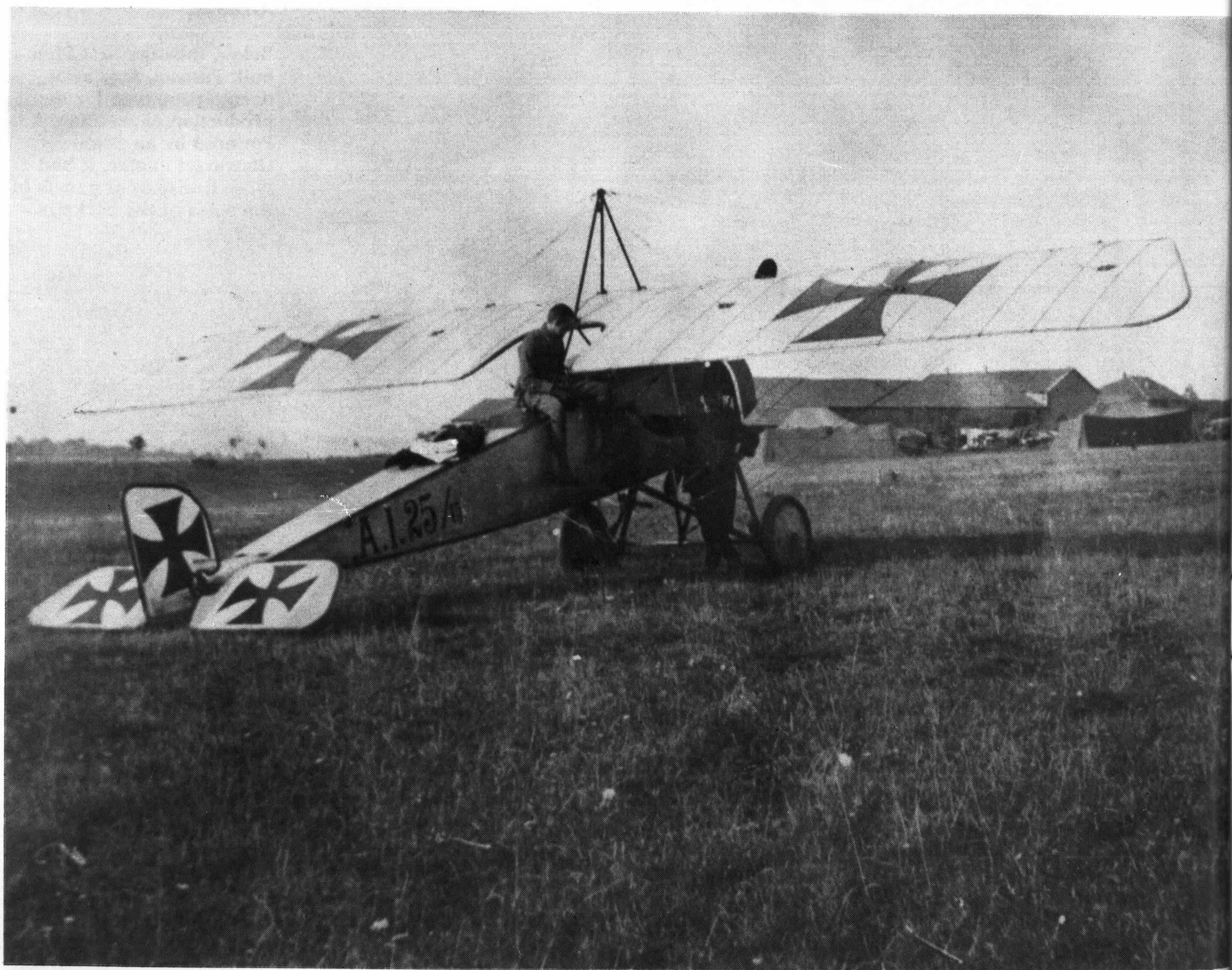
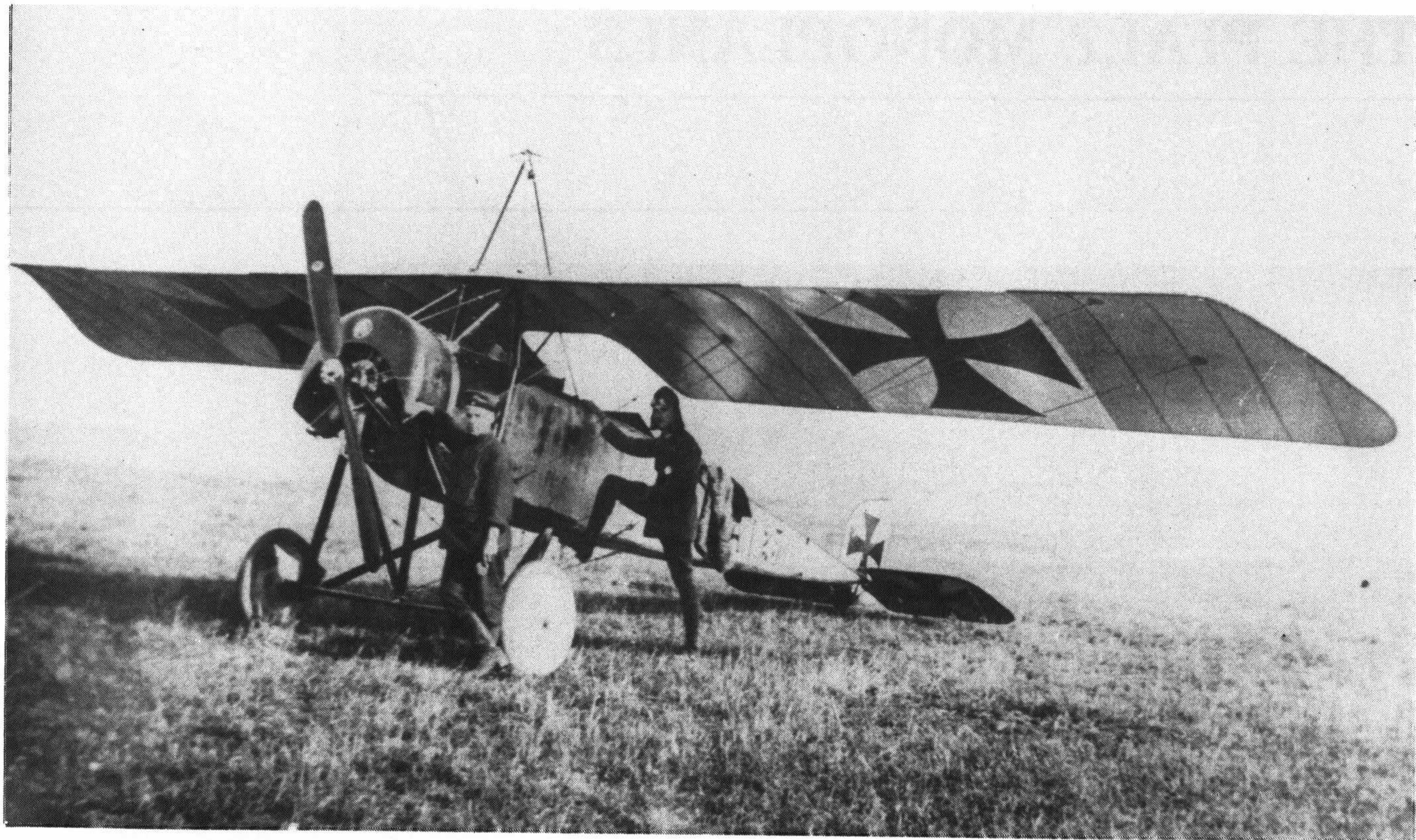
THE PFALZ MONOPLANES

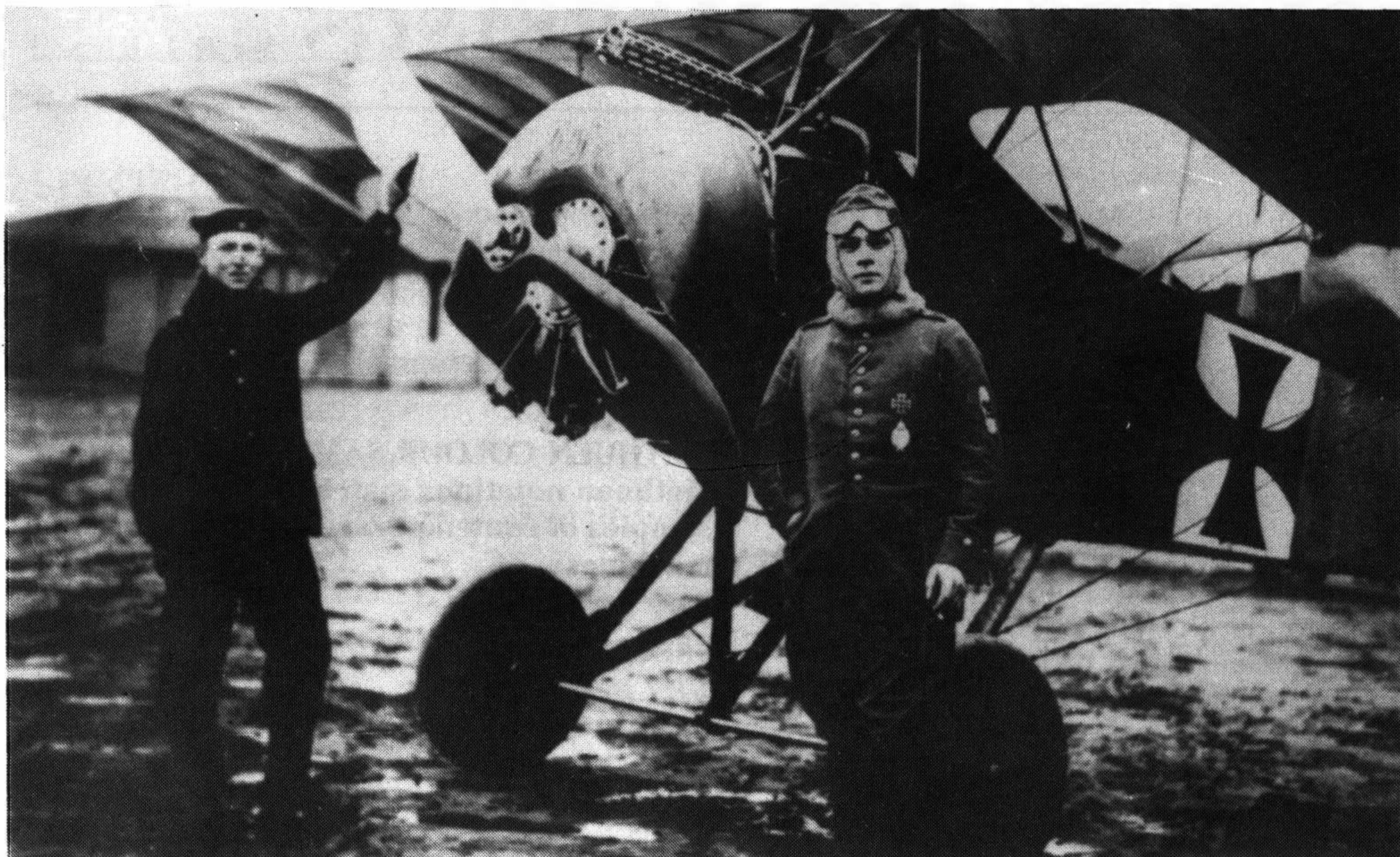


Left, the Bavarian War Ministry, although sceptical of foreign designs, nevertheless placed an order for a number of Pfalz A.I and A.II Parasols. Except for powerplants the two versions were virtually identical; some 60 were built in 1914-15.
(Albatros/P L Gray Archive)

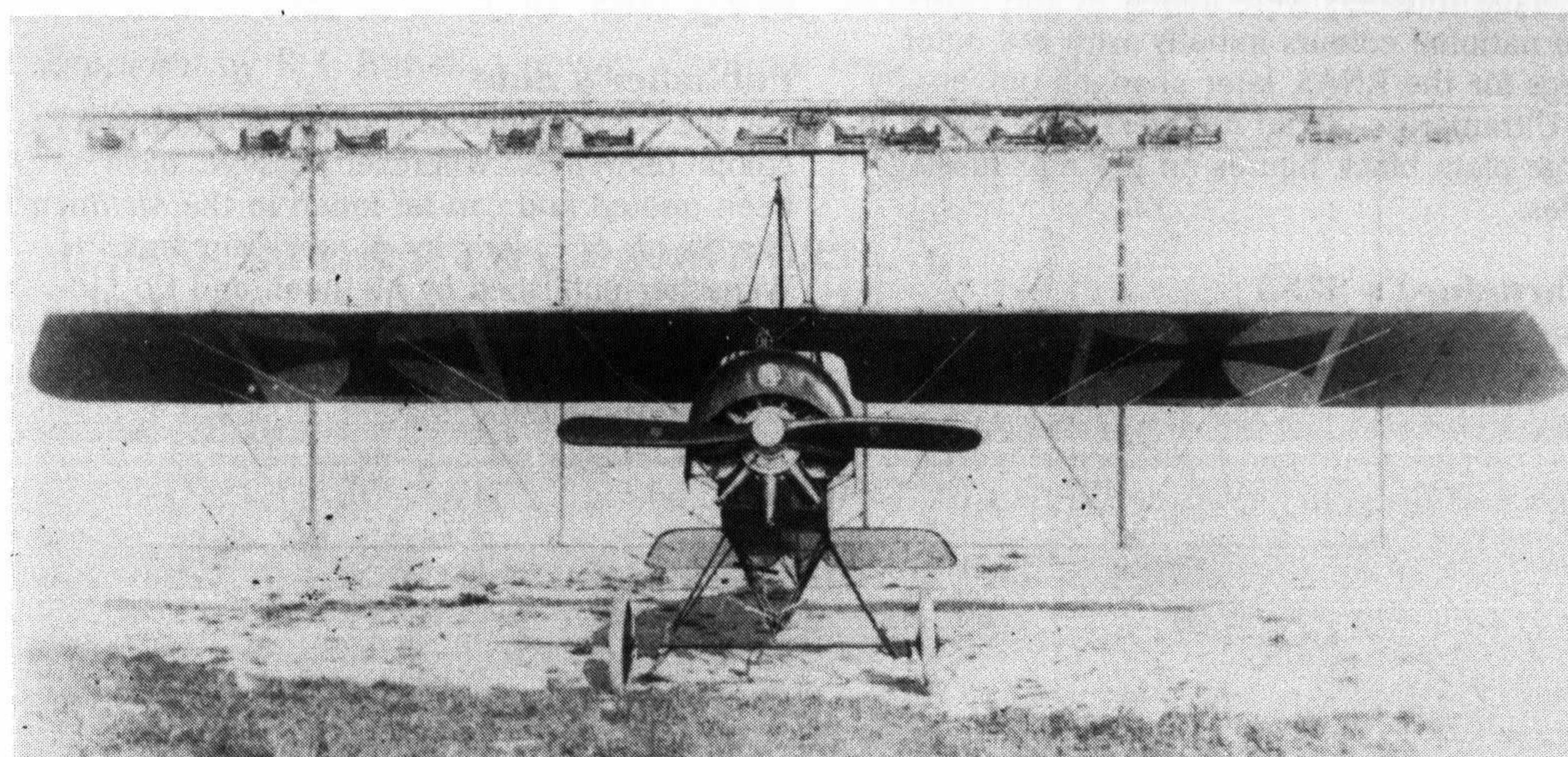
Below, this, the first Pfalz-built Parasol, may have been a prototype for the production of the Pfalz A.I. Powered by an 80hp Oberursel engine, it had large transparent panels in the sides of the cockpits.





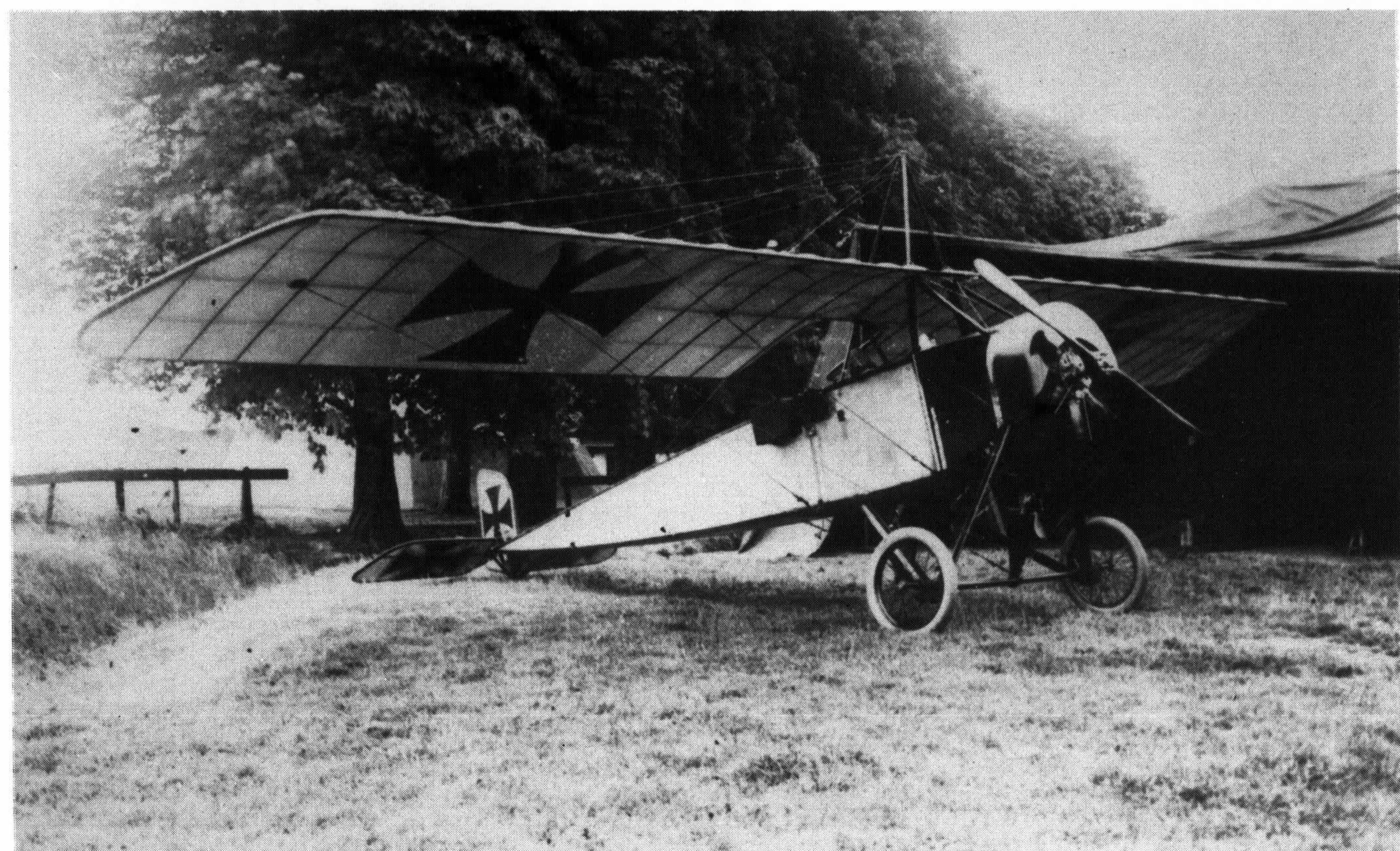


Opposite page:
Pfalz A.I 25/15 with
national markings liberally
applied. (Albatros/PL Gray
Archive)



Above and left, a number
of Pfalz A.II Parasol
monoplanes were armed
with a single, synchronised
machine-gun and re-
designated E.III. The
machine above is fitted
with an 80hp Le Rhône
while the A.II at left is
powered by a 100hp
Oberursel. Only eight
examples of the Pfalz A.II
were in Front-line service
by June 1916.

Below, an unidentified
Pfalz A.II. (Albatros/P L
Gray Archive)



COLOURS AND MARKINGS by R L Rimell

The majority of Morane Saulnier Type L monoplanes left the factory with their entire fabric-covered surfaces clear-doped, plywood forward fuselage side panels being clear varnished. The metal engine and upper fuselage cowlings were usually left in their natural finish and French roundels — in several variations of proportions — were doped on both wing surfaces, the national colours also being applied to the rudder with blue leading. The edges of the fuselage were doped in a dark colour, possibly one or other of the national colours or later, black, when the latter was used as a glossy finish on the forward fuselage areas, all struts and wheel covers.

Moranés were delivered to the RFC and RNAS in their original French markings and fuselage roundels were added by the British in the national colours initially with red outer rings for the RNAS, later changed universally to Ultramarine. Serial numbers were doped in large plain black figures on the rear fuselage sides.

Below, Morane Saulnier Type L 3261 at RNAS Imbros with British serial applied in large, plain black numerals on the rear fuselage with the original French markings retained.

Warneford's 3253

This RNAS machine carried the normal factory finish as outlined above with a few exceptions. The cowlings and wheel covers were doped white and a distinctively styled serial number was further enhanced with a

white 'drop shadow'. The RNAS-applied fuselage roundel is thought to have had the outer ring in Ultramarine although this is almost impossible to determine from study of monochrome photographs.

METHUEN COLOUR SAMPLES

Methuen notations matched to extant fabric samples of contemporary British and French machines:

VB2 Ultramarine

19D8, 20D7, 20E8, 21C7, 21D7

VB3 Red

10C8, 10D8, 10E8

Cocarde Rouge

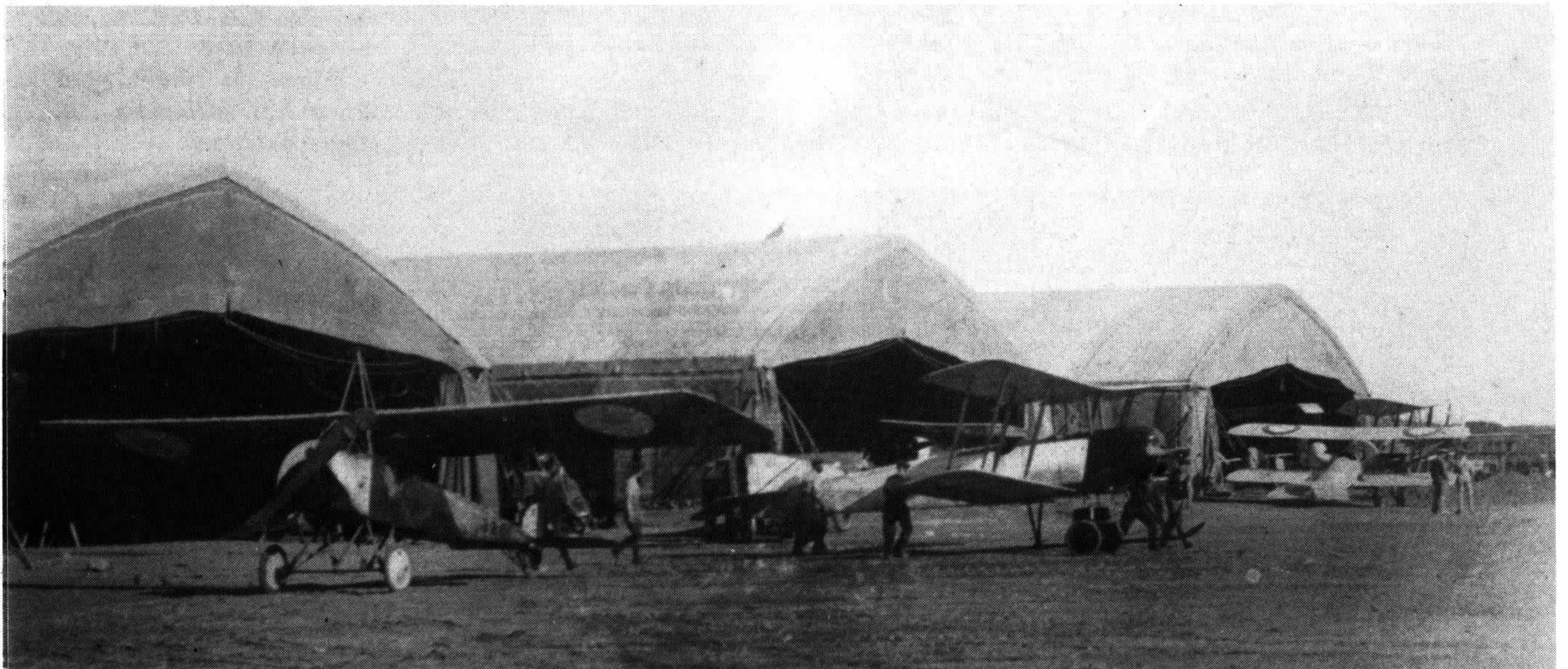
10D8, 10C8

Cocarde Bleu

22D4, 23D4, 23C8

Publisher's note

For the convenience of modellers, **Methuen** colour references, wherever possible, have been quoted and can be found in the *Methuen Handbook of Colour* by A Kornerup and J H Wanscher published by Methuen and Co Ltd., a book which provides over 1260 colour samples. Reprinted in 1989, the book is currently available from Peter Grose Ltd., PO Box 18, Mayhill, Monmouth, Gwent NP5 4YD at £31.50. □



KEY TO COLOUR PLATES

MORANE SAULNIER TYPE L, Aviation militaire, serial unconfirmed, flown by Roland Garros, Dunkerque 1915.

Finished overall in clear dope with cowlings, forward fuselage plywood panels, wheel covers and all struts finished in black. Reference: photographs, pages 5 and 6.

MORANE SAULNIER TYPE L, MS 356, Aviation militaire, circa late 1915.

Finished overall in clear dope with black-painted struts and cowlings with clear-varnished forward fuselage side plywood panels. French roundels on both surfaces of wings. Reference: photograph, page 11.

MORANE SAULNIER TYPE L, 12, Russian Air Service, circa 1916.

Finished overall in clear dope with black-painted struts and cowlings, and clear varnished forward fuselage side plywood panels, (possibly) British fuselage roundel, Russian roundels on both surfaces of wings. Reference: photograph, page 12.

APPENDICES

SPECIFICATIONS

Power: One 80hp le Rhône 9C nine-cylinder air-cooled rotary engine.

Dimensions: Span 36ft 9in, length 22ft 6 $\frac{3}{4}$ in, height 12ft 10 $\frac{5}{8}$ in; wing area 197 sq ft.

Weights: Empty 847lb, loaded 1,441lb.

Performance: Max. speed 72mph at 6,560ft; climb to 6,560ft, 14 mins.

Endurance: 2 $\frac{1}{2}$ hours.

Armament: One 8-mm Hotchkiss or 0.303-in Lewis machine-gun; or up to six 20-lb or two 155-mm bombs.

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From Sea to Sky by Sir A M Longmore, Geoffrey Bles, 1946*.

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Warplanes of the First World War (Fighters) Volume 5, by J M Bruce, McDonalds, 1972.

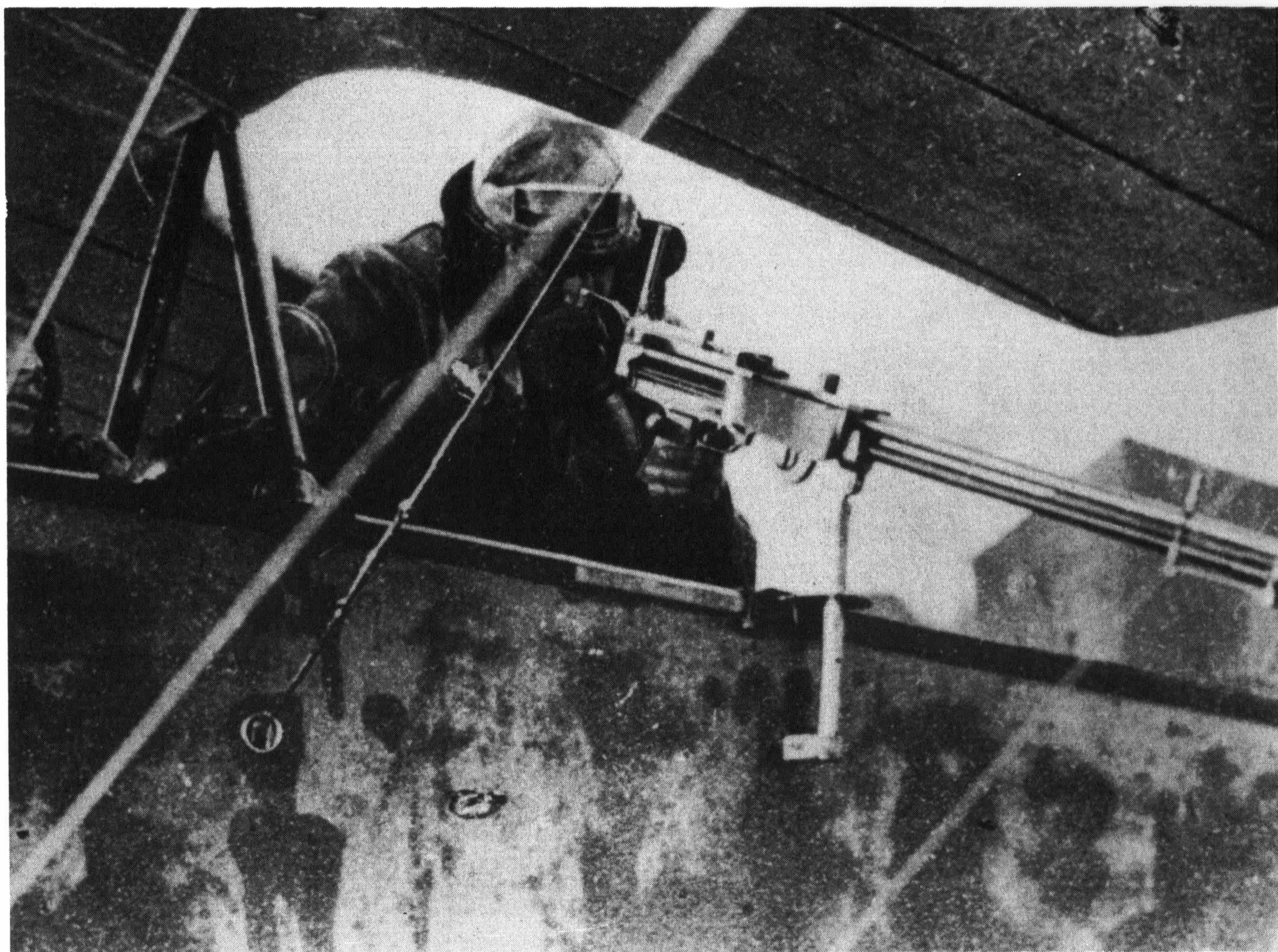
Zeppelin! by R L Rimell, Conway Maritime Press, Ltd., 1984*.

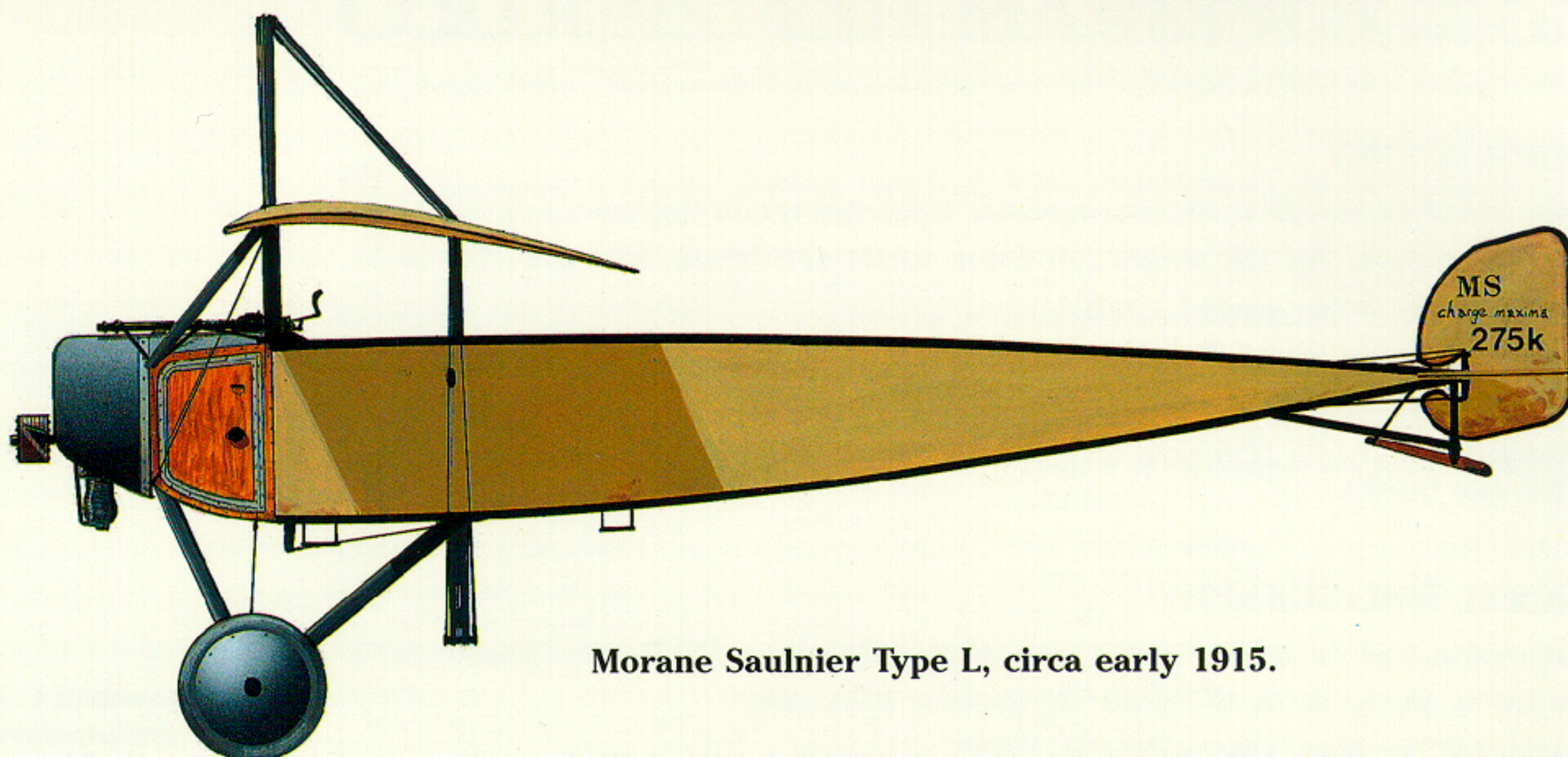
* For the Warneford story.

MORANE SAULNIER TYPE L SURVIVORS

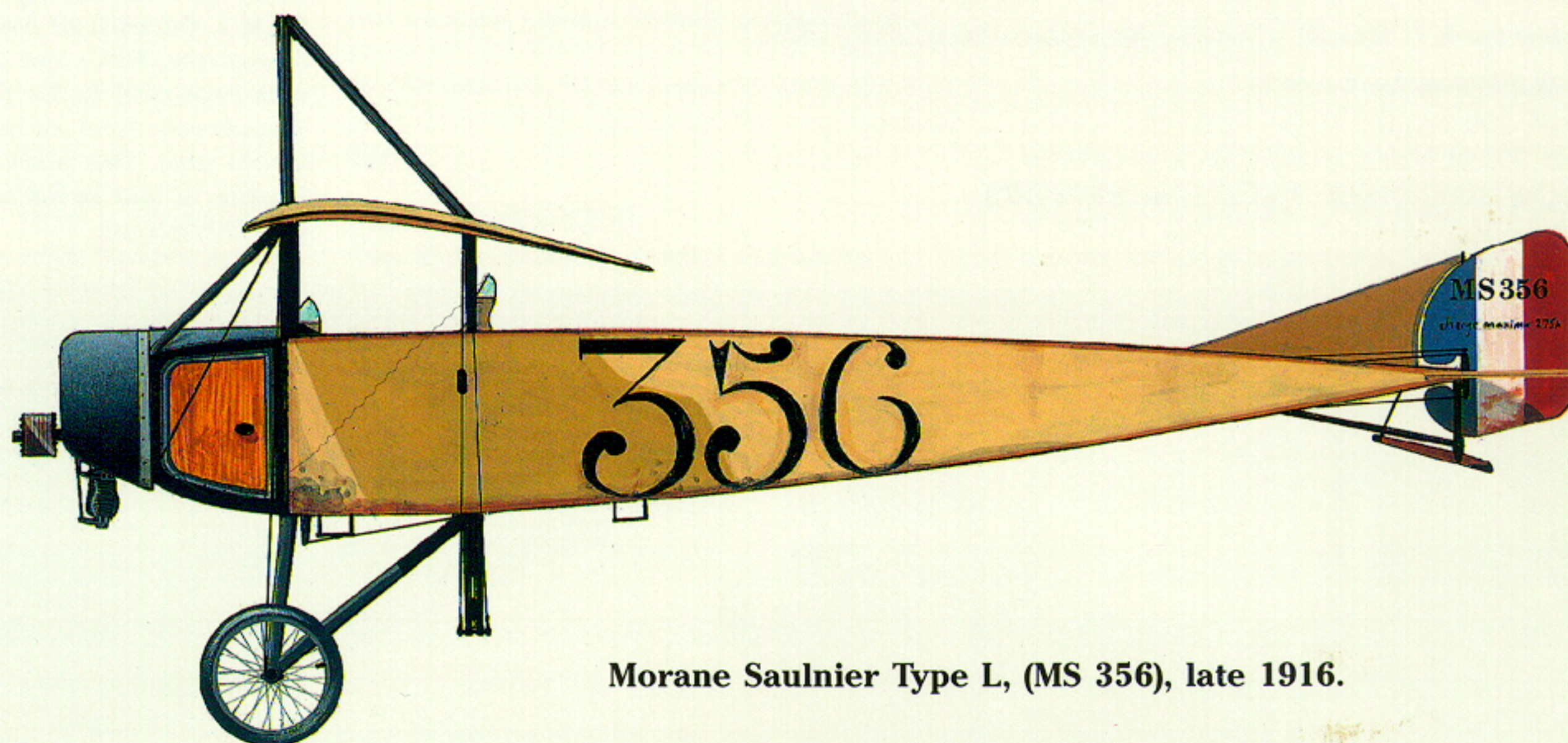
None known.

Below, Second-Lt C T Cleaver demonstrates the somewhat limited use of an early gun mounting on a Type L Parasol of No. 3 Squadron, RFC: the weapon was reported to be the squadron's first stripped Lewis gun. The pilot just visible at left is Second-Lt G F Pretymann.

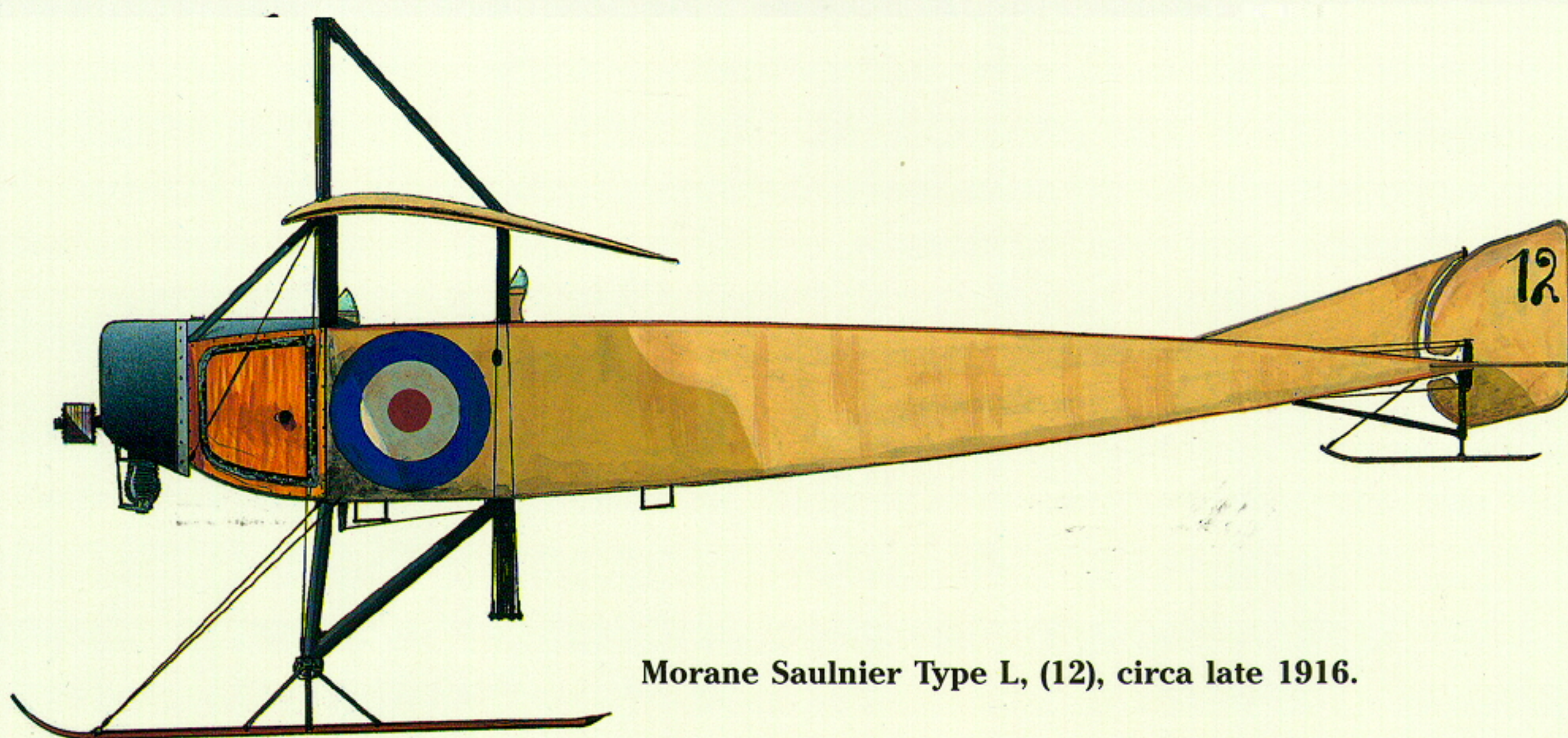




Morane Saulnier Type L, circa early 1915.



Morane Saulnier Type L, (MS 356), late 1916.



Morane Saulnier Type L, (12), circa late 1916.