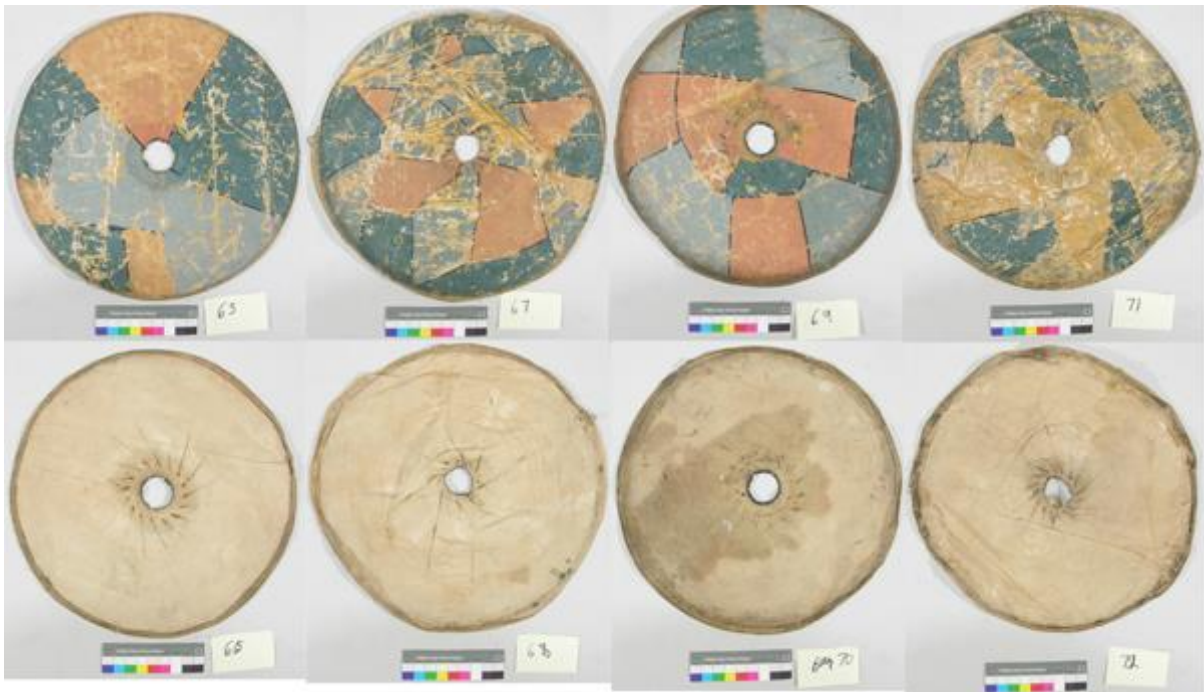


## Memo

To: [REDACTED]  
From: Charley Gosse  
Date: April 29, 2010  
Re: Fokker D.VII (O.A.W.) 4635/18

I am writing to follow-up your questions to me two weeks ago about the wheels of the National Air & Space Museum's Fokker D.VII (O.A.W.) 4635/18. We looked at the wheels when we met in the restoration shop on April 14. They were removed from the aircraft so that new tires could be fitted to them. You explained that you had studied photographs of Fokker D.VII (O.A.W.) 4635/18 and concluded that the wheels' current printed camouflage fabric wheel covers were not original to the aircraft. I agree with you; the current printed camouflage fabric covers are not original but are reproduction covers which match the reproduction printed camouflage fabric used to cover the aircraft's wings. This current set of wheel covers is the third set worn by the aircraft.

The second set of wheel covers are stored under N.A.S.M. Accession No. A19200004002 and are shown below:



These covers were put on the aircraft sometime after it was received by the museum and are distinct from the wheel covers which were on the aircraft at the time the museum received it; those wheel covers – the first set - are shown in the black and white photo on page 5. I believe this photo shows the original wheel covers

You asked me to answer the following questions:

- (1) had the wheels ever had *metal* wheel covers
- (2) if not, what kind of fabric would have been used to cover the spokes? Would it have been printed camouflage 'lozenge' fabric, painted fabric or plain fabric?
- (3) How would the fabric have been attached to the rim and spokes?

You also noted that the original paint on the metal rims and spokes was completely removed many years ago through sand-blasting. You would like to re-paint the metal correctly but do not know what color to use and asked me what the correct color should be on an O.A.W.-built aircraft.

**In answer to your question about metal wheel covers:**

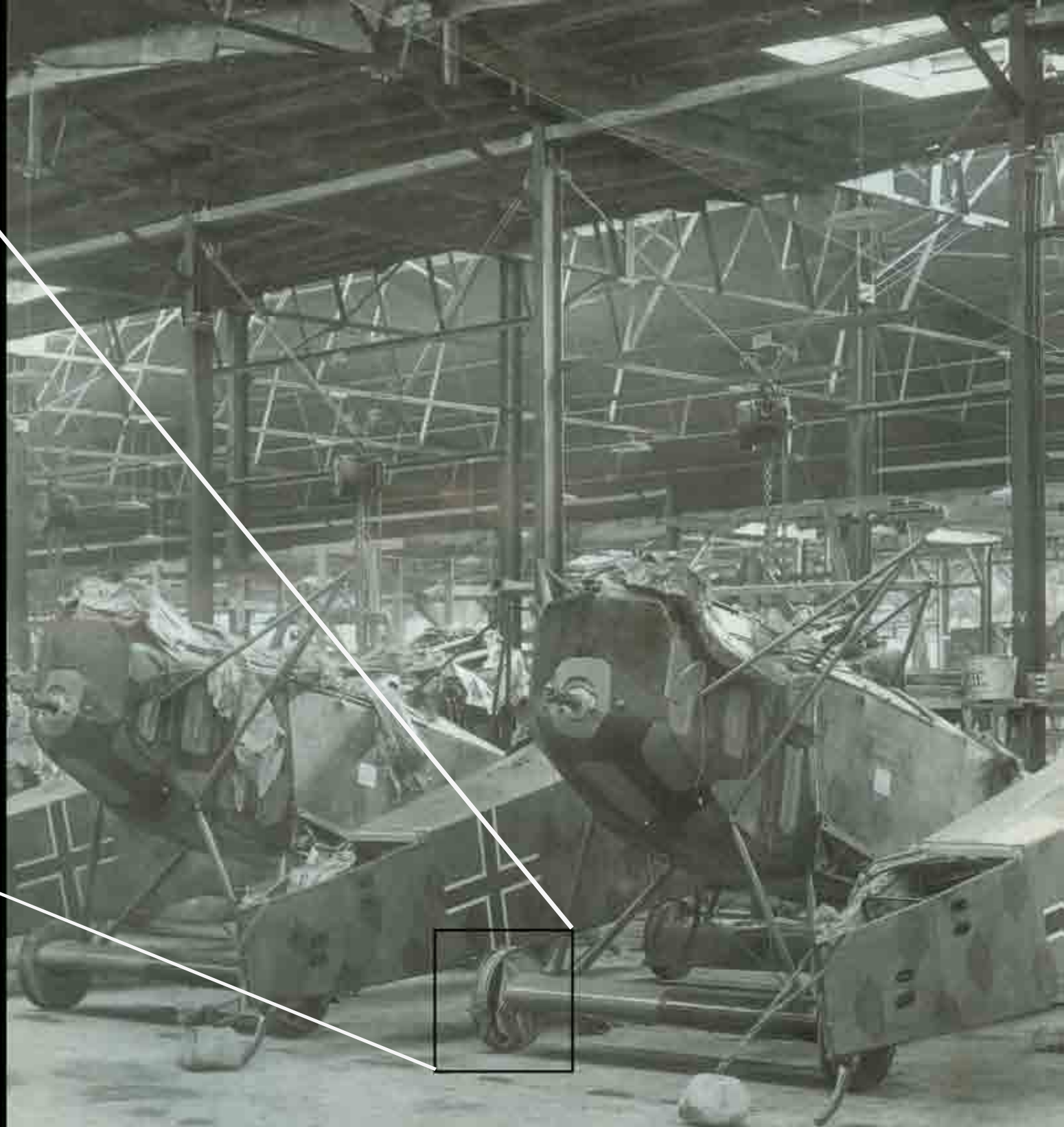
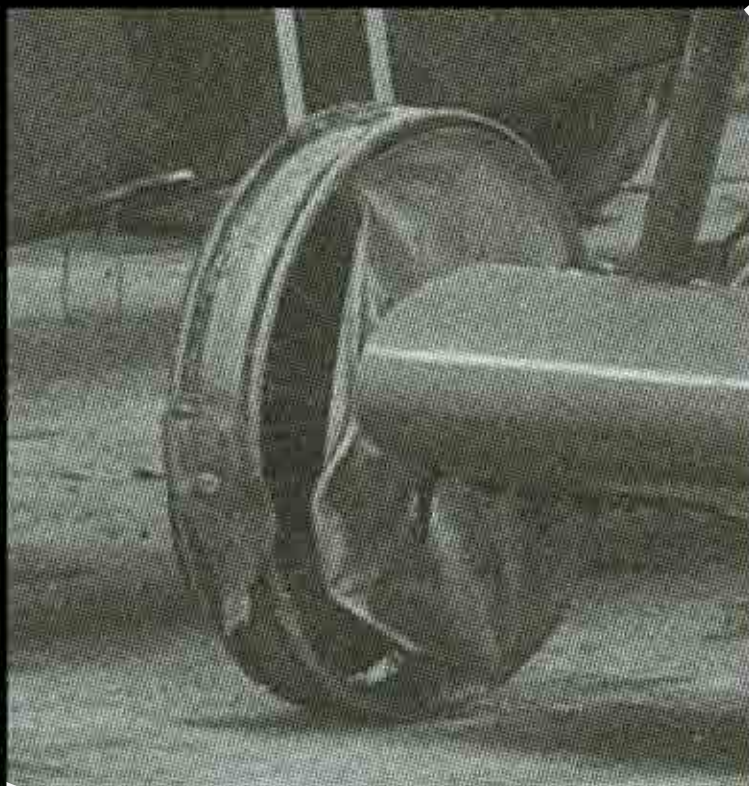
On page 3 of this memo is a copy of page 33 from the book Fokker Fighters D.VII Anthology 2, Albatros Productions, Ltd., Hertfordshire, UK, 2000, which is captioned in part "OAW D.VIIs in American hands at Romorantin after the Armistice." I believe this caption is correct as O.A.W. employed painting and construction techniques that differed from the other manufacturers of this aircraft and these unique characteristics are apparent in this photograph. I have extracted and enlarged a wheel on one of the aircraft so that you could see it in more detail. No tire is present. The spokes can be partially seen behind a fabric cover which has been pulled back.

On page 5 of this memo is a copy of a photograph of the museum's Fokker sometime after it had been captured but before it had been restored. This photograph is from the museum's collection, by the way, and is available at much higher resolution than shown here. I have enlarged a portion of the photo to show the wheels. I believe the wheel covers shown in this photo are the original wheel covers, as I stated previously. One of the distinguishing marks of O.A.W.-manufactured Fokker D.VIIs was a painted band around the edge of the wheel cover which can be seen in this photo. So, too, the cover bears a familiar opening that allows access to the inlet for the tire's inner tube without having to remove the cover.

In conclusion, no, this particular aircraft did not have metal wheel covers; the wheel covers of O.A.W.-built Fokker D.VII aircraft had wheel covers made of fabric in general and the ample photographic evidence available indicates that the museum's aircraft had the same wheel covers made of fabric.

**In answer to your question about the type of fabric for wheel covers:**

In order to be completely accurate, you should get the best copy you can of the museum's photo reproduced here on page 5 and discern whether the fabric on the wheel was printed camouflage "lozenge" fabric or plain fabric – I cannot see any evidence of printed camouflage in the low resolution copy that I have but to be absolutely sure you will need to look at a better copy. I know one is in the archival file on this aircraft in the aeronautics department.



**Main image:**

They say every picture's worth a thousand words. Here is a real treasure trove - a whole *Staffel's* worth of brand new QAW D.VIIs in American hands at Romorantin after the Armistice. Sadly, no full serial numbers are visible, but a wealth of structural and markings detail can be seen. The axle wings are painted in halves of lilac and green, and not all the same way round. Both four and five-colour fabric has been used fairly consistently on the fuselages. The absence of tyres from all but one, and of wheel covers from most, is intriguing, and the wheels appear symmetrically coned. None of these aircraft has the exposed suspension found on very late (mainly Albatros) D.VII undercarriages. Late style radiators carry makers' plates, and the close two-layered cowling around the Mercedes crankshaft ends is noteworthy. Diorama builders may be interested in the padded wooden guards protecting wing and tailplane attachment points while in storage or transit. Other interesting features include varied sequence of cowling mauve/green camouflage segments plus both double and single rudder horns/cables. (Steve Stratton)

**Inset:**

Another angle of the same Romorantin store which reveals even more Fokker fighters. In the mid foreground is the lightning-marked Fokker built D.VII flown by Greven of Jasta 12 - it is powered by a BMW motor with a central filler cap. (G Shroeder via G VanWyngarden)



If it is printed lozenge then it will match the original printed camouflage on the fuselage and that would be 4-color upper surface camouflage, the type used on the upper surfaces of the wings and over-painted on the fuselage sides and top deck.

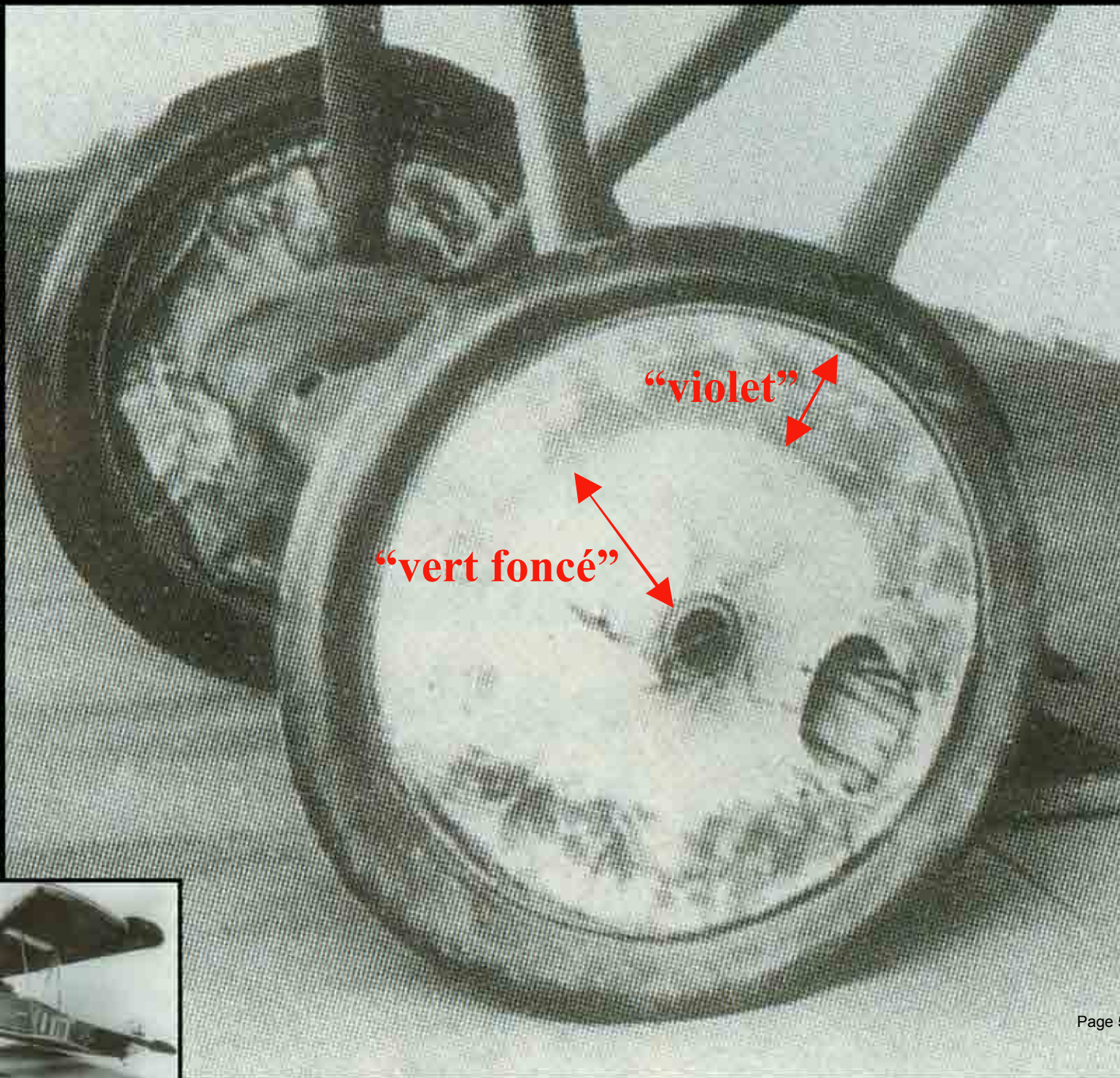
If it is not printed camouflage, then it is plain linen.

**In answer to your question about the color to be used on the fabric wheel covers:**

If the wheel covers were not printed camouflage fabric – and no one will know this for sure until a high resolution copy of the photo on page 5 has been studied – then the possible color or colors of the wheel cover are these:

- a. Plain linen which was first doped with a pigmented dope to articulate the outer, darker circle typically seen in photos of many – but by no means all – Fokker D. VII (O.A.W.) aircraft and then doped with clear dope; or
- b. Plain linen which was painted with a very light brown oil-based paint similar to the fin and rudder on Fok. D.VII (O.A.W.) 4635/18 to which a slightly darker outer circle was added; or
- c. Plain linen which was painted with oil-based paint identical to the established color for the undercarriage axle on Fokker D.VII (O.A.W.) aircraft. The 15 September 1918 edition of the French aviation journal *L'Aerophile* carried an illustrated story on captured Fokker D.VII (O.A.W.) 2009/18 and states "Le capotage du moteur et le plan de l'essieu sont camouflés en violet et vert foncé" which translates approximately as "The cowling and the plain of the axle are concealed [or camouflaged] in purple and dark green." Researchers looking at black-and-white photos of Fokker D.VII (O.A.W.) aircraft have assumed that because of a similarity in the gray tonal values of the wheel covers and the axle cover that they are actually painted the same color. If one accepts this reasoning, then the darker, outer color is vert foncé or dark green and the lighter, inner color is violet, as marked on the photo on page 5.

Bear in mind, though, that none of the accepted literature on the subject of Fokker aircraft of the First World War presents any evidence that, indeed, O.A.W.-manufactured D.VII wheel covers were painted with a dark green outer circle and a purple inner circle; neither I nor the various researchers I have spoken with have found a factory record, newspaper account, captured aircraft inspection report, nor even a pilot's reported recollection which states that these were the colors.



**“violet”**

**“vert foncé”**



**In answer to your question about attachment to the rim and spokes:**

I asked Achim Sven Engels of Fokker-Team-Schorndorf for help with your question as he has worked on restorations and replicas of several German aircraft of the First World War. He advises that "On Albatros and O.A.W. machines, the wheel covers have been nailed to wooden frames which have been screwed to the rims. Attached is a photograph of one original O.A.W. wheel showing what I talk about." Achim is actually providing a set of five photographs of the same wheel and they are attached here as pages 7 and 8 which show the wheel, itself, followed by pages 9 and 10 which are close-ups of the wooden frames screwed to the rims. You can see that in this example a small amount of plain fabric has remained where it folds over the wooden frame. Page 11 shows the rim, itself, the pins which attach the spokes to the rim (I am unsure of the technical term for these), as well as the screws which attach the wood frames to the rims.

**In answer to your question about the paint used on the metal rim and spokes:**

In terms of the Fokker D.VII wheel which Achim has identified as manufactured by O.A.W., he writes that "Unfortunately its colour is flaked off, so I cannot check that detail for you."

The Brome County Historical Society in Knowlton, Quebec, possesses the original Albatros-built Fokker D.VII (Alb.) 6810<sub>/18</sub> which has the ailerons from Fokker D.VII (O.A.W.) 8502<sub>/18</sub>; stabilizer from Fokker D.VII (O.A.W.) 6506<sub>/18</sub>; and elevators from Fokker D.VII (O.A.W.) 8318<sub>/18</sub>. The control horns for these control surfaces appear to be painted black but may have been repainted. Other restored Fokker D.VIIs are not of any help because they are of the wrong manufacture or variously repainted when restored.

An original set of fabric-covered stabilizer and elevators from a Fokker D.VII is in storage at N.A.S.M. according to its TMS database, but I do not know who the manufacturer was; you might want to check this.

I will continue to look for metal parts from O.A.W.-manufactured Fokker D.VIIs in the various museum and private collections which might hold such artifacts.













