

CONSERVATION OF THE 1937 MODEL GERMAN ARMY RAINCOAT

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ABSTRACT

Technical and chemical advances in the late 19th and 20th centuries led to the development of numerous textile materials and their coatings for various end uses, including for military needs in equipment and clothing. Scientific progress promoted the use of new weaving technologies, textile fibres, and various other materials in the textile industry.

For example, in 1879, Thomas Burberry patented a fabric (gabardine) – a breathable, weather and tear-resistant material. Cotton threads (yarns) were made waterproof and then tightly woven in a diagonal twill weave. This diagonal pattern caused water to form droplets and then run off (1).

HISTORY

In the 1930s, significant progress was made in the waterproofing of fabrics when John Barbour & Sons began using paraffin wax to impregnate cotton fabric. This process involved a copper-ammonia treatment followed by a soft wax coating. The result was a high-quality fabric – waterproof, breathable, and much softer than previously used materials (3).

According to the German Army clothing regulation Vfg. (HV 37, No. 1008) issued on August 10, 1937, regular soldiers were permitted to wear weather-appropriate clothing made of rubberized fabric or specially treated, impregnated fabric in a grey-green colour during service and off-duty.

The cut and style of the garment were the same as those of the standard fabric coat. There was a central seam at the back. The collar was always made from the same material as the coat. Cuffs were generally marked only by a seam at the hem.

The German Army at that time offered raincoats made from a double-impregnated material ("Original-Klepper" fabric) (2). In 2003, a 1937 model of a German army officer's raincoat that belonged to Dr. Kārlis Jerums came into the Latvian War Museum's possession. The coat is made of a specialized light grey fabric without insignia. Only the metal buttons remained. In December 1937, Kārlis Jerums graduated from the Dentistry Department of the Faculty of Medicine at the University of Latvia. During the war, he served in the medical unit of the 19th Division.

CONSERVATION

The coat is made from a double-impregnated fabric. As an industrially produced item, there are no labels indicating fibre content. Visually, the restorers can determine that the outer layer is cotton, while the inner layer is possibly viscose. The coat arrived at the museum dusty, dirty, stained, and severely deformed, with visible fold lines and creases. In the dirtiest areas, the fabric had become noticeably stiff.

At first, the coat's textile materials were tested both dry and with added moisture and treated with steam. Moisture helped to correct some of the deformations and folds slightly. As this did not yield the desired results, the restorer then washed the coat with a solution of black olive oil soap. Finally, it was lightly ironed with a warm iron while still slightly damp. This was the best approach as the warmth helped to smooth out the folds and deformations to some extent, though not completely. The coat's materials were most likely impregnated with paraffin wax, as described earlier. Overall, cleaning materials of this type are problematic and associated with several risks.

REFERENCES

1. "Army fashion statements", available on: <https://www.nam.ac.uk/explore/armys-been-responsible-many-fashion-statements>.
2. Adolf Schlicht and John R. Angolia, Die deutsche Wehrmacht. Uniformierung und Ausrüstung 1933-1945, Band 1: Das Heer (Stuttgart: Motorbuch Verlag), p. 95.
3. "History of the Raincoat", available on: <https://cocoon-online.com/history-of-the-raincoat/>.



Inside of raincoat before conservation
Photo Valters Lācis

Inside of raincoat after conservation
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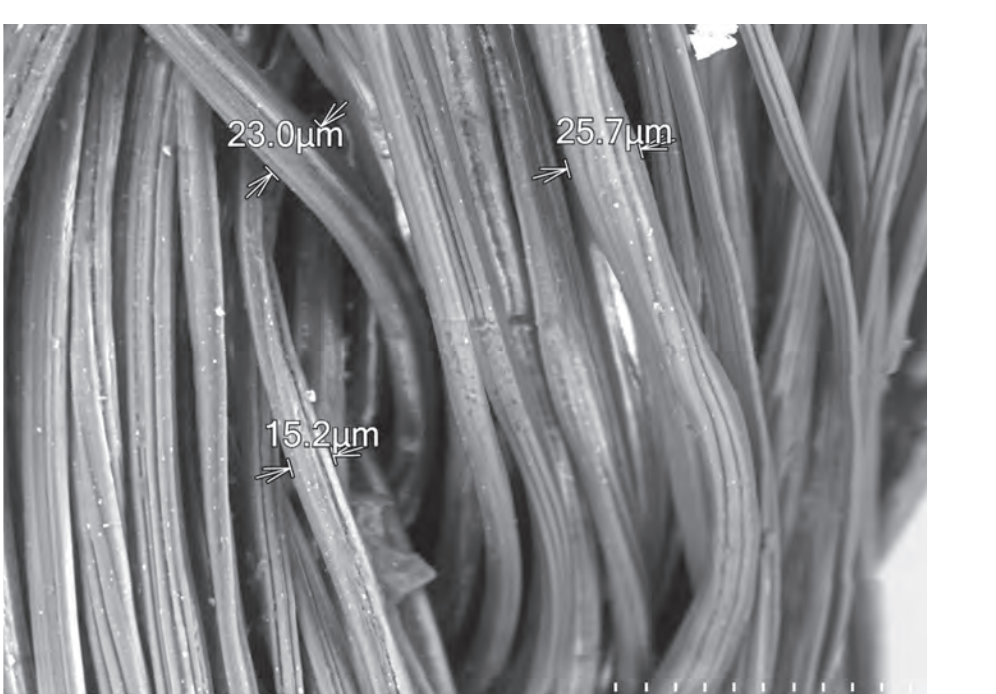
Lining and base fabric at microscopic magnification 11x
Photo Indra Saulesleja



Base fabric at microscopic magnification 45x
Photo Indra Saulesleja



Cross-section of lining and outer fabric reinforcements at microscopic magnification 60x
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Lining fibers, SEM magnification 400x
Photo Dāvids Vardanjanis