

Preparation of analogue film for digitization

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INTRODUCTION AND AIMS

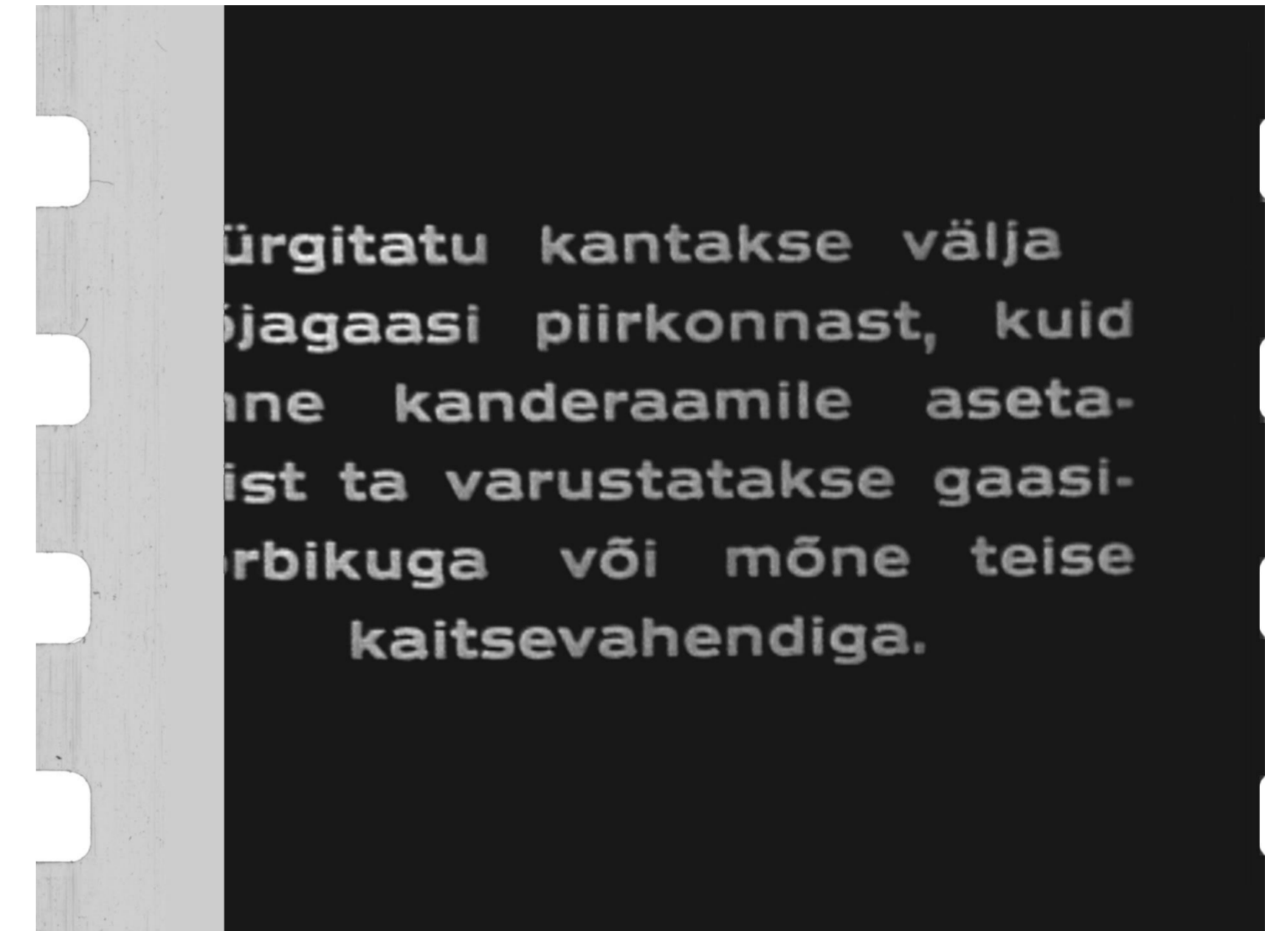
The collections of the Film Archives include film and video material on Estonia from the early 20th century to the present. Besides other mediums, the archives are the repository for more than 8,200 titles of analogue film elements on nitrate, acetate or polyester base.

Today's explosive demand for digital content affects profoundly not only the practice of filmmaking and distribution, but also challenges preservationists, who constantly need to deal with changing possibilities of preserving film heritage and providing access to the public.¹ This poster offers an insight into the archives' preservation workflow prior film scan. The aim of the preparation work is to:

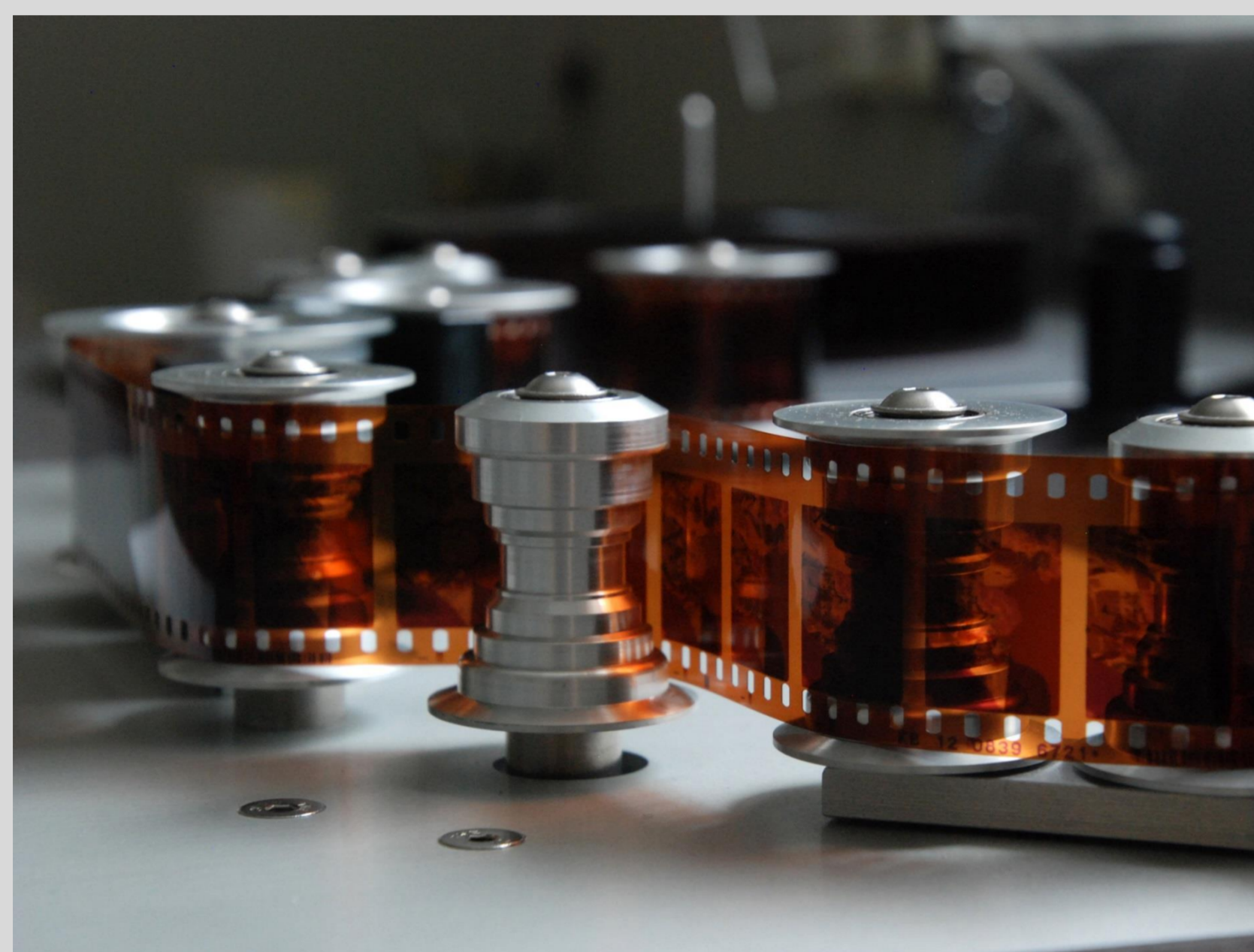
- set up the most suitable plan for a digitization project, considering the condition of analogue film and the preferred output in digital form;
- restore the original film's mechanical capability for its passage through the machines (cleaning machine, printer, scanner).



1. Decomposition of nitrate. UFA newsreel No. 535 (1942). 35mm b/w nitrate positive, EFA f 458 P-2793



2. Left side of the silent film frame has been cut due to copying process onto the sound film stock. Gas! Gas! Gas! (Theodor Luts, 1931). 35mm b/w acetate duplicate negative, EFA f 23 DN-328



3. Film inspection and documentation on the winding table. Film Archives of the National Archives of Estonia, photo: Kadi Sikka, 2017

METHODS

Theoretical research on film history and production, as well as inspection and reparation of the material itself:

- **Analysis of available film elements** for choosing the best source for digitization. It includes comparison of different film generations (Fig. 7), their condition and technical characteristics, i.e. length, sound and subtitling info, etc.;
- **Technical documentation** of film element type and generation, carrier type, physical extent, colour and sound characteristics, location and type of splices, under- and overexposed frames, number of scenes, dialogue and written languages (captions, intertitles, subtitles), information about duplicating process (Fig. 2), incl. damage and defects photochemically reproduced from the source element;²



4. Reparation of tears and lacunas located at the perforation. L'Immagine Ritrovata laboratory, photo: Kadi Sikka, 2016



5. Severe dirt and abrasion on emulsion and base. 8th Song Festival in Tallinn (1923). 35mm b/w nitrate positive, EFA f 14 P-11

- **Condition report** of deteriorations and their stage, for instance decomposition of nitrate (Fig. 1), vinegar syndrome on acetate base, colour shift, scratches (Fig. 8), dust and dirt (Fig. 5), curling, tears, folds, fingerprints, stains of glue and chemical residues, emulsion lifting, silver mirroring, mould.
- **Chemical treatment** includes cleaning, drying, re-hydration and/or softening, depending on the condition;
- **Film is repaired** on a winding table (Fig. 3) with the help of scissors, scalpels, tweezers, solvents, adhesive tape and brush. Physical damages, such as breakages, tears, lacunas, which may be located at the perforations (Fig. 6) or on the actual images (Fig. 4) are documented and repaired. All splices are inspected and, if required, cleaned locally (with eucalyptus oil and ethanol), and redone.



6. Perforation damages. Alma Mater Tartuensis (Theodor Lutsu Filmi-produktsioon, 1932). 35mm b/w acetate duplicate negative, EFA f 360 DN-5227



7. Inspecting perforations helps to identify film generation. Cheka commissar Miroschtschenko (dir. Paul Sehnert, 1925). 35mm b/w nitrate positive, EFA f 13 P-384



8. Scratches on emulsion and base. 8th Song Festival in Tallinn (1923). 35mm b/w nitrate positive, EFA f 14 P-11

RESULTS AND CONCLUSIONS

Films are initially products of the technologies of their time, but are usually seen today by means of very different technologies.³ In order to minimize the loss in transition from analogue to digital, a detailed preparation plan for film digitization is necessary. It includes theoretical research, study of technical documentation, analysis of the available elements and non-filmic sources as well as reparation work of the material itself. A clear plan gives the idea of the complexity of the work and allows setting up the most appropriate workflow and timeframe for the completion of the digitization project. Therefore, a close and well-coordinated collaboration between conservators, digitization specialists and curators of audiovisual collections is essential.

References:

- 1 Fossati, Giovanna. *From Grain to Pixel. The Archival Life of Film in Transition*. Amsterdam: Amsterdam University Press, 2009
- 2 *The FIAF Moving Image Cataloguing Manual*. International Federation of Film Archives, 2016
- 3 Enticknap, Leo. *Film Restoration. The Culture and Science of Audiovisual Heritage*. London: Palgrave Macmillan, 2013.