

Photographic collections and what to do with them next

Ladislav BEZDĚK

Keywords: *NHI photo collections – market value of photographic works – preservation of historical pictures – digitization*

The article analyzes in detail the structure, condition, quantity and eventual market value of historical photographic works administered by the National Heritage Institute in its mobiliary and collections. It points out the insufficient care of these valuable documents and warns of the irreplaceable losses that might occur unless the issue is soon resolved of the professional preservation of photographic collections and expeditious digitization as conversions into their electronic visual equivalents, i.e. exact digital duplicates. Attention is focused on three groups of the most vulnerable or most difficult to digitize originals, and the current complicated situation in the offer of appropriate hardware suitable for the digitization of photo archives is also briefly discussed.

Illustrations: Fig. 1. In some cases, we can identify unsafe backing photographic material by the designation "nitrate" at the edge of the film, but not always – not all nitrocellulose backings were labeled like this; Fig. 2. An image from the set taken during the construction of the National Museum in Prague (1885–1890) by the architect Josef Schulz. Copies of these negatives for the filing cabinet were probably made in the 1950s or even 60s. 2a – a scan of the present condition of the negative, 2b – a photocopy from the 1950s or 60s shows the degradation of the original negative from the date of purchase to the date of copy; Fig. 3. Gelatin negative; Fig. 4. Archival image from the NHI photo collections with the examined statue of St. John of Nepomuk marked; Fig. 5. Comparison of scan details of the overall image in Fig. 4. The scans were taken in a high resolution on a midrange scanner (5a) and on a high-end category scanner (5b); the third scan (5c) brings the best result due to the digitization of the original negative; Fig. 6. Professional scanner of transparent originals (negatives, slides) Cruse and the digitization office of NHI.

Photographic estate of the nobility preserved in Slovak institutions, taking into account the fund of Betliar castle. Experiences in seeking out historical photos of nobility

Katarína TAKÁCSOVÁ

Keywords: *Historical photos – nobility – Andrassy – Betliar castle – confiscation – Slovak National Museum*

Through work on the topic of historical photographs in the Slovak Republic, work by historians and professional student efforts is producing increasing results, largely thanks to the popularity and current

state of technology (digitization) of photography. Support is increasing for many projects and workshops seeking to protect this fund, particularly those striving for public access to historical photographs (most commonly through studies and digitized documents). Photography is able to capture such a wide range of areas that it can be found in almost every exhibition project. It no longer fulfills merely a secondary, complementary role, but itself is subject to exposure and criticism (as to both quality and content). As a unique source of documentation for a period or a specific event, photography is becoming a necessary part of differently oriented monographs.

There are numerous historical photographs in the Slovak Republic in the archive collections of families, estates, in personal funds, etc. A century of ancestral archives, collected and guarded, were delimited and relocated from 1954 so as to be included in the newly created archival structure. In Slovak archives, photographs are organized and arranged as part of photographic collections or as supporting material of a (small) part of a larger range of funds. In museums, these may be photographic collections of families, or they may have formed by the collecting activities of photographers and studios. If we wish to seek out photographs of nobility, a knowledge of the funds and collections of both types of institutions is essential. The status of processing historical photographs, however, is strikingly low.

Examining historical photographs that depict the life of the nobility in Slovakia would be unsatisfactory (even impossible) without a familiarity with the funds of Hungarian, Czech, and Polish institutions that store the estates of noble families who owned properties within their territory and elsewhere. Historical photos relating to the Andrassy family are kept in Hungarian institutions like e.g. the Magyar Nemzeti Múzeum, Országos Széchenyi Könyvtár, Iparművészeti Múzeum in Budapest, and the Magyar Fotográfiai Múzeum in Kecskemét.

Even though the confiscation of residences and property of "inconvenient" nobility took place in the Slovak Republic as it did in the Czech Republic, the number of preserved ancestral museums, castles, and mansions in today's Slovakia is, compared to the Czech Republic, alarmingly low. We may note that the inventory of Betliar castle and Krásna Hôrka castle, both belonging to the Andrassy family, is the only one to be preserved in nearly pristine condition. It did not become part of state collections, nor was it stolen or damaged by the war. The interior of the castle was preserved thanks to the intervention of Dr. Alžběta Güntherová-Mayerová, the Count's former employees, and because the concept of using the residence as a museum was successfully pursued, preventing the aristocratic mansion from being used for other

purposes. As a result, the original interior, furniture, and all equipment and valuable collections have all been retained. Perhaps the only serious shortcomings may be considered the insensitive interventions of the reinstallation of the interiors of both buildings and the transfers of individual exhibits (the outbuildings of the Betliar dominion also lost their original functions). Historical photographs were completely removed from the castle exhibition and kept in inaccessible rooms and in the original furniture. This is likely what also helped preserve the photographic collection of the museum almost intact. This is why we now have the unusual opportunity to study the original estate of the noble family, including amateur photographs that the Andrassy themselves took – reflecting the interests and activities of the last four generations of the Betliar branch of the family. The collection of historical photographs of the Slovak National Museum – Betliar Museum still do not belong to the museum fund, because the photo albums and negatives are still "merely" new discoveries. Pending the approval of the Commission for the creation of collections, and after processing them, it will be possible to make them available to researchers.

Illustrations: Fig. 1. Betliar castle around 1890; Fig. 2. György Klösz ancestral gallery at Betliar castle during Count Emanuel I. Andrassy, Budapest, around 1895–1899; Fig. 3. Studio Szenes, three generations of the Andrassy family who still lived in the castle: from left Count Emanuel II. Andrassy, Gejza II. Andrassy, Gejza Andrassy, Mary née Choloniewska, and Ilona Andrassy, Budapest, around 1936; Fig. 4. Vlado Eliáš, historical library of the Betliar castle, 2015; Fig. 5. Ferdinand Trösch (1839–1886), Countess Natália Széchenyi, née. Andrassy, 1885, oil on canvas (left), Karol Kollier (1838–1889), photo of the Countess, around 1884 (right).

Austro-Hungarian warships in photographs by Rudolf Bruner-Dvořák in the archives of the National Technical Museum in Prague. Article for identifying individual pictures.

Jan HOZÁK

Keywords: *Bruner-Dvořák, Rudolf (photographer) – photography (history) – Ferdinand d'Este, Franz (archduke, heir to the Austro-Hungarian throne) – Adriatic (sea and coastline) – warships, battleships – Austro-Hungarian warships – ports (Pula, Trieste)*

The set of photographs, whose overall identification and utmost accurate and complete identification of each image this article deals with, was taken by the Czech photographer Rudolf Bruner-Dvořák in the years 1906–1914 in the environment of the Austro-Hungarian navy in the Adriatic Sea. This was a period of multilateral arms activities of the maritime powers, especially Great Britain, Germany, and France, with Italy and Austria-Hungary lagging somewhat behind.

One of the prominent figures of the naval armament efforts in the Danube monarchy was the heir to the throne Franz Ferdinand d'Este, the chief inspector of the Navy holding the rank of admiral. For Bruner-Dvořák, it was important that Franz Ferdinand honored him with his confidence from the 1890's and commissioned him with a number of work orders, from photographing military maneuvers to private photographs from the family residence at the Konopiště castle. The set of 144 photographs (134 negatives and 10 positives), which is stored in the archives of the National Technical Museum in Prague and whose identification we focused on, relates in its entirety to the Austro-Hungarian naval military fleet. The set contains not only images of ships in ports as well as during festive parades and exercises, but it also gives us a closer look at situations during on-board training, armaments, and groups of sailors on duty and during rest times. There are also, however, various genre subjects, such as sailboats on the sea, sunsets and sunrises, boats sailing in storms, movement in port cities, and the Roman Colosseum in Pula. The entire set of these photographs had been registered in the NTM archives as a single unit under a very general name: images of the royal and imperial navy from before the First World War. With the help of period press, especially the magazine *Český Svět* (*Czech World*) to whom Bruner-Dvořák was a key contributor, and by comparing images from various collections, especially in the Konopiště castle, period and contemporary literature, and utilizing insight into the challenges involved in photographing naval warships, most of the images have been identified. From a material standpoint, the type of ship, location, and event were identified, and in terms of time the year and sometimes even the day was determined. In most cases, the photos make up particular thematic units that document important events, enabling even a reconstruction of the order in which they were taken. For example: the parade of ships on 15 September 1906 at the end of maneuvers in Dalmatia; the visit of Austrian parliamentary delegations to the Navy in the Adriatic in January 1908; the visit of a British squadron to the Austrian port of Trieste on 6 July of the same year; and the photographic collection documenting naval maneuvers in Zadar on 21–25 August 1911. During this exercise, the photographer was aboard the command ship and photographed the situations at sea as well as events on board. For each of these events, every photograph was successfully and precisely identified. For pictures that defied positive and clear identification, we strived for at least a plausible hypothetical description that would serve as a basis for further research. The article does relate to the distinctive theme of the Navy, however it provides an insight into methods

of identifying historical photographs which can be used in other areas, including the preservation of heritage properties.

Illustrations: Fig. 1–4. Austro-Hungarian battleships in a festive parade during maneuvers on 15 September 1906, the Calamotta channel (near Rijeka): Fig. 1. Battleship S.M.S. Habsburg; Fig. 2. Battleships S.M.S. Habsburg and S.M.S. Babenberg; Fig. 3. Battleship S.M.S. Erzherzog Karl; Fig. 4. Battleship S.M.S. Wien. Fig. 5. Dropping the steam captain's gig from the battleship S.M.S. Erzherzog Friedrich, Dalmatia, 1908; Fig. 6. Battleship S.M.S. Erzherzog Friedrich in Trieste, 1908; Fig. 7–8. Visiting British warships in Trieste, 6 July 1908 (Fig. 8. Canopus/Glory type); Fig. 9–10. Battleship S.M.S. Erzherzog Franz Ferdinand during maneuvers in Dalmatia on 22–25 August 1911; Fig. 11. Miramare Castle near Trieste photographed from a Cobra type torpedo boat, circa 1908; Fig. 12. Visit of German Emperor Wilhelm II (center, in white cap) in Brioni on 26 March 1912; Fig. 13. Steam yacht "Hohenzollern" of German Emperor Wilhelm II in Brioni on 26 March 1912; Fig. 14. Personal steamer of Austrian Lloyd "Baron Gautsch", Trieste, around 1911; Fig. 15. Tri-mast historic sailing ship sunk during a storm in Trieste on 23 June 1911; Fig. 16. Blind and embossed stamps marked on positives for authorship by Rudolf Bruner-Dvořák.

Methodological approach to interpreting historical photos of garden detail

Přemysl KREJČÍŘÍK

Keywords: historical photos – monuments of garden art – monument renovation – methodology – garden detail – the use of photography in the preparation of monument restoration

Photography is perhaps the most authentic evidence of the history of a building, capturing it in an undistorted state. Peoples' memories tend to be distorted by personal experience. Photos can be interpreted from many professional perspectives. Photography provides historians with many documents for describing and understanding the society of the day.

For purposes of garden and landscape design, photography is the base material for the renovation of historical structures. A thorough analysis and subsequent quality interpretation of the period photodocumentation, in the case of vegetation modifications, the necessary knowledge of the historical distribution of vegetation. For the renovation of gardens, it is absolutely essential to understand gardens as a whole in the context of their development. Garden details should not be taken out of context of their overall development. Information about partial modifications in a certain time period must be subordinated to the overall composition. It is very easy to slip into a historical reconstruction of garden beds from different periods side by side, with reference to contemporary photographs. The subject

of the garden art must be taken as a whole, not as a mass of individual details, even if they were authentically captured in photographs. The overall compositional arrangement of the garden from a certain period unified into a whole is very important for understanding the historical development of a garden.

Research results should be published and presented to the public. For the general public who continues to seek out more information from the world of history, the evolution of gardens is a very interesting pastime. The lay visitor can identify with a garden very quickly. For the professional public and trained laity, interpretations of historical evolution should be presented as printed or electronic guides. Sets of interpreted photographs with an exact designation of the described details are an important source of authentic knowledge. Today's modern technology makes it possible to present a large amount of photographic documentation for the locality in a very interesting way. The interactive presentation of documents allows for the knowledge about garden culture in our country to be broadened to the level where it certainly belongs.

The article presents a method of interpretation which can be recommended only for the study of garden detail. This methodology builds on other methodologies for the research of buildings, or specialized methodical materials for surveys of landscape architecture as well as of implemented structural and historical research.

The methodology of interpretation consists of the following steps, discussed in detail in the article:

- 1) Preparatory phase; 2) Recording the descriptive data of the photography; 3) Critical evaluation of the veracity of the descriptive data; 4) Verification of whether the photos were modified by retouching; 5) A description of the displayed content of the interpreted photographs; 6) Localization of the photograph in the analyzed structure; 7) Specification of the dating of the photo in the respective structure; 8) Comparison of the photos with other photos of the given site; 9) Critical comparison of photos of the same place relative to one another; 10) Preparation of textual report; 11) Acquisition of comparative photographs of the current state; 12) Critical evaluation of the whole.

Illustrations: Fig. 1. Lednice, palm greenhouse. Sample of a possible description of the interpretation; Fig. 2. Sample of a description of a photo – the original black and white image is complemented by a number with exact description; Fig. 3. Comparative photos of the same location in historical development. View of the castle in Valtice in 1905, 1910 (colored photo) and 1938; Fig. 4. Result of interpretation of photodocumentation of the palm green house in Lednice, taken into account in the final proposed situation.

Historical film negatives collection at the Náměšť nad Oslavou castle

Lukáš GREGOR, Irena TOBIÁŠKOVÁ

Key words: Haugwitz family – historical negative film – Náměšť nad Oslavou castle – digitalization – 19th century, 20th century – Jindřich Karel Haugwitz – aristocrat

The article describes a collection of historical negatives from late 19th and early 20th century that were catalogued, digitalized and processed in the late 2000s. Their author was an owner of the Náměšť estate and an amateur photographer, Count Jindřich Karel Haugwitz (1870–1927). The article presents the whole collection. It sorts the negatives according to material and technique into three groups: glass plate negatives 13 by 17,5 cm (the oldest part of the collection, from the 1890s), stereoscopic glass plate negatives 8,8 by 18 cm and celluloid negatives of uniform size 15 by 9 cm. Within each group the article describes their thematic variety, concentrates of the differences between the pictured and current states and points out possibilities of using the pictures for heritage preservation purposes.

A large segment of the pictures documents the exterior of the castle and its surroundings. Pictures of interiors show the representative part of the ground floor, the “piano nobile” (modernized between 1946–1948 as a summer residence Edvard Beneš, the president of Czechoslovakia), the castle library, the chapel, the arcade corridors and the passageway from the upper to the lower courtyard where, after 1904, was installed the Daun weapon collection and the rooms that were a part of the private residence of Count Jindřich Karel Haugwitz. There are also many portraits – of the author, his close relatives, his wider family and family friends. Some pictures show the estate employees, mostly foresters. The negatives also show the Náměšť town and other parts of the state – the little castle and park Schönwald near Jinošov, a pigeon shooting gallery in the game reserve across from the Náměšť castle, a hunting lodge on the Vlčí kopec, the Babylon look-out tower, the castle ruin Kraví Hora, nature scenes from the Oslava and Jihlava river valleys (including pictures of places that do not exist anymore) and forest scenes.

The practical utilization of the preserved materials as of now has been a seasonal exhibition of large format photographs that were in 2012 added to the castle tour route, the use of information gathered from the pictures during the repairs done at the castle and during restoration of the castle furnishings and their use as an inspiration when creating a new tour route the “Count Haugwitz Residence tour” in 2013.

Illustrations: Fig. 1a, 1b. Original envelopes of the glass negatives; Fig. 2a, 2b. Examples of saved receipts for photographic material and services; Fig. 3. Self portrait of Count Jindřich Karel Haugwitz from 1895; Fig. 4. Náměšť nad Oslavou castle, first courtyard, winter 1894; Fig. 5. Babylon look-out tower; Fig. 6. Náměšť nad Oslavou in 1894, in the back right part of the train station building; Fig. 7a, 7b. View of a part of an installation of the Daun weapon collection in the interiors of Náměšť castle at the beginning of 20th century; Fig. 8. View of one of the castle rooms with inner glass shutters installed; Fig. 9. Shooting gallery in the game reserve; Fig. 10. Part of the great hall of the Schönwald castle near Jinošov.

Everyday life of the nobility as reflected in the Andrassy photo collection (Nobility of the 19th and early 20th centuries)

Katarína TAKÁCSOVÁ

Keywords: Photographs – nobility – aristocratic residences – Andrassy – Betliar – travel – sports – hunting trips

Based on the preserved collection of photos of the Andrassy family, which we may consider complete, we get a vivid picture of the life of the aristocracy during the late 19th to the early 20th centuries.

The necessity remains of connecting this type of media with other collection items that come from the family's collections. The castle in Betliar, after the last owners left in 1944, fell victim to the war, theft, and state collections. The photographs remained a part of the historical mobiliary, in the drawers of precious furniture, hidden in the castle library and elsewhere in the castle. Professionally taken photographs or images achieving some artistic quality (studio portraits, images of objects, landscapes and interiors, and antiques) were not all that were preserved; part of our fund also comes from amateur photography. One of the Andrassy family members often stood behind the lens, namely Count Gejza I. Andrassy (1856–1938) and his sons, Karol (1888–1910) and Emanuel II. (1892–1953), who mostly created their own photo albums and photo collections from travels and hunting.

The richness of the fund is reflected not only in the number of photos, but especially through their thematic diversity. Preserved photos include exterior and interior views of buildings and property that the Andrassy family owned. Their family seat was the castle in Betliar, and they also resided in the castle in Parchovany, their palace in Budapest, and used the hunting lodge in Súľová for recreation. The family traveled frequently, visiting their relatives and acquaintances, so their amateur photographs are helpful in recognizing many other residences, cities, and destinations, as well as members of other families. Recurring scenes (events) in the photographs

show the frequency and consistency of the some of their customs. For example, the Andrassy family spent the dance ball season in Budapest, where in addition to organized balls they also attended various other prestigious events such as picnics and masquerade balls. One of the most important events of the year, full of visitors, was the hunting season which began in autumn. Grand and glorious hunts, arranged by the Andrassy family, saw the participation of the most important representatives of domestic and foreign aristocrats, including members of ruling families. Many of them caught their first bear in the Betliar domain itself, where they were then dubbed “bear hunters”.

The family's wealth also permitted them increased mobility and the freedom to travel. Their expeditions mainly sprung from a desire to see new countries, self-education and the acquisition of new knowledge, to participate in hunts, sports activities, and competitions, or simply in pursuit of relaxation. In Europe, the members of the Betliar branch most frequently visited areas of Bohemia, Austria, and Germany, but more distant countries as well, such as Great Britain, France and Belgium. The Adriatic coast, at the time part of the monarchy, was a popular destination for the nobility. Outside Europe, the family visited Egypt several times, bringing back “souvenirs” that are now in the museum. Count Gejza I. also carried out trips to America (1881) and Sudan (1911), from which he brought back various items, trophies, and photo albums, but also sketches and cartoons.

The Andrassy family, as leading representatives of the Hungarian nobility, also participated to a large degree in the sporting life of their country and held many important positions. Gróf Gejza I., who bred excellent breeds, is even considered to be the founder of horse polo in Hungary and is still referred to as one of the “Hungarian leaders of modern sports”. The family was active mainly in tennis, golf, cricket, sailing, and winter sports such as skiing, sledding, ice skating, and hockey. They also held a great interest in derby and motoring. They took part in many competitions, shown by the collection of hunting and sporting awards preserved in the Betliar castle. One of the most important sporting events that the family visited (as spectators) was for example the Olympic Games in Stockholm in July 1912.

All these activities are illustrated in the historical photographs preserved in the Betliar castle. This collection is still being formed with each new discovery, so after it has been processed, museum professionals will be able to produce more complete conclusions. This study, devoted to amateur photography, is just one of many efforts to acquaint researchers with the extensive content of the Andrassy photo collections preserved at the Betliar castle.

Illustrations: Fig. 1. Betliar castle; Fig. 2. Display with glass

panels showing a collage of historic photographs installed in the exhibition "What the castle conceals". First quarter of the 20th century; Fig. 3. Family tree of the Betliar branch of the Andrassy family; Fig. 4. Four generations of the family – Countess Gabriella Pálffy Andrassy (most likely), Count Gejza Andrassy, Princess Marizza Andrassy Liechtenstein and her son Alfréd; Fig. 5. Preparing for a hunt. Parchovany, probably 1912; Fig. 6. Emanuel II. Andrassy on the horse Marquis, 1913; Fig. 7. Olympic Games in Stockholm, June 6 to 9, 1912, page from a photo album; Fig. 8. Western campground, on left Gejza I. Andrassy, 1906. SNM-BET; Fig. 9. Gejza II. Andrassy at the finish line of the junior competition. Tatranská Polianka February 23, 1936; Fig. 10. Gejza II. Andrassy in riding clothes, around 1925; Fig. 11. Gejza Andrassy weighing a hunted bear, around 1890; Fig. 12. The hunting lodge in Súľová built by Emanuel I. Andrassy, 1908

Tableaux vivants, carousel carnivals, theater – photographs of nobility in costumes and disguises

Petra MEDŘÍKOVÁ

Keywords: historical photos – costumes – nobility – theatre – tableaux vivants – 19th century

The article deals with one aspect of the leisure activities of nobility in the 19th century – costume disguises and how they were documented in photographs from the last third of the 19th century. There are large amounts of photos in costumes in the mobiliary of castles under the management of the NPÚ, but identifying them is difficult without labels and proper context – are they pictures in carnival costumes, from a theater play, or tableaux vivants?

The article successively points out different types of costume amusements documented in photographs. First and foremost, these are tableaux vivants, put together either to educate or for entertainment at social evenings. The basis for the tableaux were most often various art works from the past, particularly from painting and literature.

Another popular type of performance was the carousel – a costume equestrian show integrating various historical topics. The article highlights in particular the trio of Viennese Carousels from 1867, 1881 and 1894, from which a number of photos have been preserved – in the first case from the photo studio of Ludwig Angerer, the latter two years from the Josef Löwy studio. The photographs depict individual participants in fancy costumes, in the studio or on horseback, or even individual wagons and equipage, or group scenes. The proceeds from these costly public performances were almost always donated to charity.

Another opportunity to dress up in costume were theater plays, either private or public. Private theaters are documented on the example of the Auersperg

noble family, whose furniture preserved printed programs for various theater plays in addition to photos. One of the most important public performances was "Die Götterdämmerung in Wien", whose authors were Princess Pauline Metternich and Baron Bourgoing, performed in Vienna in 1886.

In addition to these specific types of entertainment, costumes were often used for balls and carnivals as well, where one could unleash the imagination and select, in addition to historical costumes, those of various gods and goddesses, the seasons, fairy-tale motifs, or personifications of various characteristics or activities.

The photographs from all these events were not taken on site, of course, but later, in the studios of renowned photographers, where the actors again donned their costumes and repeated the appropriate pose.

At the beginning of the 20th century, the penchant for costume festivities slowly faded away and definitively ended with the First World War. After the end of the war, the map of Europe was redrawn, the Habsburg monarchy ceased to exist, and the aristocracy was left to seek out its identity in the new world. If costume parties were held in their castles, they were merely private events, when a bit of imagination was sufficient to revive a certain role without the need to spend larger sums of money. The photographs from these events were no longer outsourced to professional photographers; photos were taken by some of the participants, later to become part of private family albums.

Illustrations: Fig. 1. *Tableau vivant in the style of Watteau's idylls. Atelier Adele, Vienna, 1869; Fig. 2. Marie Breuner as Rembrandt's Girl in a Picture Frame, Atelier Adele, Vienna, 1875; Fig. 3. Rembrandt van Rijn, The Girl in a Picture Frame, 1641; Fig. 4. Ferdinande Berchtold in empirical dress (based on an image of her grandmother) at a costume festival in St. Petersburg, 1908; Fig. 5. Marie Dubská as St. Cecilia, atelier Josef Kunzfeld, Brno 1874; Fig. 6. Mathilde Boos-Waldeck and Aglae Auersperg like a clock in the style of Louis XVI. Atelier Ludwig and Viktor Angerer, Vienna, 1870's; Fig. 7. Christiana, Vincenc, and Marie Auersperg as a tableau vivant – New Year's wishes for 1885. Atelier Tietz u. Gallat, Chrudim; Fig. 8. Carousel 1867. Archduke Albrecht and Wilhemina Auersperg representing the Archduke Karl of Styria and Marie of Bavaria. Atelier Ludwig Angerer, Vienna, 1867; Fig. 9. Carousel 1867. Ladies in sultana costumes. Atelier Ludwig Angerer, Vienna, 1867; Fig. 10. Carousel 1880. Count August Breuner in medieval costume. Atelier Josef Löwy, Vienna 1880; Fig. 11. Carousel 1894. Ceremonial carriage drawn by four horses. Atelier Josef Löwy, Vienna 1894; Fig. 12. Brothers Eduard and Franz Josef Auersperg (middle) in the play "Raub der Sabinerinnen". Atelier Tietz u. Gallat, Chrudim 1887; Fig. 13. Three Muses: Clotilde Mensdorff as Terpsichore, Fanny Schonborn as Thalia, and Julie Hunyady as Euterpe in the performance "Die Götter-*

dämmerung in Wien". Atelier Adele, Vienna 1886; Fig. 14. Rudolf Kinsky as Mars in the performance "Die Götterdämmerung in Wien". Atelier Adele, Vienna 1886; Fig. 15. Carnival party at the Trauttmansdorffs – Josef Trauttmansdorff dressed as a pirate strangling his sister, turn of the 1920's and 30's.

Possibilities of Historical Photographs as a Primary Source

Marie FOLTÝNOVÁ

Keywords: National Heritage Institute – research – vehicles – photography – carriages

One section of a National Heritage Institute (NPÚ) research task dealing with cataloguing and evaluation of historical photographs preserved at protected sites under the management of the NPÚ was finding an optimal methodological attitude for using historical photographs for further interdisciplinary research.

One 2014 segment of the task was to single out photographs of historical motorless vehicles used by the nobility for travel or leisure, attempt to categorize them and prepare a comprehensive system for adding descriptions. The goal of this partial task was to expand our knowledge of everyday life of the aristocratic families living in the houses that are now in care of the state and the NPÚ.

The selected photographs were then used to gather information about each vehicle, its type, its function, its appearance, construction and the manner and circumstances in which they it was used. Among tens of thousands of archived pictures (plates, negatives, positives) pictures that allowed for identification of the pictured vehicle, the occasion of its use, the changes in historical customs and everyday life of the aristocracy at their estates were prioritized. In the first phase of selection 500 reproducible pictures were chosen and the most commonly used and most popular types of carriages for special occasions, travel and leisure could be identified – Barouche-Landau, Calash, Berline, Barouche-Sociable, Cabriolet and others.

The examined group of photographs shows carriages as everyday objects on pictures starting at the last third of the 19th century up to the pre-war era of the 20th. After the Second World War carriages were used only on special occasions – ceremonial, sport or entertainment.

Illustrations: Fig. 1. Landau carriage; Fig. 2. Joseph I. of Portugal's historical ceremonial carriage body made in Lisbon after mid-18th century; Fig. 3. Brake carriage – mostly a utility vehicle used for many purposes in everyday life; Fig. 4. Mylord coach; Fig. 5. Calash, Parkwagen; Fig. 6. Horse drawn carriage with a large company with children and servants in the courtyard of the Falkenau (today Sokolov) chateau; Fig. 7. Barouche in a courtyard entry of an unidentified house; Fig. 8. Cabriolet, a light sporty two-wheeled vehicle usually drawn

by one horse; Fig. 9. The noble family sitting in a Victoria-Duc type carriage in the courtyard of the Bludov castle; Fig. 10. Top – a postcard with a Mylord type carriage with guardsmen greeting the emperor Franz Joseph I. Bottom – a postcard showing the heir to the throne Franz Ferdinand in a ceremonial closed carriage; Fig. 11. Spider Phaeton – a light sporty carriage with large wheels.

Reading photographs on the example of photographic material from the mobiliary fund of the Břežnice State Castle

Markéta SLABOVÁ

Keywords: photography – travel – Africa – Palffy – Břežnice

The article deals with the method of reading photographs on the example of the photographic material from the mobiliary fund of the Břežnice State Castle. Although the mobiliary collections of state castles contain a number of photographic material (individual photos, albums, negatives, etc.), historic photographs have so far been generally used only as an attractive decoration for interior installations. Since the 1970's, photographic material has been undergoing continuous systematic processing and, in recent years, its digitization. The content potential of photos stored in the mobiliary funds of the castles administered by the National Heritage Institute, however, has remained nearly unused, with rare exceptions. The situation is currently changing, and photographs are being increasingly perceived as a historical source of valuable information, for example, on learning about the history of the material culture and everyday life. The author attempts, based on an analysis of several photos pertaining to travel, to demonstrate the use of the method of reading photos in routine practice and to outline the advantages and pitfalls that this method generally entails. The selected photographs are from the Palffy family's expeditions to Africa in the early 20th century and are part of the mobiliary fund of the Břežnice State Castle. The explanation of the procedure for obtaining information from specific photographs is preceded by a brief introduction dealing with the methodology in processing the content aspect of the photographic material and an analysis of the collection of photos stored in the mobiliary fund of the Břežnice State Castle.

Illustrations: Fig. 1. Camp in the bush, photograph; Fig. 2. Tent, photograph; Fig. 3. Guard, photograph; Fig. 4. Hotel, photograph; Fig. 5. Public buildings in Mombasa, vintage postcard.

Oh fashion, what language do you speak?

Notes on dating photos

Radek POLÁČH; Lenka VAŇKOVÁ

Keywords: historical fashion – describing and interpreting photographs – aristocratic clothing – iconographic source

Historical photographs originating from aristocratic collections contain a wealth of matters related by dress and fashion. In the vast majority and in a unique way, they captured different types of clothing, fashion elements, and issues that were reflected in the life of the aristocracy. The knowledge of any slightest detail and the perfection of its description is an important clue for identifying the captured environment and its relation to a historical event, possibly the recreational activity associated with it. The article uses an illustrated procedure to show the possibilities of further descriptions of historical photographs, where the slightest little thing in the direction of fashion may lead to seeking out more precise data on persons in the aristocratic circle. However, it is necessary to describe historical photographs in a coherent context, confront this media against other iconographic sources such as graphics or artwork, and look at it from different aspects of the description.

Illustrations: Fig. 1. A group of girls, photo, 1856; Fig. 2. Fritz Geseishunt (?), Design of evening dresses for Sitta Thun, watercolor, early 1860s; Fig. 3. Atelier of J. Thomas, Sitta Thun, photographs, 1861–1866; Fig. 4. Atelier of M. L. Winter, Sitta Thun, photo, 1883; Fig. 5. Prince Egon Karl Hohenlohe-Waldenburg-Schillingfürst, photo, 1896; Fig. 6. Man in row boat captain uniform, photo, 1880.

Digital Restoration of Cinematic Heritage.

The DRA Method

Marek JÍCHA; Jaromír ŠOFŘ

Keywords: cinematic arts – film restoration – DRA method – preservation of cinematic heritage

Just as there exists "belles lettres," there is also "belle cinématographie": a precious set of artistic cinematographic works that cannot escape worldwide attention for their unquestionable quality and contribution to culture. Cinematography of this quality is art that, due to its superior parameters, should be considered part of a nation's cultural heritage and recognized as cultural heritage.

With the advent of new digital technologies, how to preserve this cultural heritage in an unchanged form and quality for future generations becomes more and more urgent as new methodological problems appear. Digital restoration can significantly expand work opportunities of restorers in their quest for a permanent preservation of this heritage. The digitally restored film copies become a source of creating further digital

copies of films necessary for their further presentation – projection in digital cinemas, digital TV broadcasting and dissemination by the means of data media.

The new profession of the digital restorer brings with it increased ethical responsibility for the results of work and requires high professional expertise. Digital restoration techniques clearly exceed conventional analogue restoration techniques previously used by archivists working only with archived film copies. Work with the data needs to be carried out in the interest of the desired result, which is the appearance of the work indistinguishable from its appearance during its first-night presentation; otherwise, there is a risk of creating new, damaged versions of films. Poor result of digital processing cannot be considered a work identical with the author's original work, sometimes a case of mere plagiarism occurs, which is to the detriment of the authors of the original work. It is the more serious offence because the spectators, to whom the low-quality output is presented as the "right one", are misled and drastically deprived of the true appearance of the original work and of the level of artistic qualities of its authors, since the spectators usually do not have any possibility of making relevant comparison.

In 2013, under the Applied Research and Development of National and Cultural Identity Programme (NAKI), a research project called "Methodology of Digitisation of the National Film Fund: Methodology for evaluating the quality of film image from the perspective of the viewer's visual perception with the aim of creating an equivalent restored digital copy when compared with the original archive sources" was launched. This project defined a clear mission to set rules for providing new digital access to cinematographic works in the Czech Republic. The researchers under the project, AMU professors and experts from the National Film Archive (NFA), embarked on a collaboration which, unfortunately, did not last long. The collectively developed Methodology of Digitisation of the National Film Fund, based on the DRA (Digitally Restored Autorize) method, became a subject of a professional dispute. The reason is that digitisation is bringing new views of a cinematographic work as such, of the related copyright aspect as well as new contexts, including restoration and a clarification of terminology. The impulse to the formation of the DRA method (where the film digitisation workflow involves a professional digital restorer working with an expert group to yield an outcome certified as a new original source of the cinematographic work) was the original request of the NFA to invite the authors of the film's image, namely cinematographers, to work on the digital restoration of the first important works of the Golden Fund of Czech Cinematography:

Marketa Lazarova, *The Firemen's Ball* and *All My Compatriots*. Although these first digitally restored films in the Czech Republic can be described as the result of a successful harmonious cooperation of archivists, authors and post-production workers in the area of film image and sound, after a year and a half of the work on the project, NFA specialists left the research team because the new director of the NFA disagreed with the DRA method. His main reason was a disagreement with the participation of professional associations in supervising the restoration of the film fund by which the NFA met the directives of the European archival association.

In the approach of archivists to the digitisation of a cinematographic work, it is, unfortunately, sometimes possible to trace a rather misleading way to finding "authenticity" in the preservation of marginalia. In these matters, however, the essence of things should be very carefully considered. For example, maintaining the image format of the final work is an essential quality of the film image since it concerns the possibilities for creative work with the linearity of the image, including the so-called linear composition. In contrast, an irrelevant characteristic of the film image, preserved by the negative, are marginal marks made for specific purposes that are unrelated to the will of the authors.

Researchers from AMU including cinematographers, sound masters and cooperating external experts on digital and film technologies (from CTU) thus had to proceed to complete the methodology without film archivists from the NFA. The DRA method is now complete and ready for certification. It was this method which was used in 2015 to restore the very first film – *The Stone Bridge* by director Tomáš Vorel. The world première was already on 26 September 2015 at the International Film Festival Manaki Brothers in Macedonia, where the NAKI project representatives, prof. Marek Jícha and prof. Jaromír Šofr, introduced the DRA method to the world public, also in the form of the project presentation.

It is meaningless to talk about improving or failure to improve in the process of digital restoration because image information contained in the original negative transferred by being scanned into digital files brings a completely new qualitative benefit even without intentional interventions of restorers and their expert groups or of authors, if these are available. The inevitable amount of image-related damage due to ageing is compensated by digitisation in the sense of returning the image to its original appearance which cannot be considered improvement. No film author, whether a director, cinematographer, sound engineer, script writer or composer, did not envisage, when creating a film, that the film would be faded, its colours shifted and its sound interrupted. Films are created in the faith that they could be screened in their

unaltered original form. Rigid insistence on digital fixing of the poor quality of a copy under false pretence of so-called "historical authenticity" renders an ill service to cinematography as a performing art and represents misunderstanding of what the film medium actually is. The current digital era obliges both filmmakers and archivists to revise such notions of authenticity and to condemn them as worthless from the point of view of preserving cinematographic works for future generations.

The age of digital technologies has given origin to a cardinal problem that affects the current practice of film restoration and fails to be addressed by any of the codes of film archiving of the past. An evident conflict arose between the opinion held by the personalities representing the archive in terms of what the appearance of the digitised film copies should be like, and the interest concerning the appearance of the digitally restored works on the part of their authors. Recent experience from presentations of digitised film copies demonstrates that the interest of the authors of the works does not differ from that of the viewing public. Although this viewing public is not professionally trained in the area of technologies, it is not correct to provide it with substitutes (versions) of the original films. The archivists' interest is satisfied when they digitally document the current condition of the works in their analogue form, irreversibly impacted by devastating physical and chemical changes. Authors and, clearly, spectators themselves have no reason to accept this age-degraded form, provided that it can be avoided in today's digital age. Both authors and spectators are interested in digital restoring which restores the original appearance of the work. It also becomes an ethical question whether the above mentioned devastated form should be forced upon authors and spectators if we have available means and procedures – the DRA (Digitally Restored Authorize) method – to guarantee the preservation of the original visual and acoustic quality of the work.

The DRA method strives to create new digital copies using the original negative. Just as an analogue 35 mm film copy once used to be made from the original negative, today, an additional new digital copy may originate. A restorer is responsible for ensuring that a new version of the work does not emerge and is the guarantor of this process, even in the case when authors are no longer alive.

Within the research of the Methodology of Digitisation of the National Film Fund, the DRA method has been further elaborated and is ready for certification. The method accurately identifies and characterizes individual assumptions and workflow steps of digital restorers who strive for the emergence of the original source of the cinematographic work in a digital form. The application of the method does not

give rise to a new version of the work but to its Digitally Restored Authorize (DRA). It can be considered the original source of a cinematographic work if it meets the following criteria:

1. The image is digitised exclusively from the original negative (if it has not been preserved, then from other duplicated generations, in the worst case, from release prints) at a resolution corresponding to the original cinematographic material, in the original frame rate, with the aspect ratio and image size corresponding to the signed copy used at the time of the première screening, with sufficient range of brightness and colour depth of the image preserving full fidelity to the tonal range of the analogue original.

2. A professional workplace of officially recognized expert film and digital restorers or such restorers that are university educated in the fields of cinematography and sound engineering participated in the restoration of the film.

3. The authors of the film participated in the restoration of the film – cinematographers, sound engineers and directors (if available) and representatives of their supervisory professional associations of authors which are professional authorities representing the highest expert corrective supervision.

4. The restored film is approved by an expert group consisting of restorers and authors (officially recognized film restorers, the aforementioned authors of the cinematographic work, if they are available, and representatives of professional associations of authors, film historians, technologists and other required experts, hereinafter referred to only as the "expert group"), whose members should sign, after mutual consent, an official certification document on the DRA or a restoration report documenting that the DRA method was used.

5. Differences in quality between a reference copy selected by the digital restorer or a digital facsimile of the reference copy and DRA must be, as far as the appearance is concerned, in order to preserve the author's concept of the cinematographic work – within the meaning of the Copyright Act – approved based on a competent analytic opinion of the expert group.

What is used as the single source for archiving the DRA is the so-called Master Archive Package (MAP) and the Intermediate Access Package (IAP) from which, subsequently, all the copies of any distribution formats are made, namely without any intervention into the appearance of the work as per the above-defined criteria (except for the changes in the overall size and resolution of the image and the different levels of compression depending on the respective distribution format).

Illustrations: Fig. 1. An illustration from the film When the Cat Comes – the KODAK negative was not subject to as big

colour degradation as the AGFACOLOR positive presented in the original copy; Fig. 2. Camera apertures of the film *The Stone Bridge*, a sample of camera apertures used during the filming and the resulting screening aperture of format 1: 1.66; Fig. 3. A sample analysis of the restorer, Antonín Weiser while working on the film *The Stone Bridge*; comparison of the sources with the resulting DRA. The first column of samples is the DFRC – a digital facsimile of the reference copy, Eastman Color Positive, scanned at 4K resolution; the second column is the restored outcome – DRA (4K), the third column shows histograms of the Baselight colour corrector, the fourth shows samples of the original negative and the fifth column shows samples of the original television SDTV transcript (0.7K) to the digital beta; Fig. 4. A sample of the importance of the so-called "hair" from the camera in the DRA restored film *Closely Watched Trains*; Fig. 5. The negative of the film *The Shop on the Main Street* by directors Kádár and Klos with a laboratory repair in part no. 7. Three omitted frames that were damaged by breaking the splice in a copier; Fig. 6. Left-hand column: Camera aperture with the aspect ratio of 1: 1.66 used in a camera and copied to the release prints of the copies of the film *The Cremator* and designation of such a film format in the production sheet of the Barrandov Film Studio as a "classic" film format. Right-hand column: Film *The Firemen's Ball*. Camera aperture of the 1: 1.66 format was used in the viewfinder and it was this format for which the film was artistically composed. In the production sheet, it was marked the same as in the case of *The Cremator*; Chart 1. Utilisation of digitisation techniques in digital restoration; Chart 2. The relationship between the profession of a film restorer and that of the digital restorer of cinematographic works; Chart 3. The DRA Method. The original sources of the cinematographic work are marked in red, its used copies are marked in blue and dissemination digital masters, respecting the same appearance of the image and the sound character that was produced by restoring while applying the DRA method, are marked in green. The restoration intervention itself, made on the basis of a qualified estimate based on a reference copy, is marked in orange.

A race against time

Blažena URGOŠIKOVÁ

Keywords: Cinematography – coloring processes in the years 1897-1930 – hand coloring – coloring using templates – photographic print toning, shading, and their combinations – research of photographic print toning in NFA and VÚZORT – application of research on modern film materials – measuring density and color saturation of silent films – color in Czech silent films – sources of information about film color

The author addresses one of the important problems of restoring silent color films from the period 1895–1930. In a short detour, she emphasizes the importance of this issue, since the majority of silent films, according to various historical studies,

were colored by one of four or five processes: manual coloring, coloring using templates, monochrome photographic print toning and shading, or a combination thereof. To a greater extent, the study focuses on the efforts of the National Film Archive in Prague and the Research Institute of audio, video and reproductive techniques (VÚZORT) on the rehabilitation and modernization of old photochemical methods of coloring and creating the conditions for rescuing the oldest film color images. Cooperation between the two institutions was successful, and since the 1980's, these color processes have become an important part of restoration projects. Despite the dozens and dozens of films restored in their original forms, collections still hold a large amount of rare film material from the early decades of cinematography whose existence is threatened by the influence of time. This is why the National Film Archive in 2012 began to take action, the results of which may contribute to the rescue of information on the color nature of these films. At issue is a detailed measurement of the density and color saturation by a densitometer and data recorder. This concerns the process of photographic print toning, shading, and the combinations thereof; in these cases, a black and white copy is first made and color is applied afterwards. The data records can then be used at any time in the future.

Illustrations: Fig. 1. The first successful attempt to convert the coloring process to acetate non-combustible material, Zigomar, France in 1913, dir. Victorin Jasset; Fig. 2. Example of the degradation of the film image; Lucerna, Czechoslovakia 1925, dir. Karel Lamač; Fig. 3. Table measuring density and saturation, Melchior Koloman, Czechoslovakia, 1920, dir. Rudolf Liebscher; Fig. 4. Example of a terminal strip with word indications of the colors used; Fig. 5. Example of degradation of the combination of photographic print toning and shading; Lucerna, Czechoslovakia 1925, dir. Karel Lamač; Fig. 6. Example of processing film edits; Fig. 7. The only surviving frame with photographic print toning from the Czech movie "The Girl from the Silver Border", Czechoslovakia 1921, dir. Vladimír Slavínský; Fig. 8. The identification of this single frame helped in the discovery of ca. 600 m of German film from 1913 with Emma Destinn in a Japanese film archive; Fig. 9. Change in photographic print toning in a single shot without editing; Czech film "Prague Executioner", Czechoslovakia 1927, dir. Rudolf Měšťák.

Witness of the time of industrial development – The twice-saved Poldi Kladno plant photograph archive.

Petr KLIMENT; Michaela ZEINEROVÁ-BRACHTLOVÁ
Keywords: Poldi Kladno – historical photography – industrial monument – preservation and classification of photograph collection

In 2005 the National Technical Museum Archive managed to obtain the oldest part of the Poldi Kladno photograph archive. It was saved for the first time during the so-called "normalization" period of Czechoslovakian history by employees who in defiance of an order to destroy the glass negatives hid them instead.

The photo archive of the Poldi Kladno plant is not only a unique document of industrial development in the Czech lands but it also shows the history of the medium up to the beginnings of digital technologies. The industrial era and the classic black and white photography era share the same period – the photographic materials available from factory production are a typical product of its time. The obtained collection parallels the development of technology with the evolution of steel production and is also a specific documentation of the possibilities and the role of photography in society.

The article describes the circumstances of the 2005 acquisition of the collection which was thanks to a former employee of the former Research Institute of the SONP (united steelworks) Kladno, later head of the metallurgy department of National Technical Museum. It is a uniquely comprehensive collection, there are around 10 000 preserved glass plates, several thousand plastic film base negatives and a number of paper positives created from 1896 up to the end of the millennium. An inventory created during the acquisition process (quoted in the main article) respects the structure and organization system of the creator – the Poldi metalworks. The archive is organized into separate units according to purpose and content of the pictures. Within these units the photographs are numbered on a chronological principle.

The article describes the continuing processing of the collection starting with the methods of preventive conservation through digitalization (using a digital camera) through description of the physical state of the pictures (description of the plate or the paper positive) to structured description of the content. The authors divide descriptive metadata into two main groups – physical descriptions of individual photographs created during conservation and digitalization and description of content done later based on digital positive pictures or in the case of negatives on conversions from digitalized negatives. Outside of the description structure of individual pictures the authors also propose a structure of authority records that will be connected to the records of individual pictures. This context information not only makes descriptions easier and prevents inaccuracies and errors but will first and foremost enable easier searching and organising of theme-based selections for different demographics.

Illustrations: Fig. 1. Poldi Hütte, overview; Fig. 2. Spiral springs; Fig. 3. POLDI products at an exhibition in Antwerp; Fig. 4. Missile shop, glass negative(4a) and envelope (4b); Fig. 5. Paris trade offices; Fig. 6. Rolling mill, introduced into production on July 7, 1938; Fig. 7. Plant's main street entrance; Fig. 8. Forging of a large ingot with a hydraulic forging press; Fig. 9. Construction of the missile forge; Fig. 10. Compressed air powered machine; Fig. 11. Etching test; Fig. 12. Impact test; Fig. 13. Ball bearing; Fig. 14. Crankshaft for an aircraft engine; Fig. 15. Mr. Duras; Fig. 16. Steelworks; Fig. 17. High-speed steel circular cutting machine at work.

On the question of effective resolution and color verification in the process of digitization

Ladislav BEZDĚK

Keywords: scanners – optical resolution – effective resolution – scan quality – scanning defects

The article explains the issues of conflict between the “optical resolution” of scanners that manufacturers often cite in the technical specifications, and the effective resolution, i.e. the actual values achieved by specific devices in practice and which can be substantially lower than the optical resolution declared by the manufacturer in some devices. The second part points out the abysmal differences in quality between different brands of scanners, even for instruments whose prices range from the hundreds of thousands or millions of Czech crowns. Specifically, it addresses the distortion of color rendering, image distortions, streaking, blurring, and other defects.

Illustrations: Fig. 1. León, a city in the state of Guanajuato, Mexico, 6 × 6 cm black and white negative from the end of the 1960s. The picture was probably taken during the event “Sparta around the world tour”. The red indicates the assessed detail of scans taken on different scanners; Fig. 2a. Detail of a scan from a Microtek scanner, characterized by an unacceptably low sharpness; Fig. 2b. A scan from an EverSmart Supreme scanner, reproducing not only the actual image itself sharply, but even the grain of the photographic emulsion; Fig. 3a. Edge of camera film – a scan from the scanner EverSmart Supreme; Fig. 3b. Edge of camera film – a scan taken on an Epson Perfection V700; Edge of camera film – scan taken on a ScanMate F8 Plus with a resolution of 4800 dpi; Fig. 4. Different detail of the scans from the negative of Fig. 1. The detailed of the scan on the right clearly shows a loss of detail in the lights (i.e. in the darkest parts of the scanned negative) compared with the detail of a correctly performed scan on the left; Fig. 5. Sample detail of a scan of an architectural plan from an expensive but badly functioning scanner; Fig. 6. Flawless scans of the same plan from other professional scanners of various brands (6a, 6c), and equally flawless scan from an ordinary cheap office scanner (6b); Fig. 7. Even from one of the expensive large-scale digitization devices, a scan of grid paper can reveal absolutely unacceptable defects and deformations – the square fields are distorted into a trapezoid

shape, and the lines are strongly deformed; Fig. 8. Another defect of a plan scanner may be the uneven sharpness of the image area. The auxiliary dividing line in the detail of the scan of the plan (inscription PALACE, letter L) shows a clear difference in the scan sharpness from two adjacent sensors (cameras); Fig. 9. A scan of a uniformly dark area (lightened for clarity) reveals another possible serious flaw – the non-uniform coverage of the image in the individual sections of the scan. Stripes in the image appear as a result of uneven camera work. This defect can not occur in single-camera type scanners.

Estimating the quality of photographic materials and methods for their digitization

Jan HUBIČKA

Keywords: digitization of photographic materials – effective resolution – dynamic photographic range – scanners – data storage

The digitization of historical negatives is a laborious process which takes its toll on the original. Nowadays, virtually all of the information from the original image can be captured in such a way that this operation need not be repeated.

The first part deals with the question of effective resolution and dynamic range of the photo. The resolution can be determined on the basis of available data on the number of crisp lines per millimeter for photographic materials and lenses. The resolution of the particular photo can then be estimated on the basis of (partial) knowledge about the year of its creation and the technique used. The presented methodology is based on a study by T. J. Vital, and the estimates were practically verified on scans of photos from the archive of Šechtř and Voseček. Examples of photographs show that even photographs from the 19th century can achieve a resolution of 90 megapixels, while digitalization should take place at 360 megapixels.

The second part is dedicated to scanners, their effective resolution, dynamic range, and other design parameters. We show that the parameters of scanners and other digitization devices are often overstated, and special attention is required to achieve quality scans over 80 megapixels. On the other hand, for example, large scale glass negatives can be successfully digitized on higher quality budget desktop scanners. In a brief summary of the measured parameters of currently available desktop scanners, we show that the scanner resolution is often overestimated up to seven times. We also address the issue of data storage. Especially for negatives and slides, it is essential to digitize at a high bit depth (over 12 bits) and subsequently store the scans like this. We discuss the problems of storing raw data from the scanner to limit potential errors as well as views on the possibility of processing them in the future.

Illustrations: Fig 1a. Josef Šechtř, military hospital in the Pelřřimov Sokol building, 1915. Negative 21 × 26 cm inverted into a positive with highlighted detail 21 × 26 mm; Fig 1b. Detail with size 0.5 × 0.4 mm digitized at a resolution of 5400 ppi (left) and reduced to the estimated resolution of 1860 ppi; Fig 2a. Josef Jindřich Šechtř, Jan Žiřka Square. Cinemafilm negative (35 × 23,5 mm) inverted into a positive, cutout 3.5 × 2.35 mm; Fig 2b. Detail with size 0.8 × 0.8 mm digitized at a resolution of 5400 ppi (left) and reduced to the estimated resolution of 1860 ppi; Fig 3a. Ignác Schächtl, Jan Žiřka Square, 1880–1885. Negative 11 × 13 cm (wet collodion process) inverted into positive with highlighted detail 1.1 × 1.3 cm; Fig 3b. Detail of newsstand in the original scan at 5588 ppi, reduced to 2000 ppi and to 600 ppi; Fig 4a. Joseph and Mary Šechtř, Prazřská Street in Tábř, 90's, Kodak diapositive EPN 6 × 9 cm. Whole and detail with size 6 × 9 mm; Fig 4b. Detail sized 0.9 × 1.2 mm digitized with a resolution of 4000 ppi; Fig 5a. Josef Šechtř, Rubřn, Bechyně, around 1987, Kodak diapositive 9 × 12 cm. Whole and detail with size 9 × 12 mm; Fig 5b. Cutout with size 0.7 × 1.5 mm; Fig 6. Dynamic range of photographic materials. Comparison of dynamic range of negatives: 6a – from the 1880's (see Fig. 3); 6b – from 1915 (see Fig 1); 6c – from the 1970's; Fig 7. Effective resolution of scanners. The same cutout digitized by an EverSmart Select scanner at 5588 ppi (left) and Epson 4990 (middle). On the right, the scan is reduced from 5588 ppi to 1600 ppi (effective resolution of the Epson scanner).