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Joseph Berres's *Phototyp*: Printing Photography in the Service of Science

• MARTIN JÜRGENS, IOANNIS VASALLOS, LÉNIA FERNANDES* •

It is difficult today to conceive of an era when illustrated publications did not use photography to picture an event, a landscape or a person. And yet, only 180 years ago, illustrating a scientific article, an item in a daily newspaper or a multi-volume book series was a lengthy and expensive undertaking: an artist had to be employed to make an original drawing, this image had to be engraved on to a metal plate or woodblock, prints had to be hand pulled on a press, and these sheets had to be inserted into the binding of the publication one by one.

Imagine, then, a doctor of anatomy, examining samples of human tissue through a microscope at the University of Vienna in the eighteen-thirties, preparing illustrations for a professional publication. Born on 18 March 1796 in Hodonín (the present-day Czech Republic), Christian Joseph Berres¹ (fig. 1) had a meteoric career: having studied medicine in Vienna from 1813 to 1816, in 1817 he became Professor of Anatomy at the University of Lviv (present-day Ukraine) when he was just twenty-one. In October 1831 Berres was appointed Professor of Anatomy at the University of Vienna; this would prove to be his final post.²

By the time he was forty, Berres had already published a number of articles in medical journals, and in 1837, his magnificent book *Anatomie der mikros-*

< Fig. 1
JOHANN AND
JOSEPH NATTERER,
*Portrait of Joseph
Berres, 1840.*
Daguerreotype,
84 x 63 mm (image).
Vienna, Technisches
Museum Wien,
inv. no. BPA-007205.

kopischen Gebilde des menschlichen Körpers was published to near universal praise.³ Most of his publications are illustrated with images of cells and internal organs as seen through the microscope – finely detailed drawings made by Berres's students Carl von Nagel (c. 1815-1874), Christian Voigt (1808-1890), and Joseph Hyrtl (1810-1894) (fig. 2).⁴ Berres was highly regarded among his colleagues and, though demanding in his requests, he was also known to be kind and paternal.⁵ He described himself as staunchly scientific, as evidenced in the Latin phrase that prefaces his book *Anatomie*: 'I have written this not to narrate, but to prove.'⁶ He strove for the highest quality illustrations, but remained very conscious of inevitable inaccuracies introduced by the artist's eye and hand.

A New Age

The announcement of photography, in the form of the daguerreotype, by François Arago (1786-1853) at a joint meeting of the Académie des sciences and the Académie des beaux-arts on 19 August 1839 in Paris changed the way the world would see itself for ever. It had suddenly become possible to record the scene in front of you as a sharp, detailed image on a silver plate, almost as if nature had depicted itself by means of light, a camera and some chemistry. It appeared as if the photo-



Fig. 2
 JOSEPH BERRES,
 'Über den zarten
 Bau der Drüsen
 des menschlichen
 Körpers', 1840.
 Lithograph, 176 x 103 mm,
 in *Medicinische
 Jahrbücher des kaiserl.
 königl. österreichischen
 Staates* 32, Plate 6.
 Amsterdam,
 Rijksmuseum
 Research Library,
 no. 734 E 55.

graphic image was a mirror of reality, untouched by the hand of the artist, objective and unadulterated. A man of science, Berres was immediately excited by this new technique and keen to provide accurate images of his microscopic samples to a larger public, giving photography its 'true and full application in practical life and in the service of science'.⁷ Photography promised to be the key to the faithful depiction of reality in the form of a printed image in a publication, so Berres familiarized

himself with the physics, chemistry and practical handling of photographic apparatus through his associates in the 'Fürstenhofrunde', among them the daguerreotypists Anton Martin (1812-1882), Andreas von Ettingshausen (1796-1878), Franz Kratochwila (b. 1798), Joseph Natterer (1819-1862) and his brother Johann Natterer (1821-1900), who later all became well known.⁸ Although he wrote articles on the daguerreotype technique,⁹ there is no evidence that Berres actually owned a camera himself.

Berres's first view of a 'heliographed picture' (a daguerreotype) encouraged him to photograph microscopic images.¹⁰ With von Ettingshausen and Carl Schuh (1806-1863), he began experimenting with Schuh's newly invented 'hydro-oxygen gaslight' coupled with a microscope designed by Simon Plöbll (1794-1868) and a simple mounted daguerreotype camera.¹¹ On 25 February 1840 they obtained a successful image of a cross-section of the plant *Aristolochia*, and four days later they presented their photomicrographs at the seventeenth meeting of the Kaiserliche und Königliche Gesellschaft der Wiener Ärzte.¹² The only daguerreotype that has survived from this early period is the *Cross-Section of a Clematis Stem* by von Ettingshausen, dated 4 March 1840 (fig. 3).

There was, though, one problem: the daguerreotype was a unique object that could only be duplicated by re-photographing it, thereby creating a second daguerreotype. Berres believed he could overcome this; he had experience with printing images from his previous publications and probably had a good understanding of the techniques of preparing metal plates and lithographic stones for printing. He must have realized that the daguerreotype had the advantage of already holding an image on a sheet of metal; it essentially only needed to be converted, by etching, into an intaglio

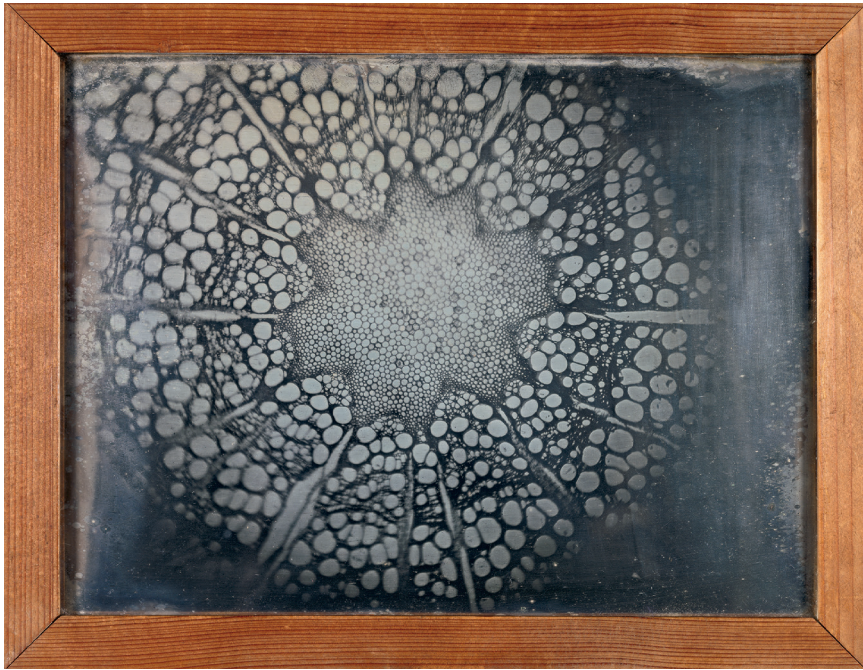


Fig. 3
ANDREAS VON
ETTINGSHAUSEN
(in collaboration
with CARL SCHUH,
SIMON PLÖSSL and
JOSEPH BERRES),
*Cross-Section of
a Clematis Stem*,
4 March 1840.
Daguerreotype,
160 x 210 mm (plate).
Vienna, Albertina,
inv. no. Foto2004/63.

printing plate with fine crevices that could hold ink. By printing from a daguerreotype on to paper, Berres would be multiplying the 'fragile and evanescent' image, so prone to mechanical damage on the polished silver surface, for scientific and practical purposes.¹³ He would also, by the nature of the process of printing, automatically correct the reversed image inherent in the daguerreotype.

Berres was not the first to explore these ideas. In the first half of the eighteen-thirties, Louis Jacques Mandé Daguerre (1787-1851) himself experimentally immersed his plates in acid baths in an attempt to stabilize the vulnerable image.¹⁴ Then, on 14 October 1839, just two months after the announcement of the daguerreotype, Alfred Donné (1801-1878) presented prints obtained from etched daguerreotypes to the Académie des sciences in Paris.¹⁵ Berres acknowledged Donné's work in March 1840, but what he had read of it left him unconvinced, so he decided to independently pursue his own and – as he believed – better method.¹⁶ The details

of Donné's process had been deposited in a sealed letter at the Académie, provoking Berres to comment that, in Paris, 'all their exertions are limited to producing imitations of daguerréotypy [*sic*]' – an indication that the French were pursuing the production of engravings *after* daguerreotypes, but not direct etchings *of* daguerreotypes.¹⁷

First Experiments

In March and April 1840, Berres started experimenting with etching daguerreotype plates in nitric acid. Despite initial difficulties, he continued his trials on the 'immense number of daguerréotypic [*sic*] specimens' that he had received from Schuh and Kratochwila.¹⁸ His first claim to success, on 5 April, is a photomicrograph of a plant cross-section, perhaps the *Aristolochia*.¹⁹ Six days later, he succeeded in etching a daguerreotype reproduction of a copper engraving, *Female Figure*.²⁰ No plate or prints of either subject have survived (see Appendix I, a chronological listing of Berres's subjects and prints).

Reproducing artworks was common practice in early photography. This might at first glance seem to be at odds with photography's much-praised potential for the objective delineation of nature: why would one choose to reproduce a work of art, an artificial object created by the hand of man, instead of photographing a view of real life? In Berres's case, basic scientific practicality may be the simple answer: if the subject never changes and is not moving about, then its copies are much more comparable to each other in a series of experiments. Furthermore, reproducing a monochrome engraving of a painting, which is what Berres was doing (see figs. 4, 11-13), was much easier than photographing the painting itself, because there were no colours to render, only stark black lines. It was also simpler to have a small engraving in the studio – one of many that were made – than repeatedly accessing a large original painting. However, Berres also foresaw practical and economic applications of his process, such as the reproduction of written documents, maps and sketches; copies of art in any format; and making old and sensitive objects accessible to others without damaging them. His list of applications also envisioned the dissemination of printed views of cities, landscapes and military posts;²¹ indeed he later etched plates depicting buildings in Vienna. There is no evidence that Berres ever tried to etch his photomicrograph plates. These were probably too laborious to obtain and therefore too precious to be used for tests. He may have wanted to perfect his process first, before using it in his scientific work.

Spreading the News

Following his third successful etching on 12 April 1840, a reproduction of a painting called *The Smugglers*,²² of which no images are known, Berres felt confident enough to have his work publicly announced in a short note in

the *Wiener Zeitung* on 18 April, extravagantly describing his process as 'the second half of the great discovery of our time', the first being the invention of the daguerreotype.²³ A longer article describing his process in detail appeared two weeks later.²⁴ Berres continued experimenting: on 30 April he made a print from an etched daguerreotype of a copper engraving, *Girl with a Butterfly* (fig. 4), and on the same day he communicated his results to the Kaiserliche und Königliche Gesellschaft der Wiener Ärzte.²⁵ From that moment on, news of Berres's work was rapidly spread by national and international journals and newspapers, resulting in great – if not always realistic – enthusiasm for his 'method to infinitely multiply' photographic images.²⁶ Over the next two years, to further publicize his work and also solicit private or government funding for his experiments, Berres asked influential associates to present his prints at the gatherings of learned societies, such as the *Versammlung deutscher Naturforscher und Ärzte* in Erlangen, the Royal Polytechnic Institution in London, and even the prestigious Académie des sciences in Paris.²⁷

During the summer of 1840, Berres must have worked incessantly on improving his process, and his endeavours culminated in the production of the pamphlet *Phototyp nach der Erfindung des Prof. Berres in Wien*, published on 3 August 1840. This booklet, containing original prints and a printed essay on the virtues of the process, is today considered the first publication illustrated with photomechanical prints. Only three copies of *Phototyp* are known today, each of which holds a different selection of prints (see Appendix 11). It is not clear whether Berres specifically selected certain subjects for the recipient of each copy, or whether he simply chose the most successful prints that he had available from his various plates. The Albertina in Vienna holds a copy inherited from



Fig. 4
 Girl with a Butterfly,
 30 April 1840.
 Print from etched
 daguerreotype,
 99 x 72 mm (image).
 Amsterdam,
 Rijksmuseum,
 inv. no. BI-B-2644-2.

the collection of the Graphische Lehr- und Versuchsanstalt Wien. This copy was taken apart in the nineteen-eighties, but it originally included five prints.²⁸ The British Library copy, purchased from the sale of the Alexander von Humboldt Library in 1863 or 1865, has three prints.²⁹ The Rijksmuseum holds the copy that Berres sent to the Koninklijk-Nederlandsche Instituut van Wetenschappen, Letterkunde en schoone Kunsten in December 1840,

following their request for its delivery after they had read about his work in the *Allgemeine Zeitung* of 18 August 1840.³⁰ This booklet, illustrated with four prints, was probably passed on to the antiquarian Frederik Muller in 1873, who then sold it to the Rijksprentenkabinet in 1890, from where it was transferred to the Rijksmuseum library.³¹

The print run of *Phototyp* cannot be established for certain: while most twentieth-century sources state that there were two hundred copies, this appears to stem from an interpretation by Erich Stenger (and later Helmut Gernsheim) of information given in Joseph Maria Eder's 1905 *Geschichte der Photographie*, which states that up to two hundred prints could be pulled from one plate.³² While Berres had experience with etching daguerreotypes, he seemed less connected to the printing part of the process and engaged the professional printer Heinrich Prey (c. 1813-1873): 'I have had my deeply etched silver plate ... printed 310 times.'³³ This could explain why he recorded few details about printing the image in any of his many publications. He merely noted that, once the plate was etched, the shallow relief had to be handled with the utmost care or the printed image would be ruined. He recommended the use of a 'printing-press adapted to the softness of the plates' – which had yet to be invented – and a 'remarkably fine, intensive printing ink' of undefined composition to capture the subtlety of his plates.³⁴ Furthermore, the paper receiving the ink should have a smooth, even surface.

Reworking the Plates

The prints of *St Stephen's Cathedral* are especially interesting because they exist in various states (figs. 5, 6). Careful examination of the nine prints known today helps us understand how Berres worked and the order in which he made these prints. The left print shows the whole image and must



Fig. 5
*St Stephen's
 Cathedral*, 7 July 1840.
 Prints from etched
 daguerreotypes.
 Left: 158 x 119 mm
 (image).
 Vienna, Albertina,
 inv. no. FotoGLV2000/
 26171.
 Centre: 99 x 120 mm
 (image).
 Hamburg,
 Hamburger
 Kunsthalle,
 inv. no. 1981/84.
 Right: 86 x 85 mm
 (image).
 Amsterdam,
 Rijksmuseum,
 inv. no. BI-B-2644-3.

therefore be one of the earliest prints, made before the plate was reworked. The centre print is an example of the *St Stephen's Cathedral* with lettering engraved into the plate below the image, and the right print has been trimmed and mounted on a secondary sheet. The plate marks of all untrimmed prints have the same ink marks and an irregularly bowed bottom left edge, and the dimensions of the plate marks are the same. To make the prints with engraved lettering, the bottom third of the image, which originally had poor contrast, must have been burnished off the plate and the inscription engraved in that area. The dark borders at the edge of the image formed by lines engraved into the plate by hand, already present in the earliest print, continue – barely visible – into the bottom half of the other prints as well. The clouds in the sky in the centre print must have been added by reworking the plate by hand, and they have not printed well in the later print on the right, probably

because the printing plate had become worn.³⁵ The trimmed prints show reworking that the other prints do not have: fine parallel lines are scratched into the printing plate in the area of the windows (fig. 6). As a result, these windows appear darker and have sharper contours. These reworked prints must have been made later than the untrimmed prints.

At least four other views of the city of Vienna were also made in this period in 1840: a detail of the façade relief figures of the *Academy of Sciences* (fig. 7), two different photographs of the *Ferdinand's Bridge* (figs. 8, 9), and a shot of buildings in a park (fig. 10).³⁶ Given their crisp sharpness and high resolution, Berres describes his prints as having a 'singular character' and a 'resemblance to the daguerreotype' that is 'extreme'.³⁷ The overall faintness of the image, the accurate reproduction of every scratch and blemish of the plate, and even the slight sheen of the ink on the paper contribute to this

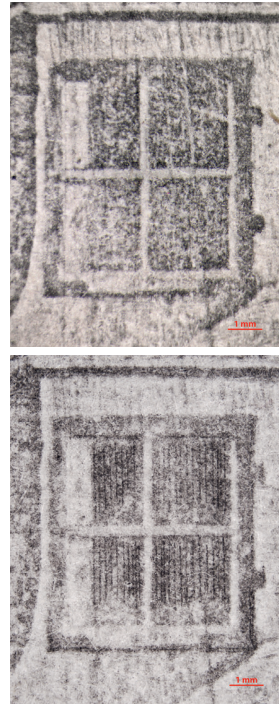
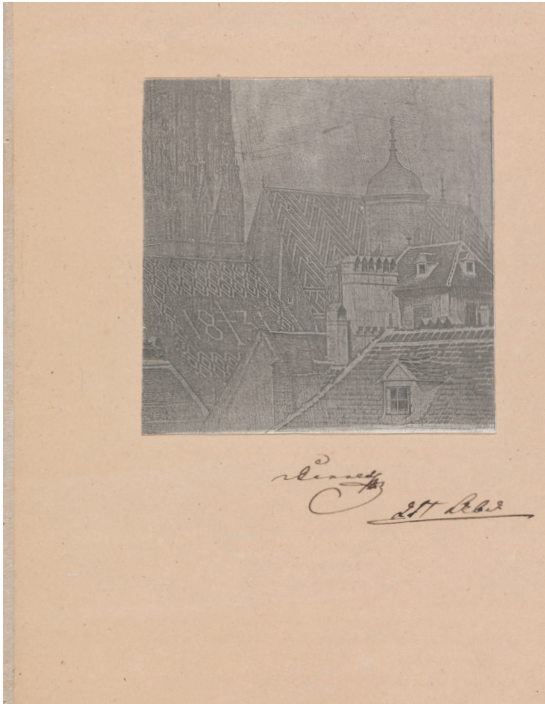


Fig. 6
Detail of window
from *St Stephen's
Cathedral*
(35x magnified).
Top:
window from print
at Hamburger
Kunsthalle
(fig. 5, centre).
Bottom:
reworked window
from print at
Rijksmuseum
(fig. 5, right).

perception. And yet, like *St Stephen's Cathedral*, the plates for these prints were reworked to improve the rendition of the image. In *Academy*, for example, vertical scratches in the plate can be seen as fine, dark lines above the left shoulder of the left figure; these enhance the outline between the shoulder and the background. It appears that Berres's ideal of the photographic image as an objective rendering of a scene that presents itself to the camera had to

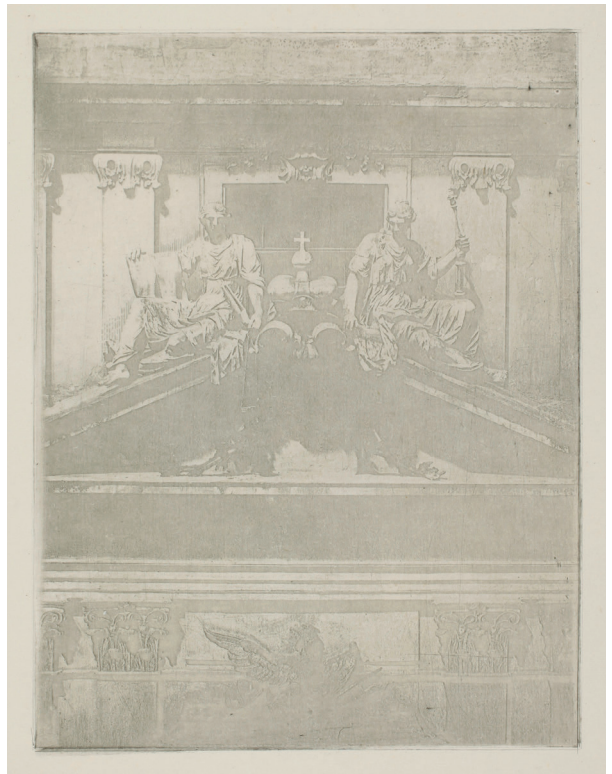


Fig. 7
Academy of Sciences,
before August 1840.
Print from etched
daguerreotype,
106 x 80 mm (image).
Vienna, Albertina,
inv. no. FotoGLV2000/
1720.



be compromised by the reality of the inadequacy of his technique: the etched daguerreotype simply could not deliver the expected quality, so the printmaker had to fall back on traditional methods of reworking the plate.

Berres continued to reproduce graphic artworks. The prints of *Judith and Holofernes* (fig. 11) and *The Monastery Soup* (fig. 12) – the Rijksmuseum has the only known copy of the latter print – look rather ‘shadowy and very indistinct’, as a contemporary critic put it.³⁸ Berres was dealing with the difficulties of rendering dark tones in printed images without the use of an aquatint grain. The shallowly etched shadow areas of the plate could not hold enough ink and therefore tended to print too light, and the lighter areas, which would normally wipe clean on the intaglio plate, must have been slightly rough and therefore retained the ink, rendering muddied highlights in the print.



Fig. 8
Ferdinand's Bridge,
before August 1840.
Print from etched
daguerreotype.
Print sent by Joseph
Berres to William
Henry Fox Talbot,
103 x 122 mm (image).
London, British
Library, inv. no. 01838
(LA6148).

Fig. 9
Ferdinand's Bridge,
before August 1840.
Print from etched
daguerreotype.
Alternative view,
105 x 105 mm (image).
Vienna, Collection
Helfried Seemann.

> Fig. 10
View of Vienna (?),
before August 1840.
Print from etched
daguerreotype,
120 x 164 mm (image).
Vienna, Collection
Helfried Seemann.

> Fig. 11
*Judith and
Holofernes*,
before August 1840.
Print from etched
daguerreotype,
124 x 102 mm (image).
Amsterdam,
Rijksmuseum,
inv. no. BI-B-2644-1.

> Fig. 12
The Monastery Soup,
before August 1840.
Print from etched
daguerreotype,
95 x 130 mm (image).
Amsterdam,
Rijksmuseum,
inv. no. BI-B-2644-4.





Fig. 13
Cupid Carving a Bow,
 before August 1840.
 Print from etched
 daguerreotype,
 105 x 86 mm (image).
 Vienna, Albertina,
 inv. no. FotoGLV2000/
 1718.



It may have been these technical problems that lead Berres to collaborate with the professional engraver Joseph Axmann (1783-1873) in the years that followed the publication of *Phototyp*. The prints associated with Axmann, *Cupid Carving a Bow* (fig. 13), *Venice as It Was* (figs. 14, 15), and two variants of *Joseph Square* (figs. 16, 17), often carry the note 'deeply etched', indicating that the plates were probably etched more often and deeper than the previous plates that Berres had been making by himself.³⁹ The plates could hold more ink and print darker, and most of these subjects are available in multiple states that show extensive reworking by hand, giving them a different appearance than the former Berres prints. The prints of



< Fig. 14

Venice as It Was,
1843 (reworked
until 1846).

Produced in
collaboration with
JOSEPH AXMANN,
FRANZ THEYER and
HEINRICH PREY.
Electroplated
daguerreotype,
etched and
reworked; or
copper electrotype
of an etched
daguerreotype,
168 x 119 mm (plate).
Vienna,
Wien Museum,
inv. no. HMW-56447.



Fig. 15

Venice as It Was,
1843-46.

Print from
Wien Museum
plate (fig. 14),
130 x 100 mm (image).
Vienna,
Wien Museum,
inv. no. HMW-99018.

< Fig. 16

Joseph Square.

Probably printed
by JOSEPH AXMANN
from etched
daguerreotype.

1 July 1844,
121 x 144 mm (image).
Vienna, Albertina,
inv. no. DC2006/173.



Fig. 17

Joseph Square.

Probably printed
by JOSEPH AXMANN
from etched
daguerreotype
Alternative view, 1844,
105 x 130 mm (image).
Vienna, Collection
Helfried Seemann.

Venice as It Was, made after 1843, were made with inks of different hues and show skilled use of aquatint shading techniques. In addition, some of these prints have an engraved title above the image and an engraved caption below it. However, careful examination will always reveal areas with the fine, faint and sharp details of the original daguerreotype that we have come to associate with Berres's work.

Only one plate, which depicts *Venice as It Was* and has an explanatory inscription engraved into it, is known today, and it is held by the Wien Museum (inv. no. HMW-56447).⁴⁰ However, this plate (fig. 14) does not look like an etched daguerreotype. Its reddish colour and bumpy, nodular back resemble that of a typical galvanic copper copy plate (an electrotype), but X-Ray Fluorescence Spectroscopy elemental analysis did detect traces of silver on the face. Could this be an original etched daguerreotype – but reworked and re-etched by Joseph Axmann and finally electroplated with copper? Since the silver surface of daguerreotypes was too soft for printing large editions, the options of electroplating the printing plates or even making galvanic copies in copper had indeed been discussed by Berres, but it remains unclear to what extent he was actually putting this into practice.⁴¹ Puzzlingly, one *Venice as It Was* print (Moravská Galerie, inv. no. C2504) has the same engraved title and caption, but different letter spacing than the other prints and the one extant plate. An inscription states that this is the 'last but one print from the original plate',⁴² which would indicate that the Wien Museum plate is in fact a copy-

plate after all, used to make the other prints of this subject that have engraved lettering. If so, it must have been made by Franz Theyer (1809-1871), who presented an electrotype copy of a Berres plate at the Twenty-First Meeting of *Deutsche Naturforscher und Aerzte* on 19 September 1843 in Graz.⁴⁴

Berres's Process Recreated

The English *Literary Gazette* of 2 May 1840 stated that Professor Dr Berres had discovered 'an extremely simple method' of creating impressions on paper from a daguerreotype.⁴⁵ In theory, the principle of etching daguerreotypes and printing from them does indeed sound simple: the highlights of the daguerreotype image, formed by minute silver-mercury amalgam particles, act as an inhibitor to the nitric acid etchant, which reacts with the pure silver shadow areas first. The acid converts the daguerreotype into an intaglio printing plate, on which the shadows are etched deep enough to hold ink, and the highlights essentially remain un-etched and can therefore be wiped clean of ink (fig. 18).

Berres's experiments were described in a number of newspapers, journals, books and hand-written notes. Most descriptions include details about the materials, the chemicals and the parameters necessary to successfully etch a daguerreotype.⁴⁶ The details were enthusiastically copied in other publications, but often with inaccuracies or misinterpretations. By December 1840, Berres had provided further variants of the etching process.⁴⁷ However, it proved difficult for us today to understand his quantitative parameters – particularly regarding

Fig. 18
Schematic cross-sections of a daguerreotype before and after etching.

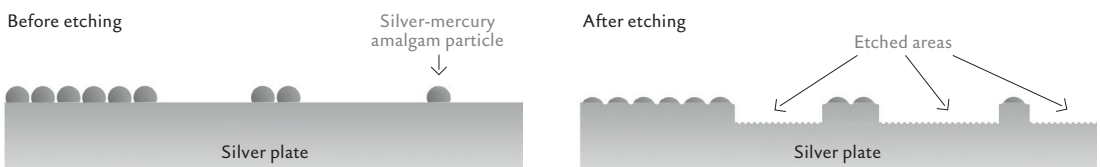


Fig. 19

MARINUS ORTELEE
after a drawing by
TINE THÖRIG after
a photograph by
HENNI VAN BEEK,
*View of the
Rijksmuseum*, 2016.
Pure silver
daguerreotype for
etching experiments,
180 x 130 mm (plate).
Amsterdam,
Rijksmuseum.



the use of nitric acid – and his experimental instructions. The only way to fully comprehend Berres's process was to attempt to put it into practice for the first time since the eighteen-forties.

We first needed to determine the correct values and units that Berres had worked with. While he had initially experimented on silver-plated copper, the typical plate material used for

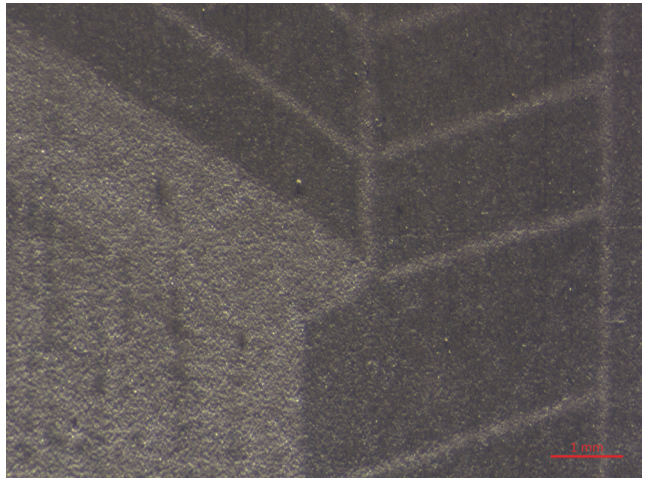
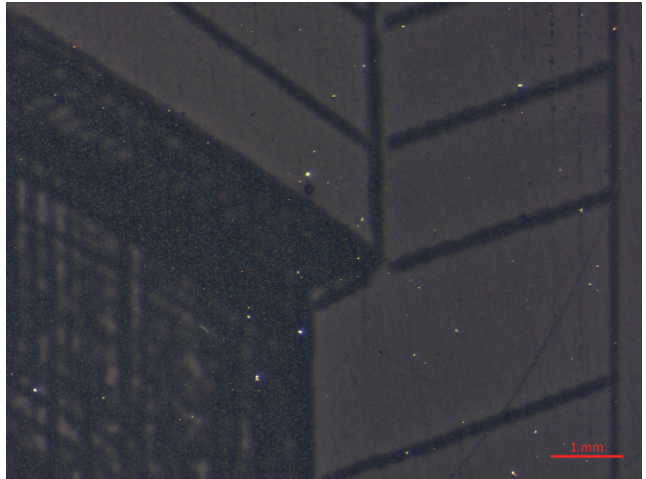
making daguerreotypes, Berres later switched to pure silver plates, with which he claims to have obtained better results.⁴⁸ Our initial etching tests were also more satisfactory on pure silver, so a contemporary daguerreotypist was asked to create ungolded daguerreotypes on pure silver plates as etching samples (fig. 19).⁴⁹ Berres must have been using ungolded

daguerreotypes, at least at the beginning, since Hippolyte Fizeau's (1819-1896) gilding method was not made until after Berres had published *Phototyp*.⁵⁰

According to Berres's instructions, the first step is the 'permanent fixing' of the image.⁵¹ This requires exposing the daguerreotype to warm nitric acid vapours and subsequently immersing the plate in a solution of nitric acid, in which silver or copper has previously been dissolved. However, our initial experiments did not give any constructive results. Scanning Electron Microscopy analysis of the treated samples showed no alteration of the image chemistry, but instead a minimal etching of the surface. Since the ungilded daguerreotype image is known to be extremely sensitive to the touch, Berres's 'permanent fixing' may simply mean a physical stabilization of the delicate image on the plate.

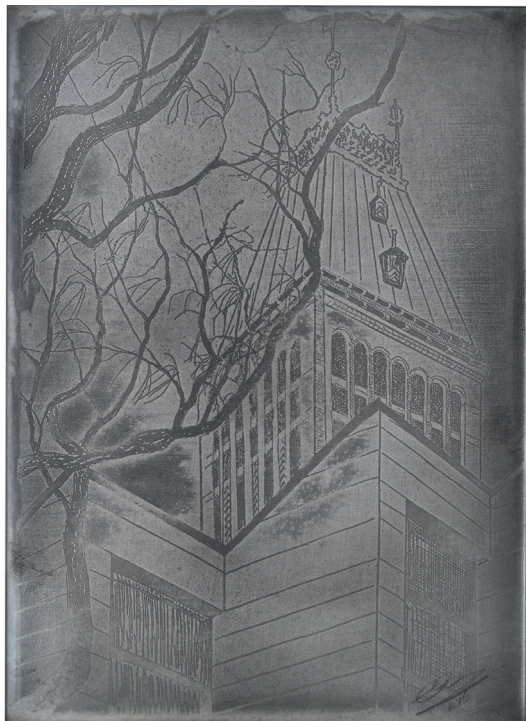
The second and major step is the actual etching of the image. Berres recommended varnishing the parts of the plate that should not be etched, such as the edges and the back. He also described the use of gum arabic to cover the image surface, which in practice delays the etching but produces better images.⁵² The plate is submerged in a weak nitric acid solution, the strength of which is gradually increased until the image shadows begin to etch. Berres identified this as 'the decisive moment, and upon it must be bestowed the deepest attention'. To ensure uniform etching, the solution should be gently stirred, and the plate must often be lifted out of the solution.⁵³ Once the etching is sufficiently deep, the plate should be removed and rinsed with distilled water and dilute ammonia.⁵⁴

Our first experiments were promising, even though the etching was not very deep. It was evident that the acid had etched the shadows faster than the highlights, creating a relief of deeper and rougher shadows and higher and



smoother highlights (fig. 20). Unfortunately, subsequent results were inconsistent. The efficacy of the acid was progressively more difficult to control. It soon became clear that, during the few months of experimentation, the daguerreotype's natural aging – the oxidation of the plate's surface by air – was retarding the etching. Consequently, the daguerreotypist made new plates on both solid silver and silver-plated copper and etched them immediately after development and fixing. Although the results were satisfactory (figs. 21, 22), they could only be achieved by revising and modifying a number of Berres's original steps.

Fig. 20
MARINUS ORTELEE,
*View of the Rijks-
museum*, 2016.
Detail of a test
sample from the
daguerreotype in
fig. 19 (16x magnified).
Top:
before etching.
Bottom:
after etching.



These newly etched daguerreotypes could be inked up and printed on a traditional intaglio press. Examination of the historic prints from the Rijksmuseum and other collections revealed that Berres had often printed on thin, machine-made paper. Some prints were trimmed and mounted on another sheet. Berres may have used ink made with finely ground black graphite pigment.⁵⁵ This would be ink similar to that used by the Danish photographer and inventor Christian Piil (1804-1884) to print etched daguerreotypes in the eighteen-fifties.⁵⁶ The overall dark grey tonality and slight metallic sheen that characterizes Berres's prints is almost comparable to that of a pencil drawing, a property that Piil noticed in his prints, too.

Recreating Berres's process provided answers to some questions but also created new ones. Experimentation was a useful way of getting a real impression of the difficulties Berres probably encountered when develop-

ing his technique. Despite the initial enthusiasm about the simplicity of the process, however, etching daguerreotypes is quite complex in practice. The end result can be affected by the purity of the chemicals and the condition and age of the plate, but also by seemingly trivial practical modifications to the original instructions. Other recipes for etching daguerreotypes, such as those published by Donn , Fizeau and Piil give a good indication of how unpredictable the process could be and how difficult it was to standardize it.

An Intriguing Legacy

The competition to find a method of printing from daguerreotypes between Joseph Berres and the French physician Alfred Donn  had the patriotic overtones so typical of the era.⁵⁷ While Berres conceded Donn 's priority, he argued that it was only his method that had actually made the process practicable. Not once did he mention Hippolyte Fizeau's much more



Fig. 21
MARINUS ORTELEE,
*View of the Rijks-
museum*, 2016.
Etched pure silver
daguerreotype,
178 x 130 mm.
Amsterdam,
Rijksmuseum.

Fig. 22
Print from this plate
(fig. 21), 178 x 130 mm
(image).

sophisticated etching techniques, in use between 1840 and 1845, which resulted in large numbers of prints of comparatively high quality. However, Fizeau's process was patented and so restricted in its use.⁵⁸ Berres, on the other hand, was not interested in making a profit: 'By thus laying open my system to the scientific world, I hope to prove my devotion to the arts and sciences, which can end only with my life.'⁵⁹ He even declared, by means of a botanical metaphor, that he was seeking to give his 'saplings' into the care of printing professionals, who might make the process grow.⁶⁰

Despite their capability of reproducing with the 'minutest exactness',⁶¹ it didn't take long for Berres's and others' early etching processes to be dismissed as a curiosity.⁶² Daguerre had 'loudly expressed his displeasure upon the subject' and declared 'the utter impossibility of ever attaining any perfection in etching, and, consequently, in multiplying, his pictures'.⁶³ William Henry Fox Talbot (1800-1877), who owned one of Berres's prints, remarked in 1853 that it had 'no half-tints or gradations of shade – the want of which produces a harsh effect'; Fizeau's prints, on the other hand, were 'beautifully distinct', and yet the process had been 'discontinued, owing to the great uncertainties which attended it'.⁶⁴ This lack of mid-tones was an insurmountable deficit of the printed daguerreotype. Our own recreation experiments demonstrated that, while the theory of directly etching a daguerreotype is more or less self-evident, in practice the fine image particles that form the image on the silver surface are simply not robust enough to resist acid. Talbot's own photoglyphic engraving technique, introduced in 1858, avoided the daguerreotype altogether: a positive paper print was placed in contact with a light-sensitive gelatine layer on a sheet of metal and exposed to daylight; the metal plate was then etched using

the gelatine as a resist. By employing an aquatint grain, Talbot also avoided the mid-tone problem, leading the way to a host of industrially successful dichromate/gelatine-based photomechanical processes such as collotype (early eighteen-seventies), photogravure (late eighteen-seventies) and halftone relief printing (eighteen-eighties).⁶⁵ The general demise of the daguerreotype process in the eighteen-sixties finally rendered its use as an etched printing plate obsolete.

One cannot help but wonder what route Berres would have taken had he not been hindered by serious illness from 1843 onwards. He passed away at the age of forty-eight on Christmas Eve 1844.⁶⁶ A year later, his extensive library was sold at auction.⁶⁷ We might well assume that, as a good nineteenth-century scientist, Berres kept rigorous laboratory notebooks; however, attempts to find them have so far been unsuccessful, even in the archives of his last place of work, the University of Vienna. Of the hundreds of prints that Berres claimed to have made, a mere forty-eight have been found so far in our on-going survey (see Appendix 1). Although it is probable that most of his prints and plates no longer exist, there is still a chance that some remain unidentified in private and institutional collections; the characteristics of his technique presented here might help identify those objects. Did Berres ever get around to etching and printing a photomicrograph daguerreotype – in the service of science – as he had originally planned to do? He did prove, in the era before photomechanical printing, that photography, in the form of the intrinsically unique daguerreotype plate, could actually be multiplied and used to illustrate publications, and this will remain his legacy. It is to be hoped that further research will expand our understanding of his pioneering role in printing photographs in ink.

ABSTRACT

Following Alfred Donné in Paris, the Austrian Joseph Berres was the second person in history to convert unique daguerreotypes into intaglio printing plates by etching them in acid and then printing them in ink on paper. Berres's experiments culminated in the booklet *Phototyp nach der Erfindung des Professors Berres in Wien* (1840), which is considered the first photomechanically illustrated publication. Today, *Phototyp* is recognized as a key work in the pioneering combination of photography and traditional printmaking as a means of disseminating visual information in the mid-nineteenth century. In this study, the four prints in the Rijksmuseum's copy of *Phototyp*, one of only three known remaining copies worldwide, were compared to prints found in other collections. The survey revealed that far fewer prints exist today than were originally produced. The Rijksmuseum prints were also analysed by microscopy and both X-ray and Infrared Spectroscopy. These findings were helpful in the ensuing re-creation of Berres's process using newly made daguerreotypes. In practical terms, Berres's process turned out to be far more complex to carry out than his recipes implied. Nevertheless, this endeavour resulted in a better understanding of the materials and methods involved, knowledge that may help in identifying more Berres prints in other collections in the future.

NOTES

- * Acknowledgements: Marinus Ortelee (daguerreotypist), Mattie Boom, Hans Rooseboom, Tamar Davidowitz, Ellen van Bork, Malika M'rani Alaoui, Henni van Beek, Tine Thörig, Katrin Keune (Rijksmuseum), Ineke Joosten (Cultural Heritage Agency of the Netherlands), Tom Callewaert (Delft University of Technology), Silvia Settini (Indian National Trust for Art and Cultural Heritage, Bangalore), Andreas Gruber (Wien Museum), Barbara Kühnen (Albertina), Johan de Zoete (independent researcher), Ad Stijnman (independent researcher), Heinz and Marjorie Jürgens (translators).
- 1 Berres was awarded the title *Edler von Perez* by Emperor Ferdinand I on 14 December 1842 ('Berres-Perez, Edler v.', in *Genealogisches Taschenbuch der Ritter- und Adels-Geschlechter*, vol. 1, Brünn 1870, p. 27).
 - 2 Walter Goldinger, 'Zur Wissenschaftsförderung im österreichischen Vormärz', *Mitteilungen des Instituts für österreichische Geschichtsforschung* 71 (1963), pp. 408-19.
 - 3 Joseph Berres, *Anatomie der mikroskopischen Gebilde des menschlichen Körpers: Anatomia partium microscopica rum corporis humani*, Vienna 1837. This book was awarded a gold medal by King William I of the Netherlands ('Binnenland', *Nieuwe Amsterdamsche Courant en Algemeen Handelsblad* 2126, 28 August 1838, second [unnumbered] page).
 - 4 Hyrtl and Voigt are also known to have engraved and lithographed these drawings. See inscriptions under some of the plates in *Anatomie der mikroskopischen Gebilde*, for example, 'Ch. Voigt del.' and 'J. Hyrtl sculp.'
 - 5 Joseph Hyrtl, 'Professor Joseph Berres', in *Vergangenheit und Gegenwart des Museums für menschliche Anatomie an der Wiener Universität*, Vienna 1869, pp. LXXI, LXXVI.
 - 6 'Non conscripsi ad narrandum, sed ad probandum'. Berres, 1837 (note 3), unnumbered page. Berres's phrase is a clever twist on Quintilian: 'Historia ... scribitur ad narrandum, non ad probandum...' [History is written in order to narrate, not to prove]. (Marcus Fabius Quintilianus, *De Institutione oratoria*, book x, chapter 1, c. 95 AD, p. 31).
 - 7 '... ihre wahre und volle Anwendbarkeit im praktischen Leben und im Gebiete der Naturwissenschaften...'. Joseph Berres, 'Ueber das Hydro-Oxygen-Gasmikroskop', *J.C. Dingler: Polytechnisches Journal* 76 (1840), pp. 78-79, esp. p. 78.
 - 8 Other Fürstenhof participants included the physicists and opticians Joseph Petzval (1807-1891), Friedrich Voigtländer (1812-1878), Christian Voigt (1808-1890), Erwin Waidele (c. 1819-1879) and Wenzel Prokesch (1800-1863). See Maren Gröning and Monika Faber, *Inkunabeln einer neuen Zeit. Pioniere der Daguerreotypie in Österreich 1839-1850*, Vienna 2006, pp. 21-32.
 - 9 Joseph Berres, 'Wissenschaftliche und Kunstnachrichten: Daguerreotypie in Wien', *Wiener Zeitung*, 23 June 1841, pp. 1293-94; Joseph Berres, 'Wissenschaftliche und Kunstnachrichten: Daguerreotypie in Wien', *Wiener Zeitung*, 24 June 1841, pp. 1301-02;

- Joseph Berres, 'Dr. Berres, über die Verbesserung der Camera Obscura und die Fortschritte in der Erzeugung der Lichtbilder', *J.C. Dingler: Polytechnisches Journal* 79 (1841), pp. 156-57.
- 10 'Bey dem ersten Anblicke eines heliographirten [sic] Bildes...'. 'Wissenschaftliche Nachrichten. Fixirung [sic] und Druck Daguerre'scher Bilder', *Wiener Zeitung*, 3 May 1840, p. 833.
- 11 'Wissenschaftliche Nachrichten' 1840 (note 10); Berres 1840 (note 7), pp. 78-79.
- 12 'Siebzehnte Versammlung am 29. Februar 1840', in *Verhandlungen der k.k. Gesellschaft der Aerzte zu Wien, von Entstehung der Gesellschaft bis zum Schlusse des dritten Gesellschaftsjahres*, Vienna 1842, pp. 48-49.
- 13 'zart und vergänglich'. 'Wissenschaftliche Nachrichten' 1840 (note 10).
- 14 'Attempts at engraving the daguerreotype pictures', *The Athenaeum* 624 (October 1839), pp. 780-81.
- 15 Alfred Donné, 'Transformation en planches gravées des images formées par le procédé Daguerre', in *Comptes Rendus hebdomadaires des séances de l'Académie des sciences, Paris*, Paris 14 October 1839, pp. 485-86.
- 16 'Wissenschaftliche Nachrichten' 1840 (note 10).
- 17 Joseph Berres, 'Fine arts. Photogenic art: Engraving', *The Literary Gazette, and Journal of the Belles Lettres, Arts, Sciences, &c* 1218 (23 May 1840), pp. 331-32, esp. p. 331.
- 18 Berres 1840 (note 17), p. 331.
- 19 Joseph Berres, 'Ueber das Aetzen und Abdrucken [sic] von Daguerre's Lichtbildern', *J.C. Dingler: Polytechnisches Journal* 77 (1840), pp. 316-18, esp. p. 317. The reference does not explicitly explain whether Berres actually etched this image or just photographed it.
- 20 Berres 1840 (note 19), p. 317.
- 21 Berres 1840 (note 19), pp. 317-18.
- 22 Berres 1840 (note 19), p. 317.
- 23 'Wissenschaftliche Nachrichten', *Wiener Zeitung*, 18 April 1840, p. 737.
- 24 'Wissenschaftliche Nachrichten' 1840 (note 10).
- 25 Berres 1840 (note 19), p. 317; 'Wissenschaftliche Nachrichten', *Wiener Zeitung*, 3 August 1840, p. 1479.
- 26 'Berres trovò il modo di moltiplicarle all'infinito'. Gaetano Brey, 'Daguerreotipo', in *Dizionario Enciclopedico Tecnologico-Populare*, vol. 2, Milan 1844, p. 182.
- 27 'Wissenschaftliche Nachrichten. Versammlung deutscher Naturforscher und Aerzte', *Wiener Zeitung*, 26 September 1840, p. 1828; 'Our weekly gossip', *The Athenaeum* 699 (20 March 1841), p. 227; 'Wissenschaftliche Nachrichten', *Wiener Zeitung*, 22 December 1841, pp. 2647-48.
- 28 Confirmed in Josef Maria Eder, *Ausführliches Handbuch der Photographie*, vol. 1, part 1: *Geschichte der Photographie*, Halle (Saale) 1905, p. 369; Hermann Krone, *Photographische Urmethode*, Leipzig 1985, p. 44.
- 29 J. Davy & Sons auction, no. 839, 'Berres (Dr. J.)', *Geschichtliche Bemerkungen über Photoyp*, 3 photographs, with autograph of Dr. Berres. Wien, 1840', in *Catalogue of the first Portion of the Humboldt Library*, London 1863 or 1865, p. 65. This copy of *Photoyp* has two handwritten dedications to Alexander von Humboldt in Berres's handwriting.
- 30 Joseph Berres, 'Fixation und Druck von Daguerre's Lichtbildern', *Allgemeine Zeitung* 231 (18 August 1840), Beilage, pp. 1833-34.
- 31 Freek Heijbroek, 'De herkomst van een zeldzaam fotoboekje', *De Boekenwereld, Rijksmuseum Special* 33 (October 2017), no. 3, p. 47. For more details, see Koninklijk-Nederlandse Instituut van Wetenschappen, Letterkunde en schoone Kunsten, 'Openbare vergadering der vierden klasse', in *Verslagen en mededelingen over de jaren 1842*, vol. 15, The Hague 1843, pp. 43-45.
- 32 Eder 1905 (note 28), p. 370; Erich Stenger, 'Joseph von Berres und die Frühgeschichte der Photographie in Wien 1840-1841', *Photographische Korrespondenz* 68 (1932), pp. 68-75; Helmut and Allison Gernsheim, *L. J. M. Daguerre: The History of the Diorama and the Daguerreotype*, New York 1956 (second revised edition), p. 107.
- 33 'Meine tiefst geätzte Silberplatte, ..., habe ich bereits 310mal [sic] abdrucken lassen'. Joseph Berres, 'Neue Aufschlüsse über das Daguerreotyp', *J.C. Dingler: Polytechnisches Journal* 81 (1841), pp. 149-57, esp. p. 156. In the same article, Berres also claimed that he could pull 310 more prints in addition to the 310 already made from the plate of *St Stephen's Cathedral*. In 1842, Heinrich Prey was commended for his outstanding printing of Berres's etched daguerreotypes, so he had probably been working with Berres since 1840. See 'Aus der Kunstwelt', *Allgemeine Theaterzeitung*, 10 May 1842, p. 496.
- 34 'der Zartheit der Gegenstände angepaßte Drukerpresse [sic]', 'ungemein feine, intensive Drukerschwärze [sic]'. Berres 1840 (note 19), p. 318.
- 35 Due to their narrow band of sensitivity to light, daguerreotypes could not render clouds in a blue sky.
- 36 The photographs of Vienna may have been taken by Andreas von Ettingshausen (Gröning and Faber 2006 (note 8), pp. 37, 109).

- 37 Joseph Berres, 'Photogenic etching', *The Literary Gazette; and Journal of the Belles Lettres, Arts, Sciences, &c* 1233 (5 September 1840), pp. 581-82, esp. p. 582.
- 38 'Miscellaneous – Daguerreotype Engraving', *The American Repertory of Arts, Sciences, and Manufactures* 2 (September 1840), p. 141.
- 39 'tief geätzt', found, for example, as part of the engraved caption of a print of *Venice as It Was*, Vienna, Albertina, inv. no. DG18699.
- 40 The other plate associated with Berres, in the Albertina, is a steel plate for printing *Ferdinand's Bridge* as a photogravure reproduction, probably used for Eder 1905 (note 28), p. 370.
- 41 Berres 1841 (note 33), p. 154; Anton Martin, *Repertorium der Photographie*, vol. 2, Vienna 1846, p. 75.
- 42 'v. d. Originalplatte vorletzter Abdruck'.
- 43 See Appendix 1, no. 18, for listings of all of the *Venice as It Was* prints, some of which feature an engraved inscription.
- 44 Franz Theyer, 'Galvanopl. Copie einer von Prof. v. Berres geätzten Daguerreotyp-Platte. Abdruck. – Druck- und Reliefplatte', in *Verzeichniss der bei Gelegenheit der 21sten Versammlung deutscher Naturforscher und Aerzte in Grätz aufgestellten Producte der Galvanoplastik und Galvanographie aus Franz Theyer's erstem galvanoplastischen Laboratorium in Wien*, No. 905, Vienna 1843, p. 4. See also the inscription in the Appendix, no. 18.
- 45 'Photography', *The Literary Gazette; and Journal of the Belles Lettres, Arts, Sciences, &c* 1215 (2 May 1840), p. 285.
- 46 See, for example, 'Wissenschaftliche Nachrichten' 1840 (note 10).
- 47 Joseph Berres, 'Ueber die Vervielfältigung der Daguerre'schen Lichtbilder durch den Druck', *Justus Liebig's Annalen der Chemie und Pharmacie* 36 (1840), no. 3, pp. 337-43.
- 48 Berres 1840 (note 47), p. 338.
- 49 Marinus J. Ortelee, daguerreotypist, Kapelle, Netherlands.
- 50 Fizeau's gilding method, announced in Paris on 10 August 1840, was only published in Austria on 28 August 1840. See Hippolyte Fizeau, 'Note sur un moyen de fixer les images photographiques', in *Comptes Rendus hebdomadaires des séances de l'Académie des sciences, Paris*, Paris, 10 August 1840, p. 237; 'Wissenschaftliche Nachrichten', *Wiener Zeitung*, 28 August 1840, p. 1625.
- 51 Berres 1840 (note 17), p. 332.
- 52 'Daguerreotype Engraving' 1840 (note 38).
- 53 Berres 1840 (note 17), p. 332; Joseph Berres, 'Method of permanently fixing, engraving, and printing from daguerreotype pictures', *The Athenaeum* 656 (23 May 1840), p. 419.
- 54 Berres 1840 (note 47), pp. 339-340.
- 55 X-Ray Fluorescence Spectroscopy analysis performed on the RMA prints suggests that the ink colourant is carbon-based. ATR-Fourier Transfer Infrared analysis indicates that the ink binder is based on wax or oil.
- 56 Piil's ink was composed of graphite, yellow beeswax and Venetian turpentine. Christian Piil, *Über das Ätzen und Abdrucken von Daguerreotyp-Bildern*, Vienna 1855, p. 69.
- 57 Joseph Natterer, 'Wissenschaftliche Nachrichten. Daguerreotypie in Paris und Wien', *Wiener Zeitung*, 18 March 1842, pp. 577-78.
- 58 Fizeau received both a French and a British patent for his process in 1843. Helmut and Allison Gernsheim, 'Photo-Engraving', in *idem, The History of Photography from the Earliest Use of the Camera Obscura in the Eleventh Century up to 1914*, London 1955, p. 358.
- 59 Berres 1840 (note 17), p. 332.
- 60 'Schöföling'. Joseph Berres, *Geschichtliche Bemerkung* (declaration accompanying *Phototyp*), 3 August 1840.
- 61 'Method of permanently fixing engraving and printing from Daguerreotype pictures', *The Mirror of Literature, Amusement, and Instruction* 1007 (30 May 1840), p. 364.
- 62 '... ils sont déjà très-curieux, et ils ont démontré que la gravure est possible'. Charles-Louis Barreswill and Alphonse Davanne, 'Applications de la photographie', in *Chimie photographique*, Paris 1864, p. 271.
- 63 Berres 1840 (note 37), p. 581.
- 64 William Henry Fox Talbot, 'Photographic engraving', *The Athenaeum* 1328 (9 April 1853), pp. 450-51.
- 65 William Henry Fox Talbot, 'Description of Mr. Fox Talbot's New Process of Photoglyphic Engraving', *Photographic News* 1, (1858), no. 7, pp. 73-75.
- 66 'Verstorbene zu Wien', *Wiener Zeitung*, 31 December 1844, p. 2792.
- 67 'Bücher-Licitation', *Wiener Zeitung*, 25 November 1845, p. 2524.

APPENDIX I

Prints and Plates

Prints and plates associated with Joseph Berres (1796-1844), including objects that have not yet been found, ordered chronologically and by subject. Unless otherwise mentioned, given dimensions correspond to: image, plate mark, sheet (all in mm).

ABBREVIATIONS

Institutions

ALB:	Albertina, Vienna
BAP:	Musée des Beaux-Arts, Pau
BEL:	Belvedere Museum, Vienna
BL:	British Library, London
BN:	Biblioteka Narodowa, Warsaw
GEM:	George Eastman Museum, Rochester (NY)
GRI:	The Getty Research Institute, Research Library, Los Angeles (CA)
HK:	Hamburger Kunsthalle, Hamburg
KHM:	Kunsthistorisches Museum, Vienna
MG:	Moravská Galerie, Brno
ML:	Museum Ludwig, Cologne
NYPL:	New York Public Library, New York (NY)
RHK:	Dr R. H. Krauss Collection, Stuttgart
RMA:	Rijksmuseum, Amsterdam
SEE:	Helfried Seemann Collection, Vienna
SGS:	Staatliche Graphische Sammlung, Munich
SKD:	Staatliche Kunstsammlungen, Dresden
WM:	Wien Museum, Vienna

Print type: intaglio print from etched daguerreotype

FP:	with false plate mark
M:	mounted to sheet
NP:	no plate mark
T:	trimmed image
TP:	trimmed plate mark

[where no abbreviation used: standard untrimmed print with original plate mark]

1. *Cross-Section of the Aristolochia* [*Durchschnitt der Aristolochia*]¹
25 February 1840
With Andreas von Ettingshausen (1796-1878) and Carl Schuh (1806-1863)
No plates or prints found to date
2. *Cross-Section of a Clematis Stem* [*Querschnitt durch den Stängel einer Clematis*]
4 March 1840
With von Ettingshausen, Schuh and Simon Plöfl (1794-1868)

ALB Foto2004/63
Daguerreotype
Plate 160 x 210
3. *Cross-Section of a Plant* [*Pflanzendurchschnitt*]²
5 April 1840
Possibly similar to subjects no. 1 and 2³
No plates or prints found to date
4. *Female Figure* [*Frauenbild*]⁴
11 April 1840
Reproduction of a copper engraving by an unknown artist
No plates or prints found to date
5. *The Smugglers* [*Die Schwärzer*]⁵
12 April 1840
Reproduction of a copper engraving featuring a 'man keeping watch', possibly by Frederick Bacon (1803-1887), after the painting *The Smugglers Visit* by David Wilkie (1785-1841)⁶
No plates or prints found to date
6. *Girl with a Butterfly* [*Das Mädchen mit dem Schmetterling*]⁷
30 April 1840
Reproduction of a copper engraving by Franz Xavier Stöber (1785-1858), after the painting *Psyche | Portrait of a Young Lady* by Karl Agricola (1779-1852)⁸

RMA BI-B-2644-2

T 99 x 72, FP 166 x 106, M 293 x 222

Signed, lower centre: Berres

Inscribed, lower centre: 14.^{te} Abd

In RMA Phototyp

7. *St Stephen's Cathedral [Stephansdom]*⁹

8 July 1840

View of St Stephen's Cathedral photographed from the old university astronomical observatory, Vienna, attributed to von Ettingshausen¹⁰**Entire image****ALB FotoGLV2000/26171**

158 x 119, 165 x 126, 300 x 225

Signed, lower centre: Berres

Inscribed, lower right: 1840

Blind-stamped, lower centre: Berres coat of arms

SEE¹¹

159 x 119, 165 x 126, 330 x 250

Inscribed, lower left: *Nach der Natur***Prints with cropped image and engraved caption¹²**Engraved caption, lower centre: *Der Dom zu St. Stephan in Wien/ DAGUEROTYP [sic]/ Vom Professor Dr. Berres nach eigener Erfindung/ geätzt und zum Druck befördert/ am 8. July 1840.*

Blind-stamped, lower centre: Berres coat of arms (all except SKD and WM prints)

ALB FotoGLV2000/1719

99 x 120, 164 x 126, 260 x 207

In ALB *Phototyp***HK 1981/84**

99 x 120, 165 x 125, 310 x 224

SGS 256200 D

99 x 120, 165 x 125, 306 x 223

SKD D 1927-20

99 x 120, 165 x 125, 170 x 130

WM HMW-42252

99 x 120, 165 x 125, 293 x 224

Inscribed, lower right: 1840

Inscribed, on verso, lower centre: *Druckversuche***Trimmed prints****RMA BI-B-2644-3**

T 86 x 85, NP, M 225 x 155

Signed, lower centre: Berres

Inscribed, lower right: 2[17?].^{1c} *Abd.*In RMA *Phototyp***BL 1269.e.26¹³**

T 75 x 83, FP 165 x 108, M 267 x 211

In BL *Phototyp*8. *View of Vienna (?)*¹⁴

Before August 1840 (?)

View of buildings among trees by an unknown photographer

SEE

120 x 164, 150 x 180, 180 x 275

Inscribed, lower left: *Nach der Natur*;

lower right: 3v

Blind-stamped, lower centre:

Berres coat of arms

9. *Judith and Holofernes [Judith en Holopherne]*

Before August 1840

Reproduction of an engraving by Jean Pierre Marie Jazet (1788-1871), after a painting by Horace Vernet (1789-1863)

(BAP)

BL 1269.e.26

T 119 x 101, FP 166 x 108, M 267 x 211

Signed, lower centre: Berres

Inscribed, lower centre: *An/ [...] Seine Exzellenz den Herrn Geheimrath von/ Humbold. [sic]*In BL *Phototyp***RMA BI-B-2644-1**

T 124 x 102, FP 165 x 108, M 293 x 222

Signed, lower centre: Berres

Inscribed, lower right: 40.^{1c} *Ab.*In RMA *Phototyp***NYPL 106PHI349.041**

T 123 x 101, FP 165 x 108, M 298 x 221

Signed, lower centre: Berres

Inscribed, on verso, lower right: *für die Redaction des Ateneums [sic] in London***ALB FotoGLV2000/1721**

T 125 x 101, FP 167 x 109, M 293 x 224

In ALB *Phototyp***WM HMW-100267**

T 119 x 100, FP 166 x 108, M 299 x 222

Inscribed, on verso, lower left:

*Druckversuche*10. *The Monastery Soup [Die Klostersuppe]*

Before August 1840

Reproduction of a steel engraving by Stöber (BN, inv. no. g.53083/Sz), after a painting by Josef Danhauser (1805-1845) (BEL, inv. no. 2088)

RMA BI-B-2644-4

T 95 x 130, NP, M 293 x 206

Signed, lower centre: Berres

Inscribed, lower centre: 25.^{1c} *Abd*

Blind-stamped, lower centre: Berres coat of arms

In RMA *Phototyp*

11. *Academy of Sciences [Akademie der Wissenschaften]*

Before August 1840

View of the façade of the Academy of Sciences, Vienna, attributed to von Ettingshausen

BL I269.e.26

T 119 x 87, FP 165 x 108, M 267 x 211

Signed, lower centre, within image: *Berres*In BL *Phototyp***ALB FotoGLV2000/1720**

106 x 80, 123 x 92, 297 x 223

In ALB *Phototyp***NYPL I06PHI349.040**

106 x 80, 123 x 90, 294 x 223

Signed, lower centre: *Berres*12. *Ferdinand's Bridge [Die Ferdinandsbrücke]*¹⁵

Before August 1840

View of Ferdinand's Bridge, Vienna, unknown photographer

BL 01838 (LA6148)

T 103 x 122, FP 107 x 164, M 200 x 283

Signed, lower centre: *Berres*Inscribed, lower centre: *A Monsieur Talbot/ a/ Londres***ALB FotoGLV2000/1717**

T 109 x 123, NP, M 219 x 294

Inscribed, lower centre: *Die Ferdinandsbrücke*In ALB *Phototyp***SEE**

T 115 x 120, FP 140 x 145, M 210 x 290

Inscribed, lower left: *Nach der Natur*13. *Ferdinand's Bridge [Die Ferdinandsbrücke], alternative view*

Before August 1840

View of the Ferdinand's Bridge, Vienna, unknown photographer

SEE

T 105 x 105, FP 170 x 110, M 300 x 215

Inscribed, lower left: *Nach der Natur*14. *Emperor Francis [Kaiser Franz]*¹⁶

1840-44

Reproduction of a copper engraving after a portrait of Emperor Francis (no Roman numerals given)

No plates or prints found to date

15. *Cupid Carving a Bow [Amor als Bogenschützer]*

1840-45

Attributed to Berres and Axmann

Reproduction of a steel engraving by Paul Gleditsch (1793-1872), after a painting by Il Parmigianino (1503-1540) (KHM)

SEE

Before August 1840

110 x 86, FP 147 x 107, 270 x 180

Inscribed, lower left: *Nach einem Kupferstich***ALB FotoGLV2000/1718**

Before August 1840

105 x 86, FP 148 x 106, 273 x 183

In ALB *Phototyp***MG C2486****MG C2485**

c. 1845

Each print: 115 x 85, 150 x 108, 185 x 143

Dark background and reworked image details on both prints

16. *Portraits of Living Persons [Bildnisse lebender Personen]*¹⁷

Before July 1841

No plates or prints found to date

17. *Portrait test by Fr. Leybold [Porträtversuch v. Fr. Leybold]*¹⁸

1843

Attributed to Berres and Axmann

Possible reproduction of work by either Johann Friedrich (1755-1838) or Eduard Friedrich (1798-1879) Leybold

In von Metternich copy of *Phototyp*

No plates or prints found to date

18. *Venice as It Was [Venedig wie es war]*¹⁹

1843-46

Attributed to Berres and Axmann

Reproduction of a lithograph by Adolph Karst (1815-1868) after a painting by Friedrich Hohe (1802-1870), copying a watercolour by Carl Werner (1808-1894)²⁰**WM HMW-56447**

1843 (reworked until 1846)

Etched daguerreotype, electroplated and reworked;

or copper electrotype of an etched daguerreotype

Image 131 x 101, plate 168 x 119

In association with Axmann, Franz Theyer

(1809-1871) and Heinrich Prey (c. 1813-1873)

Engraved title, upper centre: *Venedig wie es war.*Engraved caption, lower centre: *Erste Leistung./**DAGUERREOTYP./ nach eigenen Erfindungen/ geätzt**v. Professor Joseph Edlen von Berres./ tief geätzt**v. Joseph Axmann k.k. Kupferstecher./ Multipl. in**F. Theyer's galv. art. Anstalt in Wien.**Gedruckt bei H. Prey.*

Early state prints

ALB FotoGLV2000/3429

129 x 100, 165 x 117, 229 x 169

Inscribed, on verso, lower right: 14. Janner

Inscribed, upper right, on a label: *Sammlung der**Photograp[hischen Gesellschaft in Wien]/ No. 1[...8.]*Printed, lower left, on a label: *Versuch| die**Daguerreotypplatte tief zu ätzen und| hievon zu**drucken, von Prof. Dr. Berres| in Wien, 1840*

Printed daguerreotype plate hallmark (inverted),

upper left: *MACHTS*²¹**ALB Hist. No. 436**²²

130 x 100, TP, 165 x 116

Inscribed, lower centre: 14' Januar 843

Later state prints

ALB Hist. No. 435

130 x 100, TP, 165 x 115

Inscribed, lower centre: 15 April 843.

MG C2505

130 x 100, NP, 160 x 108

Inscribed, lower centre: 15' April 843.

ALB Hist. No. 434

130 x 100, TP, 153 x 112

Inscribed, lower centre: 20 April 843

ALB Hist. No. 437

130 x 100, 165 x 116, 274 x 178

Inscribed, lower right: 15. Juli 1843.

ALB FotoGLV2000/3428

130 x 101, 167 x 117, 230 x 168

Inscribed, lower centre: *Im Jahre 1839 gleich nach*
Daguerre's großer Entdeckung, [...] es Prof. Berres die|
Daguerreotype zu ätzen, und später mit Beihilfe
*d. Kupferstechers Jos. Axmann| zu vollenden.**A. R. v. Pager 18.|11. 59.*Inscribed, upper left, on a label: [*Sammlung der*
*Photographisc]hen Gesellschaft in Wien| [No. 1...]8.***ALB DGI8698**

129 x 101, 165 x 117, 194 x 140

NYPL IO6PHI349.042

130 x 102, 167 x 119, 357 x 275

Signed, lower right: *Prof de Berres***MG C2503**

130 x 100, 168 x 120, 307 x 238

Inscribed, lower centre: 1846. *Venedig*
*wie es war. Geätzte Daguerreotypie***MG C2506**

130 x 100, 170 x 120, 234 x 170

Later state prints with engraved title and caption (see plate WM HMW-56447)

ALB DGI8699

129 x 101, 165 x 117, 195 x 139

WM HMW-99018

130 x 100, 166 x 117, 352 x 277

Inscribed, on verso, lower centre:

*Druck[...]***MG C2504**

130 x 100, 167 x 120, 242 x 174

Inscribed, lower centre: 5^{te} Febr 846*v. d. Originalplatte vorletzter Abdruck*19. *Joseph Square [Josefsplatz]*

July 1844

Attributed to Berres and Axmann

View of equestrian monument to Joseph II, Vienna,
unknown photographer**ALB DG2006/173**

121 x 144, 121 x 144, 176 x 272

Inscribed, lower centre: 1^{te} July 1844.**MG C2476**

122 x 144, 122 x 144, 168 x 203

Inscribed, lower centre: 1^{te} July. 844.**ALB DGI8697**

120 x 143, 120 x 143, 157 x 192

Hand-coloured

MG C2540

122 x 145, 122 x 145, 167 x 203

Inscribed, lower centre: 6^{te} July 2 Tage
vor der Abreise des| Hrn. Dr. v. Berres [...]
*übergaben [...] solchen [...].***MG C2539**

122 x 145, 122 x 145, 134 x 156

20. *Joseph Square [Josefsplatz], alternative view*
1844?

Attributed to Berres and Axmann

View of equestrian monument to Joseph II, Vienna,
unknown photographer**SEE**

105 x 130, 125 x 160, 205 x 230

Blind-stamped, lower centre:

Berres coat of arms

Inscribed, lower left: *Nach der Natur*

APPENDIX II

Phototyp Booklets

The booklets found to date have three printed text pages entitled *Geschichtliche Bemerkung*, dated 3 August 1840. The quantity and subjects of the included prints vary.

1. 1840 booklets

BL 1269.e.26

Three prints

Inscribed, front cover, upper edge: *Sr Excellenz Humboldt zu Berlin*

RMA BI-B-2644

Four prints

Includes handwritten letter (two pages), dated 17 December 1840

ALB GLV3232

Five prints

Includes one loose printed text page entitled *Nutzanwendung der Daguerreotypie*, dated 16 November 1841

2. Auctioned booklets, not found to date

Von Westenholz copy²³

Undated

Four prints

Von Metternich copy²⁴

After 1841-before 1843

Five prints (two of which are attributed to Axmann)

3. 1974 facsimile copies²⁵

GRI, part of the Beaumont and Nancy Newhall papers²⁶

ML, part of the Agfa Foto-Historama collection²⁷

Private collector, this copy shown in Csók István Gallery, Székesfehérvár, Hungary, in 1979²⁸

RHK²⁹

NOTES

- 1 Joseph Berres, 'Ueber das Aetzen und Abdrucken [sic] von Daguerre's Lichtbildern', *J.C. Dingler: Polytechnisches Journal* 77 (1840), pp. 316-18, esp. p. 317; 'Siebzehnte Versammlung am 29. Februar 1840', in *Verhandlungen der k.k. Gesellschaft der Aerzte zu Wien, von Entstehung der Gesellschaft bis zum Schlusse des dritten Gesellschaftsjahres*, Vienna 1842, pp. 48-49.
- 2 Berres 1840 (note 1), p. 317.
- 3 Petra Trnková, 'Stašek's Cross-Section of a Plant', *Daguerreotype Journal* 2 (2015), pp. 38-47.
- 4 Berres 1840 (note 1), p. 317.
- 5 Berres 1840 (note 1), p. 317.
- 6 'wachhaltende Mannsperson'. Berres 1840 (note 1), p. 317.
- 7 Berres 1840 (note 1), p. 317.
- 8 Leo Grünstein, *Die Bildnisminiatur und ihre Meister: Die Sammlung Professor Dr. Emerich Ullmann*, Vienna 1925. See Villa Nuova Fine Arts website: <http://villanuova.eu/blogs/blog/Very-rare-published-miniatures-from-the-old-collection-of-Dr-Emerich-Ullmann-Austrian-School-Part-1> (consulted 19 August 2017).
- 9 Berres 1840 (note 1), p. 317.
- 10 Maren Gröning and Monika Faber, *Inkunabeln einer neuen Zeit. Pioniere der Daguerreotypie in Österreich 1839-1850*, Vienna 2006, p. 109.
- 11 None of the SEE prints are individually catalogued.
- 12 A similar print might have also been part of the Collection of Bruno Bischofersberger, Küsnacht. It is copied in the GRI facsimile copy of the *Phototyp*. The original print has not been found to date.
- 13 All prints in the BL *Phototyp* have the same inventory number.
- 14 Just before August 1840, Berres made prints of 'different views of the city of Vienna' (Joseph Berres, 'Photogenic etching', *The Literary Gazette; and Journal of the Belles Lettres, Arts, Sciences, &c* 1233 (5 September 1840), p. 581).
- 15 A photogravure reproduction of this print is included in: Josef Maria Eder, *Geschichte der Photographie. Ausführliches Handbuch der Photographie*, vol. 1, part 1, Halle (Saale) 1905, p. 370. These reproductions are more common than the original prints and, when held as loose sheets in collections, might be mislabelled as original Berres prints. One print is held by GEM and three prints and one plate are at ALB.
- 16 H.R., 'Die Ausstellung der vervielfältigenden, zeichnenden Künste im k.k. Museum für Kunst und Industrie', *Photographische Correspondenz. Organ der photographischen Gesellschaft in Wien* 9 (1872), p. 143.
- 17 Joseph Berres, 'Neue Aufschlüsse über das Daguerreotyp', *J.C. Dingler: Polytechnisches Journal* 81 (1841), p. 156.
- 18 Sale, von Metternich Collection, Vienna (Gilhofer & Ranschburg), 13 November 1907, no. 64 (sale catalogue with handwritten notes digitally available through the Universitätsbibliothek Heidelberg).
- 19 *Erklärung*, 1846 (Printed declaration stating that Berres's widow was selling prints of *Venice as It Was* as a sort of subscription; a part of the profits financially supported students of medicine. This declaration may have accompanied each sold print).
- 20 The lithograph was published in *Neue Malerwerke aus München* 11, 1842. See Georg Kaspar Nagler, 'Werner, Carl', in *Neues allgemeines Künstler-Lexicon oder Nachrichten von dem Leben und den Werken der Maler, Bildhauer, Baumeister, Kupferstecher, Formschneider, Lithographen, Zeichner, Medailleure, Elfenbeinarbeiter, etc.* 21, Munich 1851, pp. 300-302.
- 21 Hallmark of Austrian plate maker Franz Machts. See Daguerreotype Hallmarks Table: <http://www.gri.it/daguerreotype-hallmarks-punzoni.html> (consulted 10 October 2017).
- 22 All four *Hist. No.* prints listed here are in ALB's *Klebeband Ö.K. Axmann* 2 album.
- 23 Sale, von Westenholz Collection, Hamburg (Dr Ernst Hauswedell & Co), 2 February 1941, no. 335a.
- 24 Text dated 1841, Axmann prints dated 1843. Sale, von Metternich Collection, Vienna (note 18).
- 25 Likely made by Rudolf Skopec (1913-1975). Facsimile copies of *Phototyp* frequently have his stamp on them.
- 26 See GRI website: http://archives2.getty.edu:8082/xtf/view?docId=ead/920060/920060.xml;chunk.id=aspace_ref19_y02;brand=default (consulted 10 September 2017).
- 27 Klaus op ten Höfel, 'Die Entwicklung von Fotochemie und Fototechnik 1839 bis 1855', in *In unnachahmlicher Treue: Photographie im 19. Jahrhundert – ihre Geschichte in den deutschsprachigen Ländern*, exh. cat. Cologne (Josef-Haubrich-Kunsthalle) 1979, p. 20.
- 28 Károly Karlovits and László Beke, 'The Beginnings of Photography in Hungary', *Alba Regia: Annales Musei Stephani Regis xx. Az István Király Múzeum Évkönyve / Bulletin du Musée Roi Saint-Étienne: Székesfehérvár: Szent István Király Múzeum közleményei*, 1983, p. 257.
- 29 See RHK website: www.photocoll.de/?suche=phototyp+nach&go=1&submit.x=o&submit.y=o&submit=Abschicken (consulted 2 September 2017).