Rajka Knipper

The Karl Blossfeldt Collection at the Berlin University of the Arts

Teaching materials for arts and crafts classes
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Karl Blossfeldt was a student, teacher and ultimately professor at the Institute of the Royal Arts and Crafts Museum in Berlin, which amalgamated with the Hochschule für die Bildenden Künste in 1924 and thereafter operated under the name Vereinigte Staatschulen für Freie und Angewandte Kunst (United State Schools for Fine and Applied Arts). That joint venture was a predecessor of the Berlin University of the Arts (Universität der Künste Berlin – UdK) and had stored in its archives a collection of photographs, herbaria and sculptures that Karl Blossfeldt – taking a leaf from his mentor Moritz Meurer – used in his classes for arts and crafts students.¹

Within the framework of the cooperative arrangement between the Berlin University of the Arts and Die Photographische Sammlung/SK Stiftung Kultur, Cologne, work commenced in 2000 on inventORIZING² the Karl Blossfeldt Collection and contextualizing it with contemporary and posthumous publications as well as the surviving negatives and transparencies in the Karl Blossfeldt Archive and at the Deutsche Fotothek of the Sächsische Landesbibliothek – Staats- und Universitätsbibliothek (SLUB) Dresden.³

The collection of the Berlin University of the Arts includes 631 original gelatin silver prints and 39 herbaria made by Karl Blossfeldt. It also identifies him as the modeller of two of the surviving "Meurer bronzes". The Karl Blossfeldt Archive set up by Ann and Jürgen Wilde contains around 2,500 negatives and original transparencies as well as around 1,000 original prints⁴, the "working collages"⁵, various drawings as well as documents and publications relating to Karl Blossfeldt.⁶ Another collection of 360 negatives and transparencies – including duplicates – is archived at the Deutsche Fotothek Dresden. New prints made from some of these negatives for Fotokino Verlag Leipzig at the Academy of Visual Arts are kept at Stiftung Moritzburg Halle⁷. A few original – but in most cases new – prints of images in the Karl Blossfeldt Archive are found in various collections worldwide and occasionally appear at auctions.⁸ Up to 2010, a defined number of original prints from the Karl Blossfeldt Archive are on permanent loan to the Sprengel Museum in Hanover.⁹

1 Prints

1.1 History

Stamps on the back of the 631 original prints in the Karl Blossfeldt Collection of the Berlin University of the Arts show that they were acquired in two stages. The surviving documents also indicate at least two dates of receipt for plant photographs by Karl Blossfeldt. The lion's share of the present collection comprising 619 prints – was donated by Karl Blossfeldt's widow in 1933.¹⁰


² The Karl Blossfeldt photographs were previously inventorized by Michael Nungesser and Ulrike Stelzl in 1984, shortly after their discovery at the Berlin University of the Arts, and by Angela Lammert as part of preparations for the exhibition at the Akademie der Künste Berlin in 1999 with the assistance of botanist Harald Kilias, who had worked with Gert Mattenklott on Karl Blossfeldt. 1865–1932. Das fotografische Werk. München: Schirmer/Mosel, 2000. Nungesser and Stelzl's inventory also included the bronzes and herbaria.

³ Cf. http://www.karl-blossfeldt.org. In 2009, the Karl Blossfeldt Archive will transfer to the Pinakothek der Moderne in Munich, where it will be affiliated with the Bavarian State Painting Collections (Bayerische Staatsgemäldesammlungen) as the Ann and Jürgen Wilde Foundation (Stiftung Ann und Jürgen Wilde).

⁴ According to a conversation with Ann and Jürgen Wilde on 9 February 2009.


⁷ In 2009, the Karl Blossfeldt Archive will transfer to the Pinakothek der Moderne in Munich, where it will be affiliated with the Bavarian State Painting Collections (Bayerische Staatsgemäldesammlungen) as the Ann and Jürgen Wilde Foundation (Stiftung Ann und Jürgen Wilde).


₁⁰ Cf. http://www.karl-blossfeldt-archive.de. In 2009, the Karl Blossfeldt Archive will transfer to the Pinakothek der Moderne in Munich, where it will be affiliated with the Bavarian State Painting Collections (Bayerische Staatsgemäldesammlungen) as the Ann and Jürgen Wilde Foundation (Stiftung Ann und Jürgen Wilde).
The donation originally included 622 photographs of botanical specimens, 115 of pots and receptacles, 55 of the 1922/23 ceramics exhibition and 45 of the 1927 exhibition in Monza on loose sheets of various sizes. Only the photographs of botanical specimens have survived, although three of them were lost – a fact noted when the collection was first inventorized on its discovery in 1984.11

The photographs documenting the two exhibitions and those showing receptacles were not found. Nor do they appear to have been published; Blossfeldt’s photos were not used, for example, for the official catalogues of the exhibition in Monza.12 So we have no knowledge today of what Blossfeldt’s photographs looked like, although a letter shows how highly regarded Blossfeldt was as a photographer. 13

The idea of acquiring Blossfeldt photographs as teaching materials was considered as early as June 1920. A payment order was even issued for the fee, so the "30 pcs. 24 x 30 photos at 20 marks each"14 certainly reached the Institute. Unfortunately, however, that first documented collection seems no longer to exist.

Twelve original prints in the collection are marked with an inventory number consisting of the letter A and a serial number as well as the Vereinigte Staatsschulen stamp.15 So they cannot have been added to the collection – or at least inventorized – until after the Institute amalgamated with the Hochschule der Bildenden Künste in 1924. What is more, they are much smaller, or at least narrower, than 24 x 30 cm, many of them 15 x 12 cm or 30 x 8 cm. The 619 photographs documented as part of Blossfeldt’s estate also display the Vereinigte Staatsschulen inventory stamp but the fact that there are so many of them and the absence of the inventory stamp "C‘33" suggests that they do not share the same provenance as the twelve other prints.16

The surviving photographs include many which come from the same negative and show the same plant. In most cases, these photos are also identically cropped. Often enough, however, we find variants that are more generously framed17 or show a different part of the same plant.18 It is therefore difficult to reduce the collection to a number of non-duplicated motifs.

1.2 Print papers

All of the photos are gelatin silver enlargements on relatively thin paper with no manufacturer’s stamp. For contact prints – as the working collages show – Blossfeldt used not only a variety of gelatin silver papers but also cyanotypes. Moreover, probably in the early days of his involvement with photography, he also made use of albumin papers, as can be concluded from a self-portrait published by Anne Ganteführer-Trier.19 When his photographs were published in the German photo annual Das Deutsche Lichtbild, the papers used were identified as Leonar-Lumarto in 1930 and Agfa bromide in 1931, 1933 and 1935.20 This cannot be verified by reference to the prints in the University of the Arts collection. The photographs are printed on 24 x 30 cm paper with no border, with one exception, or are trimmed from the sheet to produce a narrow, vertical format. A receipt dated 4 July 1928 for prints provided as proofs for publication with an article by university curator Professor Wolfgang Sörensens cites dimensions of 60 x 24 cm for two photographs. Prints of that size are found only in the Karl Blossfeldt Archive/Ann and Jürgen Wilde. In all probability, the prints returned in 1928 form part of that collection.21

1 Nungesser/Stelzl inventory of the Karl Blossfeldt Collection, pp. 26, 112
3 Letter written by Wolfgang Sörensens dated 11 April 1927 (UdK Archive, fonds 8, no. 79, sheet 138).
4 Letter dated 24 June 1920 (UdK Archive, fonds 7, no. 49).
6 The connection between inventory stamps and year of acquisition was established by Dietmar Schenk. Cf. Dietmar Schenk: “Karl Blossfeldt im Archiv der Berliner Hochschule der Künste: Mit einem Anhang unveröffentlichter Autografen”, in: Konstruktionen von Natur. Von Blossfeldt zur Virtuosität, compiled by Angela Lammert, Akademie der Künste, Amsterdam, Dresden: Verlag der Kunst, 2001, p. 120.
7 Cf. for example UdK Archive, inventory nos. 320–A1 – 320–A12.
8 The connection between inventory stamps and year of acquisition was established by Dietmar Schenk. Cf. Dietmar Schenk: “Karl Blossfeldt im Archiv der Berliner Hochschule der Künste: Mit einem Anhang unveröffentlichter Autografen”; in: Konstruktionen von Natur. Von Blossfeldt zur Virtuosität, compiled by Angela Lammert, Akademie der Künste, Amsterdam, Dresden: Verlag der Kunst, 2001, p. 120.
9 Cf. for example UdK Archive, inventory nos. 320–81 and 320–82.
11 Cf. for example UdK Archive, inventory nos. 320–97 and 320–98.
13 Incidentally, Sörensens also arranged for a Winter Horsetail preparation to be reproduced in order to show the original size (UdK Archive, fonds 8, no. 96, sheet 143); cf. Kunstmuseum Bonn exhibition catalogue, 1994, plate 3.
Repeated reference is made in the literature to puncture holes at the corners of the prints. The explanation invariably offered is that they are left by drawing pins or other sharp implements used to hang up the photographs. The suggestion that photos were often pinned directly to the wall with drawing pins is supported by two specific pieces of evidence: firstly, Blossfeldt’s letter of 11 April 1906 to the director of the Royal Arts and Crafts Museum, in which he writes about mounting his photos in a special room, and secondly, the presence of clusters of holes and larger holes resulting from repeated use.

On the other hand, the 1920 memo referred to above states that a selection of photographs marked with an "x" should be placed "behind glass", i.e. framed or protected in some other way. The exhibition staged to mark the donation by Blossfeldt’s widow in 1933 presented a small selection of photos "in two cabinets used for teaching materials in the busiest corridor", i.e. again not mounted directly on the wall. As Paul Wedepohl, one of Karl Blossfeldt’s students, recalls, photos and preparations were presented to the class and handed straight to the students. It is also strange that while there are prints which do not have holes in all four corners, there are virtually no prints with no holes at all.

Another explanation for the holes is connected with the print-making process. To achieve high enlargements, Blossfeldt had to work with very long extensions both when capturing the images and when making prints. So he will not necessarily have made the enlargements in a vertical arrangement but will often have used a horizontal enlarger. For this, the unexposed photographic paper needs to be affixed to a wall or vertical board. The fact that Blossfeldt punctured the corners of the paper in the process is evidenced by prints with a dark background, on which the needle can be seen as a white shadow because it prevented the photopaper being exposed at that point (Fig. 1).

Such marks, especially the kind left by drawing pin heads, can also be found on other photographers’ prints, e.g. in the work of August Sander or Eugène Druet.
1.3 Relationship of negatives to enlargements

As a general rule, Blossfeldt’s prints are enlarged details of his negatives. Sometimes he selected an individual plant from a photographed group, often he cropped just one part of a plant, such as a section of a twig or the tip of a bud. On nearly a third of his prints at the University of the Arts, the degree of magnification is indicated. This ranges from zero, for life-size representations of plants, up to 40x. This is in line with the descriptions given in Blossfeldt’s books Urformen der Kunst (Art Forms in Nature) and Wundergarten der Natur (Art Forms in Nature: Second Series), in which the range is from life size to 45x.

Fig. 2
Karl Blossfeldt: Aesculus species. Horse chestnut. Shoot with leaf scars, n. d., gelatin silver print, 29.9 x 23.9 cm, UdK Archive, fonds 320, no. 220 (320-220). Enlargement of detail from the negative in Fig. 3.

Fig. 3
Contact print by Karl Blossfeldt: Acer pseudoplatanus and Aesculus hippocastanum. Sycamore and horse chestnut. Branch with leaf scars and open terminal buds, n. d., gelatin silver negative, 13.1 x 18.0 cm, SLUB/Deutsche Fotothek (356-396)

Fig. 4
Karl Blossfeldt: Aesculus hippocastanum. Horse chestnut. Shoot apex at enlarged 20 times, n. d., gelatin silver print, 29.7 x 12.1 cm, UdK Archive, fonds 320, no. 516 (320-516). Enlargement of detail from negative in Fig. 3.
However, the information on the prints varies. The plant in the photograph assigned inventory number 320-305, for example, is said to be enlarged 18x. In 320-316 and 320-104, however, which show details of the same negative of virtually identical size, the magnification is recorded as 25x. It is difficult to say how much a photograph has been enlarged. Blossfeldt himself could make a rough estimation because he knew which lenses were used and how large the plant specimen was. Without that knowledge, however, there is virtually no basis for calculation. Hence the decision of the authors of the posthumous Blossfeldt publications to remove this item of information from the captions or to disregard it. Except in the first reformatted reprint of *Urformen der Kunst* and the English editions of the Blossfeldt books, the magnification stated in the original publication was simply adopted regardless of the size of the illustrations selected for the book. So even if an attempt is made at proportionate adjustment, it is difficult to gauge magnification on the basis of publications.

1.4 Titling of the photographs

Some of the plants are botanically identified by inscriptions on the prints. For all the other photographs listed in the inventory, reliance was placed on the professional opinion of Karl-Heinz Linne von Berg, who also corrected or refined and updated some of the descriptions. Even during Moritz Meurer’s and Karl Blossfeldt’s lifetime, the artistically educated editors of design books entrusted the task of identifying plants to botanists. Although this meant relying on outside assistance and although it was irrelevant for the artistic transposition of the forms, there seems to have been a basic rule that representations of plants should be furnished with scientifically correct descriptions. Blossfeldt himself freely admits that he knows "none of the names of all the wild plants". For the Swedish edition of *Urformen der Kunst – Konstformer i naturen* – another botanist was engaged: Professor C. Skottsberg, who, among other things, added notes on distribution areas and kinships of the illustrated plants. Since many plants at that time could be identified only as representatives of a particular plant family, the plant family in question was recorded in the inventory for all of the photographs. Because of the absence of colours, the cropping of the images or Blossfeldt’s dissection of the plant material, it was not possible, despite all efforts, to identify the species in around a sixth of the photographs. Even in Meurer’s design books, however, plates were frequently furnished with nothing more than a morphological description, such as "graphic branching". These plates were used mainly for comparing different species, whereas plates portraying plants of the same species – which in this case was identified – were used to show different growth stages or variants of the same part of the plant.
1.5 Dating of the photographs

It is particularly difficult to put a date to the photographs. None of the photos were dated by Blossfeldt, which is not surprising considering that they were originally intended as teaching materials and not regarded as art works in their own right. This is also evident in Meurer’s publications: he always mentioned his students and assistants by name (even correcting errors after publication\[33\]) but only in connection with individual works if they were sculptures, drawings or paintings. So it is all the more astonishing that he should specifically mention Blossfeldt – to whom he normally referred as having contributed photographs to the publication – in the caption of a plant photograph featured in his book *Vergleichende Formenlehre des Ornaments und der Pflanze* (1909).\[34\]

Repeated attempts are made to assign dates to the photographs but it is generally difficult to furnish conclusive proof. Angela Lammert, for example, suggested that the photographs with the inscription on the front belong to Blossfeldt’s earliest works.\[38\] No clear evidence is offered in support of this suggestion. In the absence of concrete pointers, the only option is to use the contemporary publication of the photos as a terminus ante quem for dating. However, because these books and articles were mostly published in the later years of Blossfeldt’s life – his second book actually in the year of his death – or are undated themselves, even this method offers only limited scope for sorting his work by date.

As well as the two Blossfeldt books *Urformen der Kunst* (1928)\[36\] and *Wundergarten der Natur* (1932), there are three Moritz Meurer publications that could be helpful for dating: *Meurer’s Pflanzenbilder (Studies of Plants)* (undated, narrowed down to 1896–1899), *Ursprungsformen des griechischen Akanthusornamentes und ihre natürlichen Vorbilder* (1896) and *Vergleichende Formenlehre des Ornaments und der Pflanze* (1909).

Apart from these books, there are two known early publications that feature or refer to work by Karl Blossfeldt. Sadly, however, they are not dated and can thus provide no information about the origins of the photographs: *First Forms of Art*, Philadelphia [1929–1932]\[37\] with a selection of images from *Urformen der Kunst* and *Urformen der Kunst*, the American edition of *Urformen der Kunst*, and *Photographic Designs by Francis Bruguïère. Art Forms in Nature by Professor Karl Blossfeldt*, exhibition catalogue, The Warren Gallery, London [1930]\[38\], which contains no photographs but, judging from the titles of the photographs, accompanied an exhibition which also presented a selection of works from *Art Forms in Nature* (1929).

In addition, there are still a few early essays and newspaper articles around featuring Blossfeldt photographs as illustrations: Robert Breuer’s “*Grüne Architektur*” in *UHU* (June 1926), Wilhelm Hollbach’s “The Architectur of the Pflanze” in *Das Illustrierte Blatt* (7.8.1926), Karl Otten’s “*Das Genie der Pflanze*” in *Das Illustrierte Blatt* (29.5.1926), Tillmann Schmitz’s “*Architektur der Pflanze*” in *Illustrierte Reichsbanner-Zeitung* (31.7.1926) and Werner Lin’s “Bauten der Technik” in *Das Illustrierte Blatt* (29.5.1926). These articles were inspired by the exhibition *Exoten, Kakteen und Janthur* at the Nierendorf Gallery in 1926. The Karl Nierendorf publishing house originally had plans to publish the Blossfeldt book *Großaufnahmen von Blumen*. The project involved two volumes: "Architektonische Naturformen" and "Kunstformen der Natur", each of which would feature 50 plates.\[39\] Many of the articles dating from 1926 make prose and pictorial references to architectural forms, as Nierendorf’s publication was intended to do. *Das Illustrierte Blatt* even speaks of having taken the illustrations from that publication.

\[33\] Cf. correction in: *Das Kunstgewerbe*, ed. Ferdinand Avenarius, Dresden: Kunstwart-Verlag, 1st July issue 1892, p. 125.


\[37\] This portfolio of 40 double plates and a list of titles was published by Hans Carl Perleberg. Perleberg published a wide range of volumes of art plates, most of them probably containing repro photos. In Blossfeldt’s case, he also offered them as transparencies for projection. Three publishing locations are known: Jersey City, New York and Philadelphia, although the switch from New York to Philadelphia probably occurred after 1928 according to information from libraries and antiquarian booksellers who own or stock Perleberg publications. The work published by Perleberg is *Photastic forms produced by nature adapted to our needs*, which is subtitled *First forms of art. part 2 – Cry- forms* and is dated 1932. It can thus be assumed that Blossfeldt’s book was published between 1929 and 1932. Unfortunately, it was not possible for us to study this portfolio in the original. A digital copy was made available to us by the CCP Library, Tucson. A copy of a plate from *Photastic forms produced by nature adapted to our needs* received from the Public Library of Cincinnati and Hamilton County. It features microphotographs that have no connection with Blossfeldt.

\[38\] The dating was done by the library of the Victoria and Albert Museum, London, which kindly sent a copy of the 10-page brochure to Die Photographische Sammlung/SK Stiftung Kultur.

\[39\] The dating was done by the library of the Victoria and Albert Museum, London, which kindly sent a copy of the 10-page brochure to Die Photographische Sammlung/SK Stiftung Kultur.
Whether they were ever published, however, or whether the editors of the periodical used a mock-up of the draft book remains questionable. Up to the present time, no such publication has been found in the Verlag Nierendorf’s *Urformen der Kunst*, finally published in 1928 by Ernst Wasmuth Verlag, inspired another string of articles about Karl Blossfeldt and his work. As well as book reviews, they included a growing number of more general articles, which also featured other images: Wolfgang Sörrensen’s "Urformen der Kunst" in *Neue Frauenkleidung und Frauenkultur* (1928/29), Georges Bataille’s "Le Langage des Fleurs" in *Documents* (June 1929), Jagadish Chunder Bose’s "Das Leben der Pflanze" in *Atlantis* (1929), Karl Otten’s ”Die Pflanze baut” in *Schüinemanns Monatshefte* (February 1929), H. Abramowicz’s "Urformen der Kunst" in *Das Magazin* (July 1931) as well as *Das Deutsche Lichtbild* referred to above, which published photographs that were featured in *Wundergarten der Natur* (1932) as early as 1930.

The possibility of dating photographs in the Berlin University of the Arts collection on the basis of publications is further limited by the fact that few of the photographs that have been published form part of the university’s collection: only 33 of those featured in works published since 1926 and none of those included in Meurer’s books.

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**Fig. 5**

Karl Blossfeldt: Equisetum hiemale. Winter Horsetail. Shoot apex enlarged 20 times, before 1926, gelatin silver print, 30.0 x 23.9 cm, UdK Archive, fonds 320, no. 81 (320-81)

**Fig. 6**


For the articles in *UHU*, however, it can be shown that two surviving prints were used as proofs. Both still displayed the adhesive label of the Ullstein publishing house. This shows a five-digit number, which is probably a reference to the article, followed by a letter denoting the position of the illustration.

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41 Cf. Anne Ganteführer-Trier: "Der Künstler als Archivar", in: *Konstruktionen von Natur*, Amsterdam, Dresden, 2001, pp. 15–16. It is interesting to note that some of the photographs that were published in the articles – and thus earmarked for inclusion in Nierendorf’s publication – are not found in *Urformen der Kunst*.

42 This is the article mentioned in connection with the size of the prints (UdK Archive, fonds 8, no. 96, sheet 143).

43 UdK Archive, inventory nos. 320-81 and 320-285. The adhesive labels are no longer on the prints but marks on the reverse of the paper show where they were affixed.
Apart from that, the title of the article and the name of the relevant image are written in pencil on the back of the photograph. One point worth noting is that, unlike in *Urformen der Kunst* two years later, the tiny leaf to the left of the Equisetum was not retouched in the article (Fig. 6). In the print of this image at the Sprengel Museum in Hanover, the leaf is retouched. It is therefore probable that the proof used for the later book publication was the Sprengel print and not the one used by Ullstein.

In his publications *Akanthusornament* (1896) and *Vergleichende Formenlehre* (1909), Moritz Meurer credited Karl Blossfeldt as the photographer, although this was probably a credit only for the photographs of plants; the artwork reproductions were made from professionally photographed proofs, as can be seen from the surviving photographs of numerous other artworks by Giorgio Sommer and Edmond Behles in the Waldenburg Museum and the invoices for photographs from Sommer or even Alinari. The plant photographs that appear in *Meurer’s Pflanzenbilder* were published only as "photographed from nature" but it is likely that at least the photographs that are stylistically similar to Blossfeldt’s work were made by Blossfeldt during his time in Rome. There is already a reference here to photographic enlargement – a principle that set Blossfeldt’s photographs apart from the photographic models used at other universities. The 15th item listed in the statement of costs for Meurer’s nature studies class from April 1891 to March 1892 is a microscope for Karl Blossfeldt. In the manuscript *Aus der Werkstatt der Natur*, which has so far been published only in part, Blossfeldt stresses that he does not make microscopic enlargements. By this, he probably means the kind of extreme enlargements associated with Ernst Haeckel, with whose *Kunstformen der Natur* Karl Blossfeldt later compares his own work, describing it as more conducive to ornament.

But even Blossfeldt’s prints reach 45x magnification, and microscopic depictions were certainly used in arts and crafts at the time. This can be seen, for example, in Adolph Braun’s fabric designs, which are based on the cell structures of wood, bark or blood.

However, even Braun drew inspiration from more than enlargements of microscopic blueprints; he repeatedly incorporated into his patterns botanical forms which are perceptible by the naked eye and which he photographed. Like Blossfeldt’s photographs, detached from their original purpose as models, they are now treasured collector’s items.

As well as Braun, mention should be made here of Martin Gerlach, who published a wide range of design books at the turn of the 19th/20th century. They featured photographs ranging from festoons or garlands formed out of plants and animals to comparative photographs of botanical or zoological forms and even microscopic images.

His books are a very good guide to the development from artificial collections of diverse forms in nature and arrangements of existing decorative shapes to the presentation of structures or shapes that are artistically stimulating. The microphotographs published in Gerlach’s *Formenwelt aus dem Naturreiche* were made by Hugo Hinterberger, who harnessed this form of photography for art. But even he used his photographic equipment for more than just making pictures of cell structures; he also enlisted its help, for example, to produce enlargements of plant seeds at just 6x magnification. Contrary to his later statements, Blossfeldt also used a microscope for imaging, as Moritz Meurer reports. But the microscope remained at Meurer’s school in Rome and was not returned to the Institute until 1910. Blossfeldt seems not to have worked with it any longer.

Unfortunately, there have been no matches found between the photographs in *Meurer’s Pflanzenbilder* and original prints in Berlin. Only in the case of the sow thistle images (Fig. 8) is there a very similar variant in the Berlin University of the Arts collection (Fig. 7).

As well as being very similar in terms of the plant and its positioning in the picture, the photographs both display a dark background and fairly dramatic use of light. This sharp contrast achieved with a dark background and illuminated plant details can be seen in various Blossfeldt photographs, including a number in the University of the Arts collection. So one is inclined to date these photographs around 1896, i.e. to rank them among Blossfeldt’s earliest photographs. Incidentally, this assumption supports the hypothesis of Angela Lammert.
Many of these prints are among those with inscriptions on the front, most of which are also in a poorer condition.

In his later photos – if one accepts the dating hypothesis – Blossfeldt appears to have abandoned the use of intense modelling light in favour of a more homogeneous lighting regime. However, he continued to work with dark and light backgrounds and thus emphasize either the materiality of the plant or its contours.

1.6 Retouching and labelling

There are few signs of retouching on the prints but where such editing was done, it was executed with great care in pencil. One print displays details that were actually added in pencil.

The writing on the back of prints – where it does not identify the plant, indicate the degree of magnification or present sketches illustrating the plant portrayed – probably records technical details of the way the image was captured. However, these markings have yet to be deciphered. One inscription is found on the back of many prints: a capital "N" followed by a numeral. This indicates inclusion in the working collages and in all but a few rare cases identifies the precise collage in which the contact print of the photograph is located. There are also N80 numbers, for which no collage is known but which are not in Blossfeldt’s handwriting. The meaning of other letter/number combinations, such as "K75" or "R9", has not been established.

2 Negatives and transparencies

2.1 Negative formats and motifs

The University of the Arts collection does not include negatives or transparencies. However, Blossfeldt’s works at the Deutsche Fotothek Dresden have been studied and juxtaposed with the university collection. These include 359 glass plates with gelatin silver emulsion in the formats 6 x 9 cm, 9 x 12 cm, 9 x 18 cm and 13 x 18 cm as well as one approx. 6.5 x 9 cm film negative. As the working collages show, Blossfeldt also divided large negatives for exposure, so there are two motifs side by side on some plates. The fact that these are not group photographs is indicated by the fine lines separating the negatives. There is one such plate in Dresden, however, that displays images that were not photographed in close succession. This is evident from differences in the discoloration of the emulsion (Fig. 9).

It may be due to the photographer making full use of scant resources.

Fig. 9
Contact print by Karl Blossfeldt: Cruciferae,十字花科 and Boraginaceae. Crosswort and borage. Flowers, n. d., gelatin silver negative, 13.3 x 17.8 cm, SLUB/Deutsche Fotothek (3“-387)
One of the prints in Berlin was made from a double negative, i.e. two photographs of the same plant on a single sheet (Fig. 10).

But Blossfeldt shot more than just different parts of plants in close succession; he also tested the effect of lighting and thus light or dark backgrounds on the same motif.

A very good illustration of this is found in the photographs of an impatiens – one against a white background, another against light-grey – in the working collage 27.\footnote{UdK Archive, inventory no. 320-190.}

Finally, there is an accidental double exposure on one negative at the Deutsche Fotothek.\footnote{Cf. Karl Blossfeldt. Arbeitscollagen, Munich, 2000, plate 27, centre.} Apart from the celebrated plant photographs, the Dresden collection also includes Blossfeldt’s private travel photos made in Rome and Venice\footnote{Deutsche Fotothek Dresden, inventory no. 356-379.} – all in the smallest negative format – a reproduced photograph by the Staatliche Bildstelle Berlin, the abdomen and the wings of a bee\footnote{Cf. Karl Bloßfeldt. Fotografien zwischen Natur und Kunst, Leipzig, 1990; Hans Christian Adam: Karl Blossfeldt 1865–1932, Cologne, 1999, 2001, 2004, 2008.} and photos of natural woodland as well as fungal and forest floor preparations. The latter were made by Blossfeldt around 1906/1908 indicated by his signature on the preparations\footnote{Cf. the story of what was probably Blossfeldt’s first photograph, a dragonfly, in: Karl Blossfeldt: Aus der Werkstatt der Natur, pp. 3–4, quoted by Jürgen Wilde, in: Konstruktionen von Natur, Amsterdam, Dresden, 2001, p. 112.} – and judging from the wallpapers, curtains and furnishings in the background, were probably shot in his home.

The Deutsche Fotothek collection also contains a number of duplicates, most of them transparencies but some duplicate negatives.\footnote{Cf. for example Deutsche Fotothek Dresden, inventory nos. 505-503 and 505-455.} Concordance with the University of the Arts collection exists in 71 negatives or transparencies. For the rest of the collection, Jürgen Wilde established connections with negatives in the Karl Blossfeldt Archive under his management.\footnote{Copy film negatives made by the Deutsche Fotothek also exist, especially of the motifs that are available only as transparencies. These are not included in the quantity mentioned.}

\footnote{270 negatives have been identified to date, as confirmed by Jürgen Wilde in an interview with the author in December 2008.}
2.2 Camera and photographic equipment

Blossfeldt worked with a home-made camera with interchangeable lenses of different focal lengths, as witnessed by a number of sources. This enabled him to make life-size or slightly larger than life-size photos of plants. The notes on the photographs in *Das Deutsche Lichtbild* refer to focal lengths of 15 cm and 50 cm.

So with a 1 m long extension, such as the one reported by one of his students, Paul Wedepohl, it would have been possible to make full-size or 6x magnified images, provided that the original object was no larger than 3 cm and the negative was 13 x 18 cm.

However, if the plate format is 9 x 12 cm, as described in *Das Deutsche Lichtbild*, and the average size of a flower with stem around 5 cm, the maximum enlargement is 2x. If a 50 cm lens is used – which seems to have been the case much more often – a 1 m extension permits only a life-size image.

This is also reflected by the negatives, many of which are presumed to present an image that is either life-size or only slightly larger than the original plant. Enlargements on the scale of 40 or 45x could probably be achieved by Blossfeldt only by both enlarging the image during capture and enlarging the negative for printing. Whether he also photographed prints and enlarged them again could not be established.

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22 Cf. for example Wedepohl, in: Galerie Taube exhibition catalogue, Berlin, 1984, [p. 10] and *Das Deutsche Lichtbild*, 1930, [T46]; 1931, [T69]; 1933, [T73]; 1935, [T41].

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Fig. 11
Karl Blossfeldt: Callicarpa sp. Beautyberry. Tip of branch with flower buds enlarged 8 times, n. d., gelatin silver print, 29.9 x 20.0 cm, UdK Archive, fonds 320, no. 210 (320-210)

Fig. 12
Karl Blossfeldt: Unidentified plant. Developing shoot enlarged 10 times, n. d., gelatin silver print, 29.9 x 20.0 cm, UdK Archive, fonds 320, no. 189 (320-189)
One print in the University of the Arts collection shows the degree of magnification in Blossfeldt’s handwriting. On the basis of this, it is possible to say more about the ratio of the original plant/negative/print. On the right of the print, the enlarged clips holding the negative can be made out (Fig. 12). On the 13/18 negative, they measure approx. 1.3 cm from top to bottom edge, whereas on the print they are 3.5 cm high. So the negative was enlarged 3x and cropped to a detail. The inscription on the print states 10x magnification. This means that the image on the negative must have been enlarged around 3x to produce a 9–10x enlargement in the final print. The surviving print of the plant on the left-hand side of the negative is labelled 8x magnification (Fig. 11), which again shows that the degrees of magnification stated are approximations. The woody central stem does not appear in any known original print but the tips of the leaves can just be made out in the photo where the negative clips can be seen.

In a letter dated 25 July 1910 about the return of Institute materials, Meurer refers to "a large camera with tripod, a leather case with lenses for the same and a number of individual mounts" and mentions that "Blossfeldt [is] familiar with their use". It can be assumed that Blossfeldt also owned a handheld camera, which he used to produce the smallest of his negatives.

As for negative plates, the Deutsche Lichtbild annuals report the use of Hauff Flavin, Satrap Braunschicht and Braunsiegel plates. They also give details of the photochemicals used, the exposure time and the time when the photographs were made. In contrast to the photos modelled with light, such as those published in Meurer’s Pflanzenbilder, Blossfeldt preferred soft daylight for the photos published in Das Deutsche Lichtbild. In addition, the photo location is identified ("studio") and both the time of year and time of day are sometimes indicated ("spring" and "midday" respectively). The exposure time indicated varies between 8 and 12 minutes – despite a full aperture, which is not surprising given the 16–17 Scheiner (= around 7 DIN) sensitivity of a Hauff Flavin plate. The full aperture and long exposure time are two reasons why the sharpness of the photographs varies despite the relatively limited depth of the plants. There are actually a large number of negatives in which a part of a plant is blurred.

### 2.3 Composition of the photographs

Blossfeldt normally cut the plants he photographed, sometimes dissecting them further to make inner parts of the plant visible or to highlight certain details. Examples of this can be seen in two images of water avens that Blossfeldt captured on the same negative. The one print shows a flower in its natural form (Fig. 13), the other shows it with the sepals removed, revealing the filigree petals inside (Fig. 14). The working collages contain more examples that illustrate even better how Blossfeldt succeeded in achieving clarity of form by removing individual parts of a plant.

After preparing the plants, Blossfeldt often arranged them in groups, showing either similar plants or variants or development stages of a species.
To position the plants for long exposure times, Blossfeldt fixed them with putty (Fig. 15), wooden clothes-peg and sheets of glass (Fig. 16) or skewered them on nails (Fig. 17). He also sometimes secured them with thread. For backgrounds, he used large sheets of heavy duty paper. Other photographers are also reported to have used the same techniques. There are prints by Wilhelm Weimar, for example, that show how he prepared his plants for photographs. He placed stems in glass bottles and, like Blossfeldt, used thick nails to hold woody parts in position. Weimar did not use paper only for backgrounds; he also used it to conceal his assembly.

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84 At this point I should like to thank Gabriela Betancourt Núñez and Harald Dubau, who made it possible for me to gain access to the Wilhelm Weimar photographs at the Museum für Kunst und Gewerbe, Hamburg. Ms. Betancourt Núñez also drew my attention to the aforementioned articles by Weimar on plant photography in contemporary photo magazines.
Where plants could not be cut and had to be photographed in their natural surroundings, photographers created homogeneous backgrounds by placing canvases or sheets of card behind the plants in parks and gardens, as has been documented for photographs by Eugène Atget\(^6\) and Charles Jones\(^6\). From the 1920s onwards, photographers like August Sander, Paul Wolff and Albert Renger-Patzsch started to see the charm of a background formed by a plant’s natural habitat and made increasing use of it in their photographs.\(^7\)

Evidence that Blossfeldt also used sheets of glass can be seen in a small number of photographs, where reflections are visible in the prints (Fig. 18). A shot of a photographer working on botanical studies for Ernst Fuhrmann shows how Blossfeldt’s photographs may also have been made. A plant lies on a sheet of glass, seemingly suspended in mid-air, while the photographer adjusts the extension to sharpen the image.\(^8\) Indications that Blossfeldt also laid plants out for photographing are found in negatives in which the plants seem to float in the air (Fig. 19) or project into the frame from more than one direction. (Fig. 20).

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\(^6\) "Artichoke plant against white cloth", in: *Atget, une rétrospective*, Bibliothèque nationale exhibition catalogue, Paris: Éditions Hazan, 2007, p. 63. Atget’s plant photographs were also made to inspire artists. These motifs are the only ones acquired by an institution – the Musée des Arts Décoratifs in Paris – shortly after they were made (loc cit., p. 179).

\(^7\) "Garden scene with photographer’s cloth backdrop", in: Sean Sexton, Robert Flynn Johnson: *Plant Kingdoms*, London: Thames and Hudson/New York: SMITHMARK Publishers, 1998, Fig. 10.

Fig. 18
Karl Blossfeldt: Cirsium, Carduus species. Thistle. Flower head, viewed from below, n. d., gelatin silver print, 29.8 x 23.7 cm, UdK-Archiv, Bestand 320, Nr. 326 (320-326)

Fig. 19
Contact print by Karl Blossfeldt: Silphium, Compass plant and Hamamelidida lacinata. Leaves dried on stem, n. d., gelatin silver negative, 13.0 x 17.9 cm, SLUB/Deutsche Fotothek (49–023)

Fig. 20
Contact print by Karl Blossfeldt: Vaccinium corymbosum. Highbush blueberry. Inflorescences, n. d., gelatin silver negative, 13.0 x 17.8 cm, SLUB/Deutsche Fotothek (356–354)
2.4 Labelling and retouching of negatives

Blossfeldt identified negatives in two ways: with handwritten paper stickers or in pencil on the emulsion side of the negative. Whether he also labelled the sleeves of his negatives can no longer be ascertained from the Dresden collection. All notes on the paper envelopes today were penned by Deutsche Fotothek researchers and show archive data and titles identified in publications.

Of the few surviving stickers in Dresden, only two are still affixed to the negative. However, a number of negatives show changes in the emulsion that could be due to a reaction with adhesive on a strip of paper. All stickers show the name of the featured plant, one also displays a reference to its distribution area.

Notes written directly on the negative are far more numerous than stickers. In some cases, Blossfeldt names the featured plant, sometimes also indicating its distribution area. In addition, much like the prints, the negatives are labelled with combinations of numbers, which probably refer to image capture details but have not yet been deciphered. It seems reasonable to interpret certain annotations as references to focal length and exposure time: "f. 25 9 M. Abend," for example, could well mean a 25 cm focal length, 9 minute exposure time and photograph made in evening light, in which case "f 36 3 M. tr." would be short-hand for 3 minutes exposure, 36 cm focal length, with "tr" short for "trübe", meaning "dull".

What makes the task of deciphering these notes complicated are the abbreviations, the sometimes illegible handwriting and the fact that it is not clear whether words are written in German or Latin characters. Blossfeldt used both scripts. As in the prints, the abbreviations "kl", "h" and "hy" appear in the negatives in combination with numerals. We also find "bed", which could stand for "bedeckt", meaning overcast. One negative is labelled "alte Platte" – "old plate". In two instances, the words "verstärkt u. abgeschw" can be identified. The abbreviation at the end probably stands for "abgeschwächt" (weakened), which would also be appropriate for the notes on the prints, although "abgeschn" was understood in most cases here and interpreted as "abgeschnitten" (trimmed).

Finally, N-numbers matching the numbers of the working collages are also found on the negatives; so are the crosses which, as Anne Ganteführer-Trier has demonstrated, identify motifs in the working collages from Urformen der Kunst. Here, some of the crosses are even combined with or replaced by the number of the relevant plate in Urformen der Kunst, which implies that the negatives were labelled only after the book’s publication and not before it as a compilation of planned motifs, as Anne Ganteführer-Trier suggests. Not all the motifs identified are found in Blossfeldt’s first book publication. It is also conceivable that the markings – which include not only crosses but also boxes or small circles – could refer to different publications, perhaps even planned publications, but no system can be identified.

As in the case of the prints, there are a few discrepancies in the N-numbers on the negatives, to the extent that three photographs of Hamamelis are not included in the working collage indicated (34), although other shots of Hamamelis are affixed there.

Lettering is also often found reproduced on the transparencies. Where transparency and negative are preserved, there is evidence that the transparencies were copied straight from the negatives – because the lettering on the negative is present on the positive. However, there are also transparencies which – like the prints – show only a detail (Figs. 21-23).

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89 Cf. the note "mittags" in Das Deutsche Lichtbild, 1935, T41.
90 Cf. Nungesser/Stelzl inventory at the Berlin University of the Arts Archive.
93 e.g. Deutsche Fotothek Dresden, inventory no. 505–395.
Anne Ganteführer-Trier assumes that some of the transparencies in the Karl Blossfeldt Archive served as proofs for Urformen der Kunst. However, they could only have been prepress materials because the photomechanical production of a printing plate requires a transparency that is the same size as the plate in the book. Among the Dresden transparencies, only one gives reason to suppose a connection with Urformen der Kunst: the stem cross-section of the Winter Horsetail (Fig. 24). And even that transparency contains an image that differs from the cross-section in the publication; the distracting elements visible at the edge were removed for the book (Fig. 26), just as they have been in the documented prints (Fig. 25).

Fig. 21
Karl Blossfeldt: Aesculus hippocastanum, Aesculus species, perhaps Aesculus parviflora. Horse chestnut, perhaps bottlebrush buckeye and twig with opposite leaves. Branch tips with buds and brachyblasts, before 1926, gelatin silver negative, 13.0 x 17.9 cm, SLUB/Deutsche Fotothek (328–286)

Fig. 22
Karl Blossfeldt: Aesculus hippocastanum. Horse chestnut. Twig with bud, before 1926, gelatin silver transparency, [Glass cracked], 12.3 x 8.9 cm, SLUB/Deutsche Fotothek (505–513). Just visible at top right is the tip of a branch of Aesculus species (328–286)

Fig. 23
Karl Blossfeldt: Aesculus hippocastanum. Horse chestnut. Twig with bud, before 1926, gelatin silver print, 29.9 x 12.0 cm, UdK Archive, fonds 320, no. 598 (320–598)

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*4 Cf. Anne Ganteführer-Trier, in: Konstruktionen von Natur, Amsterdam, Dresden, 2001, p. 22. Jürgen Wilde confirmed on 9 February 2009 that this did happen in exceptional cases where no prints were available as proofs for Urformen der Kunst. Originally, the transparencies were used for projection in the classroom.*
Stängelquerschnitt des Winterschachtelhalms (Abb. 24), einen Zusammenhang mit **Urformen der Kunst** vermuten. Doch auch dieses Dia entspricht nicht genau dem Ausschnitt in der Publikation, sodass die am Rand noch sichtbaren, störenden Elemente wurden im Buch (Abb. 26), ebenso wie auf den bekannten Abzügen entfernt (Abb. 25).

Auf den Dias sind die ursprünglich neben dem herausvergrößerten Motiv stehenden Pflanzen oft sichtbar angeschnitten, was man auf den Abzügen nur ab und zu und ganz am Rand sieht.

*Cf. Deutsche Fotothek Dresden, inventory nos. 320–417 and 505–417.*
3 Herbaria

In the introduction to *Pflanzenformen* in 1895, Moritz Meurer describes his method of turning natural forms into art and explains their importance for the enhancement of arts and crafts. Craftsmen should not copy, he says; they should engage with nature and thus recognize the laws of natural formation and build on that knowledge to develop art forms of their own.

But he speaks of more than just the renewal of arts and crafts in *Pflanzenformen*; he also describes the nature and production of the teaching materials he considers necessary for modern instruction. The list includes live and stuffed animal models and animal skeletons as well as live plants, botanical preparations, botanical castings and enlarged plant models. The sculptural realization of floral forms inspired by Moritz Meurer is discussed in the next chapter.

The Institute's first purchase of "50 plant preparations behind glass" from Karl Blossfeldt can be traced to 1911. Before that, the records for 1903 contain an entry referring to the purchase of a "collection items – of diverse insects" from Blossfeldt.  

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98 An index with three sketches dated 10 September 1891 lists 18 fishes collected for the Institute by Meurer (UdK Archive, fonds 7, no. 7, sheet 157).

99 "Accession Catalogue C, Miscellaneous II, 1891–1916, 36–85 purchased in 1911 [entry dated 30 March 1912] for 500 marks from sculptor Carl Blossfeldt, Groß-Lichterfelde, Chausseestraße 60" (UdK Archive, fonds, no. 13, p. 222–227); "Audit Catalogue C. '11 36–85. Cabinet Room 13" (UdK Archive, Historical Inventories, no. 17, no page ref.), here only 43 deleted; with his article on p. 8 of the Kunstmuseum Bonn exhibition catalogue, 1994, Jürgen Wilde publishes a photograph of herbaria subtitled "Display cabinet with dried plants, Rome 1895".

100 UdK Archive, fonds, no. 13, sheets 124 and 125, item 12.
It is unlikely that any prepared plants were acquired before 1911 because there is no entry to that effect in the inventory and the inventory records date back to 1891. Of the earliest herbaria, the inventory numbers 37 and 38 "Maple" (Figs. 27–28), 44 "Boykinia aconitifolia (Allegheny brookfoam)" and 78 "Ivy" still survive, as evidenced by the inventory stamps on the back. The glass-fronted cardboard cases measure 18 x 24 cm and 24 x 30 cm.

Sadly, the brookfoam is badly damaged and no longer recognizable as an exemplary botanical specimen. So it was probably removed from the teaching materials collection in the days of the Institute, as happened in December 1930 – and documented by an entry in the accession catalogue for two other preparations acquired at the same time. The catalogue shows that many plant genera were added to the collection in a number of herbaria.

However, the two herbaria described as maple leaves illustrate how different the forms of the otherwise undifferentiated plant species could be – and that the descriptions are not always correct (no. 38 has been identified by Karl-Heinz Linne von Berg as redgum). This shows that although the plants seem to have been identified with scientific accuracy, in many cases by Latin names, they were not collected, preserved and categorized according to botanical criteria but exclusively on the basis of their form and potential for use in arts and crafts. Blossfeldt probably coated the back of the leaves with wax reinforced with wire mesh to stop the leaves curling as they dried. This meant they did not need to be pressed and thus flattened. This preservation technique is described by Meurer in Pflanzenformen, so is the technique used for pressing.

Air-drying is described as suitable only for solid botanical specimens such as cones, capsules, shells, budding deciduous branches, grasses and thistles. In his book Ornamentale Pflanzenstudien auf dem Gebiete der heimischen Flora, published in 1888, Magdeburg Arts and Crafts School director Ferdinand Moser describes another way to dry plants and preserve their original form and colours: drying in warm sand. The complex and time-consuming procedure involves fixing plants with fine wires, then carefully covering them with quartz or river sand and, depending on the time of year, drying them in the sun or in an oven for several days. To improve stability, Moser recommends spraying the dried plant with shellac. It then needs to be kept behind glass or in a case. Karl Blossfeldt seems also to have made occasional use of this method, e.g. for the ivy and creeper herbaria (Fig. 29).

He also managed to preserve colours in some plants by impregnation. Peeling layers provide visible evidence of this (Fig. 30). To establish what substance was used, it would be necessary to perform a chemical analysis on the herbaria.

The creeper herbarium was part of the next acquisition. This was effected in 1913 and included 87 botanical preparations behind glass or in cases. By 1930, some of the preparations here had also become unserviceable and were discarded. The surviving specimens today – confirmed by inventory stamps – include the numbers 116 "Oat", 117A "Cherry laurel twig", 132 "Ivy", 133 "Cotoneaster (3 twigs)" (cover picture), 141A and 141B "Dipsacus (stems)", 147 "Ears of rye", 156A "Vine species" – this item, remarkably, deleted as unserviceable in 1930 and confirmed as discarded in the audit catalogue for "Acanthus" and 165 "Salvia (sage species)". This time, acquisitions appear to have included both pressed, card-mounted herbaria behind glass ("on board") and three-dimensional preparations "in cardboard cases". The only surviving specimens are in 18 x 24 cm, 24 x 30 cm and 30 x 40 cm glass-fronted cardboard cases.

In 1917, the Institute again bought botanical preparations behind glass and in cases. However, these herbaria seem not to have survived. None of the surviving specimens is date-stamped 1917.

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101 Another pointer is found in his letter to Ernst Ewald on 16 February 1894 (UdK Archive, fonds 7, no. 8, sheets 86–87).
104 UdK Archive, inventory stamp 13.
105 "Accession Catalogue C, Miscellaneous II, 1891–1916, 108–180 purchased in 1913 [entry dated 20 January 1914] for 1,087.50 marks [the unit price had risen from 10 to 12.50 marks] from Karl Blossfeldt, Südende, Stephanstr. 6" (UdK Archive, Historical Inventories, no. 13, pp. 264–270); "Audit Catalogue C: '13 108–180, Cabinet 1 Room 13' (UdK Archive, Historical Inventories, no. 17, no page ref.), 156a, 157 and 157a also deleted here.
106 Acquisitions list C, Miscellaneous III (deleted). 1917–. purchased in 1917 [entry dated 13 April 1917] for 500 marks from sculptor Karl Blossfeldt, teacher at the Institute, Südende, Stephanstr. 6" (UdK Archive, Historical Inventories, no. 17), so perhaps the deal was not finalized. Cf. Claudia Schubert: Document 16 at www.blossfeldt.info.
The last herbaria acquired were those donated by Karl Blossfeldt’s widow.107 Now, the herbaria are listed in collections, grouped according to size. Judging by inventory stamps on the back, none of the 22 preparations in the first category (24 x 30 cm format) has survived, there is one surviving delphinium from the 7 preparations in the second group (18 x 24 cm format) and 12 of the 27 specimens in the third category still exist, although they are not 13 x 18 cm, as stated in the acquisitions list, but 9 x 12 cm like the fourth category. Of the 23 herbaria making up the last collection (9 x 12 cm format), another 12 still survive but are shallower than those of the third group. One possible explanation could be that the stamp, which consists of movable numerals, was wrongly set. However, the mistake seems to have been made in the acquisitions list because there are 24 herbaria in 9 x 12 cm format today but only 23 listed in item 7.

The herbaria received in 1933 include both dried and pressed specimens. Some of them do not present natural plant growth but consist of botanical specimens arranged in patterns against both light and dark backgrounds (Fig. 31–32).
In addition to preserving plants by extracting moisture, Meurer also suggested soaking them in mixtures of melted stearin, paraffin and similar substances or placing them in denatured alcohol, which, as he knew, results in only temporary preservation. Meurer selected "a number of jars with plants preserved in denatured alcohol" as exhibits for the Institute's presentation at the Berlin Arts and Crafts Exhibition in Treptow in 1896. Also on show were cases and panels of botanical preparations, a copy of Meurer’s *Pflanzenformen* mounted on card, two issues of *Pflanzenbilder* - which probably continued to be published successively up until 1899 - 31 photographs of botanical specimens - perhaps the ones he then published in *Pflanzenbilder* - as well as plaster models and bronzes in his own possession and in the possession of the Institute.

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109 Cf. Meurer’s letter to assistant director Fendler of 21 May 1896 (UdK Archive, funds 7, no. 8, sheets 165-166) and Homolka’s acknowledgement of receipt; according to Nancy Tanneberger, Meurer was awarded the arts and crafts exhibition prize for the stand. “From Waldenburg to Rome. The painter and art school reformer Moritz Meurer (1839–1916)” at www.blossfeldt.info.
4 Bronzen

The so-called "Meurer Bronzes" were created under Moritz Meurer's supervision while he was working at his school in Rome making teaching materials from nature for ornament and morphology courses at the Institute with assistance from the Prussian government. Karl Blossfeldt was significantly involved in the production of those bronzes, which were not only the most durable but also the most complex and most expensive models made. However, after his return from Italy in 1898 – having Moritz Meurer's bronzes available for his classes – Blossfeldt appears to have made no more sculptures. The Meurer bronzes include three types of model: natural forms with a galvanoplastic coating, castings and larger than life-size botanical models.

The Acquisition Catalogue E lists a total of 190 sculptures: direct bronze casts (nos. 1–59, 72–133) of botanical specimens and animal body parts – such as a snake's head (no. 37), which was deleted as worthless in 1932 and probably destroyed, and a snake that was recorded as stolen (no. 115) – natural forms with a galvanoplastic coating (nos. 60–65) and bronze casts of larger than life-size reproductions of natural forms in wax (nos. 66–71, 134–190).

Those that have survived include 35 directly cast bronzes of botanical forms on a plinth or metal plate, three plants with a galvanoplastic coating and 19 larger than life-size plant models, 18 of which were cast at the Nisini foundry in Rome and one at Höpner in Berlin, as well as three plant fragments, a remnant of a plinth and the nameplate for a Sambucus niger bronze that has not survived.

The galvanoplastic items could almost still be regarded as preparations because they genuinely rendered the form of the plants. The metal coating changed the colour of the plants but made them far more durable than a wax coating, although even the galvanoplastic forms are similarly sensitive. Meurer pointed out in Pflanzenformen that differences in the impact of the galvanic current caused the metal to be deposited in such an unfavourable way that the plants needed to be dissected, the individual parts separately coated and the whole thing soldered together again with the help of a wire support. The individual steps were probably performed more or less entirely by professional metal workshops specialized in this botanical preservation technique, as can be inferred from an adhesive label on one of the bronzes identifying H. Trautmann & Co in Munich. The statement of costs for the first year of the nature studies class shows that Trautmann made "6 galvan. Pflanzenabformungen (6 galvan. botanical forms)".

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110 It is not clear why the last twelve bronzes were made in Berlin and no longer in Rome. Those made in Italy were paid for in lira (between 10 and 200 lira per piece but sometimes a flat-rate fee was paid for a group; the exchange rate shown in the statement of costs for the nature studies class [UdK Archive, fonds 7, no. 8., sheet 23 recto and verso] is 1 lira = approx. 80 pfennig). "Catalogue E. b. bronze castings of Prof. Meurer's botanical forms, 1–190, Meurer cabinet in corridor behind the armoury" [UdK Archive, Historical Inventories, no. 18, double pages 111–118]; "bronze casts by Höpner in Berlin" [UdK Archive, Historical Inventories, no. 18, double page 118]; "Audit Catalogue E. b. Meurer bronzes, 1–59 bronze casts of botanical forms from the nature studies class of Prof. Meurer in Rome [37 also deleted], 60–65 works with galvanoplastic coating over natural form, 66–71 bronze casts of larger than life-size reproductions of natural forms in wax, 72–133 direct bronze casts of botanical forms [115 also deleted], 134–178 Nisini bronze casts of larger than life-size botanical forms modelled in wax, 179–190 bronze casts of larger than life-size models by Höpner in Berlin" [UdK Archive, Historical Inventories, no. 19, pp. 12–16]. A list [UdK Archive, Historical Inventories, no. 18, no page ref.] documenting the bronzes in the so-called Meurer cabinets refers to more metalwork items from the Audit Catalogue D [UdK Archive, Historical Inventories, no. 17] received by the Institute in and after 1892. They include wrought-iron botanical details and probably three-dimensional representations of a lobster and a snake.

111 According to Nungesser/Stelzl, the two Sambucus bronzes (137 and 147) had such nameplates, although they were marked I and II, whereas the surviving plate is marked III. Cf. Nungesser/Stelzl inventory of the Karl Blossfeldt Collection (bronze casts), p. 1.


113 UdK Archive, fonds 7, no. 8, sheet 23 recto, item 4.
Three plants with a galvanoplastic metal coating have survived, although two are mounted on thin wooden boards and thus differ from those mounted on conical plinths (Fig. 33). One of these plants displays the adhesive label identifying the Munich company referred to above.

Fig. 34
H. Trautmann for Moritz Meurer: Leaf of an undefined plant, 1891/1892, galvanoplastic coating over natural form, 8.5 x 4.0 x 1.5 cm, UdK Archive, fonds 321, fragments, no. 3 (321-F3)

At least one of the surviving fragments in the University of the Arts collection was made by the galvanoplastic technique (Fig. 34). Perhaps it is one of the three leaves that Catalogue E records as being originally mounted on card.114

Fig. 35
Giovanni or C. Nisini for Moritz Meurer: Ophioglossum. Adderstongue. Sheet 1891/1892, bronze cast of botanical form, on wooden plinth, 30.0 x 5.0 x 6.5 cm, UdK Archive, fonds 321, no. 52 (321-52)

Fig. 36
C. Nisini for Moritz Meurer: Ecballium elaterium. Squirting cucumber. Section of stem with leaf and young fruit, 1891/1892, bronze cast of botanical on bronze plate, 7.0 x 24.5 x 12.8 cm, UdK Archive, fonds 321, no. 45 (321-45)

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114 "Catalogue E: 64.3 Leaves on card" (UdK Archive, Historical Inventories, no. 18, double page 113) and "Audit Catalogue E, 3 leaves (on card)" (UdK Archive, Historical Inventories, no. 19, p. 14 left).
As well as coating live plants, professional foundries were engaged to make casts of botanical specimens for use as teaching materials (Fig. 35–36). However, Meurer clearly preferred larger than life-size botanical models, which he illustrated in his publications and marketed as plaster casts through a "Catalog". They alone show the – often very small – botanical details on a scale that facilitates rendition of forms and structures in nature – the principle on which Blossfeldt, too, continued to base his work. In contrast to all the other ways of making teaching materials, however, the models were a product of art, similar to Meurer’s own drawings depicted in the Pflanzenformen plates. Blossfeldt, on the other hand, found that photography made it possible to realize enlargements by technical means and not only perfected the process but also created works that are still artistically valid today. The Acquisition and Audit Catalogue E shows that the bronze casts of the larger than life-size plants modelled in wax were made by the Nisini company in Rome, which also made the natural castings – which were signed by Giovanni and C. Nisini and – ultimately by Höpner in Berlin.

62 of the original 190 bronzes are made from models, the production of which took Karl Blossfeldt and Louis Heitsch to Meurer’s school in Rome in 1892. Meurer terminated his deal to procure teaching materials for the Institute in 1896, so this date can be taken as a terminus ante quem. There is also a record of which bronzes Moritz Meurer exhibited at the Berliner arts and crafts exhibition at Treptow in 1896. The inventory numbers of the 20 selected bronzes in the school’s possession range up to 173, as Meurer informs the Royal Arts and Crafts Museum Institute’s assistant director Fendler on 21 May 1896. However, an invoice dated 17 April 1894 from master saddler Ph. Sattrup, Wilhelmstraße 89, Berlin – who had mounted 100 bronze casts for the nature studies class on a base since February 1894 and had repaired parts of the many bronzes damaged during shipment to Germany – suggests that at least half of the bronzes were in Berlin at the beginning of 1894. Since those with metal plates did not need to be mounted on a base, the number of bronzes already in existence was more than 100. The oft-cited statement of costs for the nature study class in Rome lists the purchase of 31 + 6 bronze casts by Nisini for 1893, for which 1249 + 107 lira was paid.

The six bronzes can be identified by price as nos. 66–71 in the Catalogue E, the 31 as nos. 29–59, which were purchased straight after a collection of 22 bronzes and form a new group. So the bronzes 1–71 must have been made during the 1891/1892 academic year and the bronzes 72–190 afterwards, i.e. at some time between 1893 and 1896.

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Two of the modelled sculptures dating from the first academic year have survived (Fig. 37). The second is also listed in "Part I Plate 10" of *Meurer’s Pflanzenbilder* as being made by Blossfeldt.

The publication also offers the opportunity to attribute another sculpture clearly to Karl Blossfeldt – one published as "Part III, Plate 10" (cover picture). The last sculpture, no. 190, can be identified by the label in "Part V Plate 9" as being modelled by Louis Heitsch.

The authorship of three of the modelled sculptures in the University of the Arts collection is thus established.

5 Course documentation and students' work

5.1 Students' drawings

The University of the Arts collection also includes work by students on both Moritz Meurer’s and Karl Blossfeldt’s courses. Three sheets of botanical drawings by the sculptor Wilhelm Kruse can clearly be assigned to Karl Blossfeldt’s class because of their similarity to Blossfeldt photographs. Three of the plant studies drawn by Kruse can even be paired directly with specific photographic images, the rest can be juxtaposed with photo variants similar to the lost images that probably served as models.

The two finely detailed studies of a birthwort and a Canadian burnet (Fig. 39) can also be traced to specific models. In the case of the birthwort, this is a surviving original photograph in the University of the Arts collection (Fig. 38). The burnet is no longer known to exist as an original print but survives as part of Plate 71 in *Urformen der Kunst* (Fig. 40). In both plant studies, Kruse seems to have worked faithfully from the model; photograph and drawing bear a strong resemblance to one another.

The erased date on the second of Kruse’s three sheets suggests that the drawings date from 1909, a supposition underpinned by surviving teacher’s notes showing that Kruse attended Karl Blossfeldt’s class in 1908/09. Kruse returned to the Institute after the First World War but left it in 1923. So his drawing cannot have been pre-dated by *Urformen der Kunst*, which was not published until five years later; otherwise it would not have been in the Institute’s possession. The birthwort and Canadian burnet motifs both appear in working collage 51, where they form part, however, of Karl Blossfeldt’s personal work materials. Blossfeldt’s motives in putting together this selection of contact prints have been widely discussed but given the diminutive size of the plant images, it is highly unlikely that they were used in the classroom.

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128 Two of them were published by Thomas Steigenberger in "Karl Blossfeldt’s Ausbildung und Lehrtätigkeit und die Bedeutung Moritz Meurers für sein fotografisches Oeuvre", in: Konstruktionen von Natur, Amsterdam, Dresden, 2001, pp. 32–33.

129 A detail from the same negative showing only the lower leaf is published in the 1994 Kunstmuseum Bonn exhibition catalogue.

130 UdK Archive, fonds 7/310, sheet 103 recto.

131 Cf. Karl August Roth: "Der Bildhauer Wilhelm Kruse", in: Mecklenburgische Monatshefte. no. 132, 1935, pp. 651–654; Ateliergemeinschaft Klosterstraße
What is more likely is that Blossfeldt’s teaching materials around 1909 included an original photograph of the burnet from *Urformen der Kunst*, which Kruse could have taken as a model. The direct equivalence between datable student drawing and undated photograph – even down to the shadowing – makes it possible to say that the photographic images were created before 1909 – a conclusion that could not necessarily be drawn from the prints or the form of representation.132 Blossfeldt himself said it took time to make prints from his negatives but by around 1906 he had taken more than 1,000 photographs that he planned to use in the classroom.133

132 The photographs of the fungal herbaria, which have only been found as negatives, probably also date from this time, as Blossfeldt’s signature on them shows.

133 Blossfeldt’s letter of 11 April 1906 to the director of the Royal Arts and Crafts Museum (UdK Archive, fonds 7, no. 8, sheets 295-296).
So, as an indicator of the origin of a negative, print quality is useful only up to a point. For the third, highly stylized drawing on the sheet, it has not been possible to identify a direct model.

The second sheet of drawings by Wilhelm Kruse – previously dated 1909 at bottom right – shows another group of similar plant details (Fig. 42). A direct model has been identified for the tip of the twig of the wayfaring tree on the right (Fig. 43) but only a similar variant for the other one (Fig. 41).
Tips of twigs from the same shrubs are also found in various working collages (the two wayfaring twig tips in collages 23 and 24). No model has been identified for the ash shoot below.

Finally, the third sheet of drawings by Kruse shows a number of flowers (Fig. 45). Similar photographic representations of the iris are found in the Karl Blossfeldt Collection at the Berlin University of the Arts, one showing the same flower unmodified (Fig. 44), another dissected (Fig. 46). Kruse's drawings are also probably of one and the same flower, its outer leaves removed between the first and second sketch.

Fig. 44 Karl Blossfeldt: Iris species. Iris. Flower, n. d., gelatin silver print, 29.7 x 23.9 cm, UdK Archive, fonds 320, no. 122 (320-122)

Fig. 45 Wilhelm Kruse: Sheet of plant studies, 1908/1909, pencil on paper, 48.0 x 30.5 cm, UdK Archive, fonds 371, sculptor Wilhelm Kruse, no. 3

Fig. 46 Karl Blossfeldt: Iris species. Iris. Flower enlarged 4 times, n. d., gelatin silver print, 30.0 x 18.5 cm, UdK Archive, fonds 320, no. 199 (320-199)
There are no known Blossfeldt photographs of snowdrops such as those drawn by Kruse. The drawing at top right could possibly be the projection of a pressed snowdrop viewed from below.

This sheet, for which no direct Blossfeldt models have been identified, permits the presumption that Kruse also worked with fresh plants. Cut flowers could be drawn from different perspectives and gradually modified to suit his purpose – the snowdrop separated from its stem or the outer floral leaves of the iris removed to reveal the inside of the flower. Blossfeldt adopted this procedure when making his photographs and could also have used it in the classroom.

5.2 Photographs documenting work in the classroom

The University of the Arts has two photographs showing students working with the teaching materials discussed in this paper. The latter have been dated to 1920–1930 by Thomas Steigenberger and thus identified as a document of Karl Blossfeldt’s teaching career.

One of the photographs (Fig. 47) has a Telegraf stamp on the back and cites Bankhardt as the photographer. The Telegraf was a Berlin daily newspaper close to the SPD (Social Democratic Party of Germany), which went into publication in 1946 and had Alois Bankhardt on the payroll.

Fig. 47
Alois Bankhardt: Untitled, after 1946, gelatin silver print, 12.0 x 12.0 cm, UdK Archive, ref. 27/1999, no. 2

Fig. 48
Unknown photographer: Untitled, n.d., gelatin silver print, 8.5 x 13.4 cm, UdK Archive, ref. 27/1999, no. 1

134 Cf. Susanne Grebner: Der Telegraf, Entstehung einer SPD-nahe Lizenzzeitung in Berlin 1946 bis 1950, Münster, 2002. It has not yet been possible to conduct the extensive research needed to ascertain whether the photograph appeared in the issues published.
There is no record of a plant modelling class after the Second World War. What is certain is that the student on the right in the photograph is not holding up an original photo by Karl Blossfeldt but plate 14 from the Urformen der Kunst portfolio published in 1928, which is made from three different negatives. So even without the stamp on the back, the photograph could have been taken no earlier than 1928.\footnote{André Castrup of the AdsD (Archive of Social Democracy) Photo Request service at the Friedrich Ebert Foundation, where the photographic archive of the Telegraf is now located, concedes that it could be a reproduction of an older photo for the Telegraf.}

Urformen der Kunst featured a number of photographs presented on plates as diptychs or triptychs (Fig. 49); it also contained plates of different plant details fused into an ostensibly single image (Fig. 50). Angela Lammert has published mounted cards from the Karl Blossfeldt Archive/Ann and Jürgen Wilde that show what the proofs for Urformen der Kunst may have looked like. The montages in her article do not feature motifs that appeared in Urformen der Kunst but they illustrate the attempt to merge different prints into a single image, the result perfected in the print lithographs by retouching.

The second photograph (Fig. 48) offers no indication of its date of origin. The different format makes it probable that the photograph was not made at the same time as the first. The large herbarium on the desk in the foreground – probably one of the acquisitions in the 1910s, judging from its size – no longer exists. So the students drawing may well have been photographed before the war – and before the resulting loss of teaching materials – in one of Blossfeldt’s classes during the 1920s. The photograph shows that the herbaria, which sometimes have a metal strap at top centre, seem also to have had an additional support which enabled them to stand inclined on a desk, which explains the bevelled edges.

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In the later herbaria, Blossfeldt opted for a pyramidal design to make the cases easier to set up. Although it is not clear what kind of models the other two students in the photo are working with, they appear to be taking part in a botanical drawing class because there are also sketches of plants as well as wall charts showing acanthus and other ornamental plant details on the far wall.\footnote{Steigenberger claims also to recognize Blossfeldt photographs. Cf. Konstruktionen von Natur, Amsterdam, Dresden, 2001, pp. 31–32. This strikes me as just as difficult as saying for certain whether there is a freshly cut plant on the desk at the far left of the photograph. Wall charts like the ones in this photo can also be seen in a photograph of the Institute staff room published by Ann and Jürgen Wilde in Karl Blossfeldt. Urformen der Kunst, 3rd edition, Dortmund, 1985, p. 263. So it may well be Blossfeldt’s classroom.}

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Cover picture: