WMF Marks: Enigmas and Discoveries.

Stempel der WMF: Die Rätsel und Ihre Entdeckungen.

Dr. David N. Nikogosyan

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Note.

I use inside the text my own photos without mentioning the author.

3

Beginning of my WMF collection.

My former profession was physics. Between my skills, I especially liked the experiments with short laser pulses (of nanosecond, picosecond or even femtosecond duration) and nonlinear crystals. I obtained even more satisfaction while writing reviews and/or books on these topics, as another of my facilities was systematization. I liked to order the results, which belonged me, my colleagues and/or different authors. Between 1999 and 2005, I published a few books (in Germany, UK, USA and China), which are selling well until now. My latest hobby, which developed after my retirement, brought me to the systematization of the marks on silver-plated hollow ware and cutlery. It is not an easy work. It includes the collection of silver-plated articles (including its finding and cleaning), the photography of the pieces and their marks and the following systematization of the marks. I should emphasize that twenty-five years ago there was no computers and modern photo cameras without photo films. Now instead of making standard thirty-six photo images (per one photo film) we can produced practically an infinitive amount of electronically enciphered ones. The use of macroscopic cameras made very easy the photography of the marks, the measurements of their details and keeping all the information, e.g., inside PowerPoint presentations (see details of my methods in [1]). From the beginning, my interest was for the marks on silver-plated hollow ware products, issued by Austro-Hungarian firms (Arthur Krupp, Herrmann, Hacker and Szandrik); then I changed to the marks of French firms, such as Christofle and Armand Frenais (including cutlery products). After that, I have studied the marks of Polish/Russian firms, operating in Warsaw (Fraget, Norblin & Bracia Henneberg). Finally, I turned to the careful studying of marks on the products of German firms, such as August Wellner Söhne (from Aue), Bernhard Bohrmann (from Frankfurt/Main), Gebrüder Hepp (from Pforzheim) and WMF (from Geislingen).

My special interest in WMF marks originated from a trip to Hungary in 2005. Being in Veszprém, I visited a local antique shop and was attracted by a set of four beautiful Art Nouveau silver-plated tea glass holders. The owner of the shop asked only 40 US \$ for this set and I immediately purchased it. On the bottom of each tea glass holders there was a three-letter mark "W.M.F." and the model number "345". Returning back home (at that time Cork, Republic of Ireland), I looked through the full list of WMF marks, given inside the monograph of Annette Denhardt [2]. I didn't find any mark, corresponding to my Hungarian purchase. Inside this list of marks, it was stated that the first WMF mark, used in 1880-1925, consisted of the image of a running ostrich, set inside the rhombus with a two-line inscription WMF/G, which is in turn placed in a rectangle. Such a discovery made me very upset and, after some hesitation, I came to the sad conclusion that probably my Hungarian holders are not genuine, or, in the better case, a modern replica.



Fig.1. One of my "hungarian" tea glass holders.

Whatever happens, it is always for the best! With time I had realized that on ebay auctions there is a great number of silver-plated WMF items with marks similar to those on my Hungarian tea glass holders, that means containing the three-letter inscription "WMF", with or without dots, and in some cases the letters "M" and "F" were joined together. There are also additional letters, put after WMF, which refer to the metal for silver-plating: "B"- Britannia metal (containing tin), "M"- Messing (German term for the simple plating metal, brass in English) or "N"- brass metal with high value of nickel or nickel silver. Some of the items were dated by the 1890-1900 period. I sent a paper to American journal "Silver

Magazine", which was published in 2011 [3]. Later I found similar marks in online publications of silver plate collectors, e.g., in [4]. The extraordinary situation evolved: some WMF marks exist which have been well known to collectors, but somehow were ignored in the publications of serious art historians.



Fig. 2. The first "ostrich" mark, consisting of the image of a running ostrich, set inside the rhombus with a two-line inscription WMF/G, which is in turn placed in the fully-dashed rectangle. The mark was issued for silver-plated WMF items. I call it "ostrich A" mark.

The history of WMF - Württembergische Metallwarenfabrik (in English Wurttemberg Metal Factory), which operated in Baden-Wurttemberg in the end of the XIXth century - the beginning of the XXth century, is well known [2,5]. However, a similar conclusion does not refer to the WMF marks. My latest investigations [6,7] show that in the period 1880-1903 at least twenty-two hollow ware WMF marks and eighteen cutlery WMF marks (together with the marks on the WMF napkin rings) existed. We can compare my results with the list of marks, presented by Mrs. Annette Denhardt in her monograph (dissertation!) [2]. In her list of WMF marks, Ms. Annette Denhardt declared only one (!) mark for hollow ware silver-plated products used in 1880-1925, consisting of the image of a running ostrich, set inside the rhombus with the two-line inscription WMF/G, which is in turn placed in a lined rectangle. Such mark of course existed, but according to my studies [6,7] it was used only during the

period 1903-1910. Concerning cutlery marks, Annette Denhardt did not mention any mark for WMF cutlery, though even more than twenty of them existed in 1880-1903. Such poor results show that Ms. Annette Denhardt, like probably all art historians of her time, worked only in the libraries and/or in the archives and never touched the real WMF products.

A similar list of WMF marks could be found inside the introduction to the reprint edition of the 1906 English WMF catalogue, written by Graham Dry [5]. However, Mr. Graham Dry insisted that his list of marks was obtained from the WMF press office (?) and not from Ms. Annette Denhardt, though both lists are absolutely the same.

The absence of silver or only of its designation?

Two years ago, I decided to test the early pieces from my WMF hollow ware collection for the presence of silver. Though not every piece possessed a silver designation, the iodine test showed the presence of silver on the surface of the early pieces in more than 90 % cases.

Such result surprised me. However, it became less fascinating when I re-read the early history of the WMF company, presented in the introduction of Graham Dry [5]. The WMF factory appeared after the merging in 1880 of two companies. Daniel Straub & Son operated the first one, located in Geislingen, while the second one from Esslingen was operated by Alfred Ritter and Carl Haegele (the husband of Alfred Ritter's sister), who were known for their production of silver-plated goods. Daniel Straub became the first director of the WMF company; however, he soon retired (in 1881) and Carl Haegele, a great specialist in electrolysis, became the managing director of the WMF company.

I think that the absence of silver designation at the early stages of the company development allowed an economy of the precious metal. However, the WMF pieces, especially those produced in the 1895-1910 period sold very well because of their form and beauty. Due to the high quality of these WMF articles made in the mentioned period, they are very attractive even today.

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A significant mistake made by Graham Dry.

Inside Graham Dry's introduction, concerning the history of WMF [5], on the pages xx-xlvi (in Latin) or on the pages 22-46 (in normal counting) the photos of some WMF items were presented. However, nearly all chosen 36 pictures refer only to the WMF articles made in "Jugendstil style", in English "young style". Additionally, in English literature, the expression "Art Nouveau style" (the translation from French to English means "New Art" style) is often used. It seems that Graham Dry wanted to create the impression that, starting from 1880, the WMF factory immediately began with the production of "Jugendstil" articles. This probably supported Annette Denhardt declaration, that the first WMF "ostrich" mark (see Fig.2 above) for silver-plated hollow ware products appeared very early, immediately in 1880 [2]. However, this situation is far from the reality.

According to my studies, the early (1880-1892) products of WMF factory were made in the Rococo style and not in Art Nouveau style. It should be reminded, that indeed the Rococo style is rather old and appeared at around 1730 [8]. To demonstrate the use of this style in architecture, I include below the old French engraving from around 1750.



Fig.3. The engraving of Gabriel Huquier, called "Fancy Ornaments", was made between 1747 and 1750 from the drawing of Juste - Aurèle Meissonnier, France. Some architectural ornaments inside the engraving are similar to those on the early pieces from my WMF collection. However, for a long time the Rococo style was not used for the decoration of silver-plated hollow ware pieces, trays and cutlery, simply because the silver-plating, developed for mass production, was not yet introduced into practice. The first silver-plated pieces, made in Rococo style, appeared only in the middle of the XIX century, first in France, where silver-plated pieces began to be produced by the Christofle firm since around 1845 [9], later the same process was introduced in England.

It is easy to enumerate the main peculiarities, characteristic for the silver-plated WMF products, made in Rococo style [8]. They feature exuberant decoration, with an abundance of curves and counter-curves. The cartouche in the centre of the article usually represents the combination of curves and counter-curves.



Early "Rococo" WMF objects from my collection.

Fig. 4. A decorative dish, made between 1883 and 1886. The abandonment of symmetry and the abundance of curves and counter-curves are visible.



Fig.5. A tea glass holder, made between 1886 and 1892. The cartouche in the centre of the article and the handle of the holder consists of the combination of curves and counter-curves.



Fig.6. A tray, made in 1892-1895. Again the abandonment of symmetry.



Fig.7. A part of the carafe with the handle, made between 1892 and 1895. The handle consists of the combination of curves and counter-curves.



Fig.8. The knife of the fish set, made between 1895 and 1903. The engraving consists of the combination of curves and counter-curves.



Fig.9. A napkin ring, made in 1900. Again the cartouche consists of the combination of curves and counter-curves.

Together with the products in Rococo style, in 1880-1895 the WMF factory made also the hollow ware samples in English and French styles.



Fig. 10. A WMF coffee-pot, made in English style between 1892 and 1895. It possesses the typical double knob on the lid.



Fig. 11. A WMF coffee-pot, made between 1892 and 1895 with different spout and handle, though it again possesses the same double knob on the lid.



Fig. 12. Here I propose a proof of the English style of the previously shown coffeepot (Fig. 11), namely, the floral decoration. One can easily recognize the national Scottish flower, the thistle.



Fig. 13. A WMF teapot, made in French style between 1883 and 1886. Its decoration is similar to the decoration of the Christofle teapot; see the catalogue "Orfèvrerie Christofle. Tarif." [10], page 78, N°985.



Fig. 14. A WMF cream jug, made in French style between 1886 and 1892. Its decoration follows the Christofle cream jug with a different cartouche (see the catalogue "Orfèvrerie Christofle. Tarif." [10], page 107, N°16).

Let us generalize the situation of the WMF production during the first years of the factory existence. In the period 1880-1892 most of the production was made in Rococo style, the remaining part represented by English or French styles. The WMF production in Art Nouveau (or Jugendstil) style appeared only between 1892 and 1895. At the end of the XIX century, the Art Nouveau part of the WMF production became dominant.



Art Nouveau WMF items from my collection, issued in 1892 - 1903.

Fig. 15. The WMF creamer, made in Art Nouveau style between 1892 and 1898. Model No. 131, see 1906 WMF catalogue [5].



Fig. 16. A Jugendstil WMF fruit bowl, made between 1892 and 1898. Model No.518, see 1906 WMF catalogue [5].



Fig. 17. A Jugendstil WMF tray, made between 1898 and 1903. Model No. 208, see 1906 WMF catalogue [5].





Figs. 18, 19. Two WMF cake servers, made in Art Nouveau style between 1898 and 1903. According to the inscription, the upper server was issued before 1902.



Fig. 20. A Jugendstil WMF napkin ring, made between 1892 and 1895.

Which WMF mark was the first one?

In my previously published WMF mark studies [6,7], I started with the description of two three-letter WMF marks, one consisting of the WMF inscription with the letters M and F, glued together, and the other one WMF inscription, containing only the separate W, M and F letters. Recently, I found an important detail, which allows me to specify the earliest WMF mark.

Amongst my early marks, I found three marks (WMF), which were accompanied by the letter B (probably added later, as the distance between WMF and B letter is varying from photo to photo!), see first three photos on Fig.21 below. Further five photos keep a dot between WMF and B letter and look as they were made in one go. Attention! To the best of my knowledge, there is no combination of any other variations (W.MF or W.MF.) with the B letter.



Fig. 21. Early WMF + B marks. These marks refer to six different hollow ware pieces (vase, beaker, milk can, mug, sugar bowl and teapot) and two cutlery

items (cake services). The additional letter B refers to the transformation of the base metal for silvering into "Britannia metal" with a high tin content. Such metal is essential both for Rococo and Art Nouveau styles. The sans serif letters were used. All photos refer to my collection.

What is remarkable is that the left part always contains only the glued M and F letters. With high probability, this means that *the similar marks with the unglued letters*, M and F were not used at that time. I was very lucky to find between the studied items the three ones, which were dated 1883, 1885 and 1888. This allowed me to conclude that between 1880 and 1883 one and only WMF mark, containing the glued letters M and F, existed. It was used to mark hollow ware pieces, as well as cutlery pieces and napkin rings.

Peculiarities of the early WMF marks.

The early WMF marks share the property of using the same inscription (see presented on Fig.22 below the combination of three letters W, M and F with the two letters M and F, *glued together*), which is accompanied by the presence/absence of the dot/dots inside the WMF inscription.



Fig.22. The first WMF mark (the letters M and F are glued together) with four varieties. Sans serif letters were used.

One can see above the four varieties of the first WMF mark. However, if we add at the end of the WMF inscription another additional M letter (corresponding to the German word Messing, in English brass), we will already get 8 varieties of WMFM marks. If we will use WMF mark with the *unglued couple* of M and F letters in the WMF inscription, then we already will obtain 8 varieties of WMF marks. Finally, if we add at the end of the WMF inscription (again with the *unglued couple* of M and F letters) another M letter (corresponding to the German word Messing, in English brass), we will get even 16 varieties of WMFM marks.

The presence of such multiple variations caused the enormous amount of WMF marks (WMF Stempel) during the period 1880-1892, see below. Why was such a great number of varieties necessary? After prolonged thinking about this strange situation, I conjectured that these variations in the dot disposition inside the mark were probably used to designate the employees, working on the same items, but of course, with different productivity and quality. The use of such variations allows selecting the best workers and paying them their deserved benefit.

It should be noticed, that the "gluing" of M and F letters in the first WMF group of marks was not a discovery, made by the WMF factory. Such "gluing" was already used in the marks of the Austro-Hungarian Metal Factory in Berndorf, see a photo below.



Fig. 23. The mark of Berndorf Metal Factory, issued in 1873. In this concrete case, a serif font was used.

Main WMF marks in 1880 - 1903.

In my previous investigations, I was studying separately the WMF marks on hollow ware and cutlery. In the current investigation, I found that in the period 1880-1903 all the marks of hollow ware, cutlery and napkin rings correspond well to

each other. Therefore, I am considering together the WMF marks for the concrete period.

The main WMF marks in 1880 - 1892 period are:

1) WMF: "|", (hollow ware + cutlery + napkin rings), 4 possible varieties: WMF (1880 - 1886), W.MF, WMF. and W.MF. (1883 or somewhat earlier - 1886), all of them are present in my collection;

2) WMFB: with two boxes or with one box, "|", (hollow ware + cutlery + napkin rings), (8 possible varieties, 2 of them: WMF + B in two boxes or WMFB in one common box are present in my collection), 1883 - 1886;

3) WMFM: with the box (rare) and without the box (often), "|", (hollow ware + cutlery + napkin rings), (8 possible varieties, 4 of them: WMFM, W.MF.M, WMF.M. and W.MF.M. are present in my collection), 1883 - 1886;

4) WMFN: with the box (often) and without the box (rare), "|", (cutlery + napkin rings), (8 possible varieties, 4 of them: WMFN, W.MFN, WMF.N and W.MF.N are present in my collection), 1883 - 1886;

5) WMF: without the box, "|" (hollow ware + cutlery + napkin rings) (8 possible varieties, 2 of them: WMF and W.M.F are present in my collection), 1886 - 1892;
6) W.MF.B (often) and WMF.B (rare): with the box, "|", (hollow ware), 1886 - 1892;

7) WMFM, WMF.M, & W.M.F.M.: without the box, "|", (hollow ware + cutlery + napkin rings), (16 possible varieties, 3 of them are present in my collection), 1886 - 1892;

8) W.M.FN & W.M.F.N.: without the box (rare), "|" (hollow ware, cutlery + napkin rings) (16 possible varieties, 2 of them are present in my collection), 1886 - 1892;

9) WMF & W.M.F.: in oval with broken F, "|", (hollow ware, cutlery and napkin rings) for the export to Austria-Hungarian Empire, 1886 - 1892, see a special paragraph for the cooperation with foreign silver factories.

Nomenclature: the sign "|" refers to vertically standing mark letters (i.e., WMFM, W.M.F.N., etc.).

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Main WMF marks in 1892 - 1903.

During the next period the use of numerous varieties in main WMF marks was stopped. See below the list of the main WMF marks used in 1892-1903 period. The "GEISLINGEN" mark refers to the Geislingen factory of WMF company. It produced silver-plated hollow ware and cutlery pieces with an Alpacca (other names: Neusilber or Argentan) base.

1) WMFB: with the box, "|", (hollow ware + napkin rings), 1892 - 1898;

2) WMFB: without the box, "|", (hollow ware + napkin rings), 1898 - 1903;

3) WMF: as a derivative of WMFB without the box for small marks (may be also as a derivative of WMFM), "|", (hollow ware only), 1898 - 1903;

4) WMFM: without the box, "|", (hollow ware + napkin rings), 1892 - 1903;

5) W.M.F.N.: with the box, "/", (cutlery+ napkin rings), 1892 - 1895;

6) W.M.F.N. (rare) & WMFN (often), small mark (used in case of a space shortage), without the box, "/", (hollow ware), 1892 - 1903;

7) WMF.N (very rare), W.M.F.N (often), WMF.N. (often), W.M.F.N. (very often), WMFN (very often) & WMFN. (very often): without the box, "/", (cutlery), 1895 - 1903;

8) W.M.F.N.: inside the rectangle (rare), "|" (cutlery) (16 possible varieties, 1 of them is present in my collection), 1895 - 1903;

9) GEISLINGEN: with the box, "|", (hollow ware + cutlery), 1898 - 1903;

10) W.M.F.: inside the rectangle, "|", export to Austrian - Hungarian Empire (hollow ware, sans serif font, mainly without silver-plating, 1892 -1910, see a special paragraph for the cooperation with foreign factories;

11) A.K. & Cie, mark of Albert Köhler factory in Wien, which belonged to WMF, sans serif font, mainly for silver-plating, 1900 - 1910, see a special paragraph for the cooperation with foreign silver companies;

12) WEPCO or WMF or W.M.F.: with the box, "|", for export to the UK and/or to the USA (hollow ware + cutlery + napkin rings), serif font, 1892 - 1910, see a special paragraph for the cooperation with foreign silver factories.

Nomenclature: the sign "|" refers to vertically standing mark letters (i.e., WMFM, W.M.F.N., etc.); the sign "/" refers to inclined mark letters (i.e., W.M.F.N., WMFN., etc.).

The size of most important WMF marks, used in 1880 - 1903.

1) WMF, "|", (hollow ware + cutlery + napkin rings), (4 possible varieties: WMF, W.MF, WMF. and W.MF.)

The mean length of WMF mark for 12 hollow ware pieces is 3.4 mm, for 5 cutlery pieces 3.7 mm and for 6 napkin rings 3.3 mm. It should be noted, that the last dot was not included into the measurements of the length.

2) WMFM, without the box, "|", (hollow ware + napkin rings)

The mean length of WMFM mark for 9 hollow ware pieces is 4.7 mm and for 6 napkin rings 4.3 mm.

3) WMFN, small mark (used in case of a space shortage), without the box, "/", (hollow ware + napkin rings)

The mean length of WMFN mark for 11 hollow ware pieces is 4.4 mm and for 15 napkin rings 4.9 mm.

4) WMFN & WMFN., without the box, "/", (cutlery)

The mean length of WMFN & WMFN. marks for 32 cutlery pieces is 4.2 mm.

5) W.MF.B, with the box, "|", (hollow ware)

The mean length of W.MF.B mark for 11 hollow ware pieces is 5.5 mm.

6) WMFB, with the box, "|", (hollow ware and napkin rings)

The mean length of WMFB mark for 13 hollow ware pieces is 5.0 mm and for 2 napkin rings was 5.2 mm.

7) WMFB, without the box, "|", (hollow ware and napkin rings)

The mean length of WMFB mark for 16 hollow ware pieces is 5.0 mm and for 10 napkin rings was 5.0 mm.

Small WMF marks on hollow ware pieces

used between 1898 - 1903.

This short paragraph was written much later than the surrounding material. I was sure that all possible marks used by hollow ware pieces are already covered by my description. Suddenly, I found that there are two different marks (WMFB and WMF) on the same kind of blotter. After some thinking I understood, that the short mark took the place of the longer one.



Fig. 24. The earlier and later two marks used on the same type of blotters. Until now, I have collected seven such WMF marks on small hollow ware pieces. The mean length of WMF mark is 3.8 mm, the ratio (the length divided per height) is 2.8.

It is interesting to compare the three-letter later small marks with the earlier three-letter WMF marks on large hollow ware pieces, used in 1885 - 1892. In my collection, there are two types of such early marks. The first type of three-letter WMF marks on large hollow ware pieces possesses the mean length of WMF mark is 3.2 mm with the ratio 3.0. The second later type of three-letter WMF marks on large hollow ware pieces possess the mean length of WMF marks on large hollow ware pieces possess the mean length of WMF mark of 3.7 mm with the ratio 3.1, which agrees well with the dates of WMF marks on small hollow ware pieces.

About additional marks.

It is necessary to underline, that the main WMF marks were used together with secondary marks. Below I listed additional marks, collected by Annette Denhardt [2], as well as my new findings:

1) I will start with the reminding of the marks of the base metals. Annette Derhardt [2] mentioned the following metals for silvering: a) "M" (Messing in German, which means brass), b) "N" (Neusilber, which means artificial silver, Alpacca or Argentan), in reality it is also brass, but with a rather high level of nickel (~12 % [11]), c) "B" (Britannia metal, alloy with a high amount of tin) and d) "MB" (or "BM"), which refers to the double use of brass and Britannia metal.

Now we will discuss the results of measurements of the most important and often used marks of basic metals.

The "B" mark was used between 1903 and 1922. For hollow ware pieces, the "B" mark was set in the quasi-quadratic box. The mean dimensions of this box for 52 hollow ware pieces is 1.9 mm × 2.2 mm. In the case of napkin rings, the quasi-quadratic box for "B" mark was not used. The mean size of "B" mark for 7 napkin rings is 0.9 mm × 1.5 mm. The "N" mark was used between 1903 and 1930. For hollow ware pieces, the "N" mark was set in the quasi-quadratic box. The mean dimensions of this box for 10 hollow ware pieces is 1.9 mm × 2.1 mm. In the case of napkin rings, the quasi-quadratic box for "N" mark was not used. The mean size of "N" mark for 12 napkin rings is 0.9 mm × 1.2 mm. We could conclude that the data for "B" and "N" marks are practically identical.

It should be noted that the "M" mark was used mostly on cutlery pieces between 1903 and 1922. The "M" mark was set in the quasi-quadratic box. The mean dimension of this box is 1.6 mm × 1.8 mm for 8 cutlery pieces. Besides, I found the use of the "M" mark on hollow ware, namely, on large wine coolers, made from copper/brass with about 23 cm height. Such "M" mark possesses no quasi-quadratic box and its size is very large, 5.2 mm × 5.2 mm for 2 wine coolers.

Concerning the double use of brass and Britannia metal ("MB" or "BM" marks), I found, that in 1903 - 1910 the "MB" was mostly used, while after 1910 and up to 1930, the "BM" mark was used. In any case, the "MB"/"BM" inscription was set in a quasi-quadratic box. The mean dimension of the quasi-quadratic box for 4 hollow ware pieces in the case of the "MB" mark is 2.2 mm × 3.6 mm. The mean dimension of the quasi-quadratic box for 4 hollow ware pieces in the case of the "BM" mark is 1.7 mm × 3.2 mm.

I was lucky to discover the additional mark "K" (Kupfer, which means copper), which was absent in the Annette Denhardt list. It was used on hollow ware pieces between 1910 and 1922. The "K" mark was set in the quasi-quadratic box. The

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mean dimension of the box with the "K" mark for 7 hollow ware pieces is 1.6 mm $\times 1.7$ mm.

It is necessary to emphasize that often, instead of the "N" mark, the inscription "ALPACCA" appears both on hollow ware pieces and on cutlery. Such inscription was also absent in the Annette Denhardt list. Between 1903 and 1922, the inscription ALPACCA was set in the rectangle or used without the rectangle. The presence of the rectangle corresponds to the silvering of alpacca base, while the absence of the rectangle refers to the absence of silvering (except the napkin rings). For the hollow ware pieces, the mean dimension of the rectangle with ALPACCA inscription inside is 1.1 mm \times 6.2 mm (for 6 pieces) and the mean length of the inscription ALPACCA is 6.1 mm. For the cutlery pieces, the mean dimension of the box with ALPACCA inscription inside is 1.0 mm × 6.9 mm (for 5 pieces) and the mean length of the inscription ALPACCA is 6.4 mm. For the cutlery pieces without the silvering, the mean length is 6.6 mm (for 5 pieces). For the napkin rings (1 piece), the length of the inscription ALPACCA in the case of silvering is 6.2 mm. We should add that in some cases of silvered cutlery, the shortened inscription "ALP." could be used. Between 1922 and 1925, for hollow ware pieces the mean dimension of the rectangle with ALPACCA inscription is 1.1 mm × 7.0 mm (for 5 pieces) and the mean length of the inscription ALPACCA is 6.7 mm. We can conclude that the different data for the inscription ALPACCA are practically identical.

My last notice refers to the correction of two-letter "NS" inscription meaning. Such combination is used to mark the export WMF pieces. Its deciphering means "nickel silver" and not "Neusilber" as Annette Derhardt thought. The box with two letters "NS" inside or two letters "NS" only are used for marking the WMF hollow ware for export. The mean dimension of the prolonged box with the "NS" inscription inside is 1.5 mm × 2.8 mm (3 hollow ware pieces). The mean size of two "NS" marks itself is 1.5 mm × 2.1 mm (without the prolonged box). Fig.25 contains the photos of marks of base metals.



Fig. 25. The marks from my collection, referring to the base metals.

2) Now, we will discuss the marks "I/O" and "O", which are referring to the thickness of the silver layer. The sign "I/O" informs us about the normal thickness of silver layer, that means, it corresponds to 1 gram of silver [2], set

onto 1 dm² surface of base metal (usually, brass). The sign "O" informs the reader, that we are dealing with higher thickness of silver layer, which refers to 1.5 gram of silver [2], set onto 1 dm² surface of base metal (usually, brass). In literature there was also mentioned the "I" mark [5] (see the NOTICE before the INDEX of the CATALOGUE), which refers to the lowest level of silver thickness. However, during twenty years I never met such "I" mark.

Between 1880 and 1903, the hollow ware pieces, cutlery and napkin rings used the mark "I/O" without the box. The mean size of "I/O" marks for 47 hollow ware pieces is 1.8 mm × 2.2 mm. Between 1903 and 1910, the mark "I/O" for hollow ware pieces was set in a quasi-quadratic box, except the small hollow ware objects, which don't used any boxes. The mean size of the quasi-quadratic box for 45 hollow ware pieces is 2.0 mm × 2.5 mm. The similar (but smaller!) quasi-quadratic box for the mark "I/O" was used by the most part of cutlery. The mean size of the quasi-quadratic box with the mark "I/O" inside is 1.8 mm × 2.0 mm (for 14 cutlery pieces). The remaining part of cutlery continued to use the mark "I/O" without the box. The mean size of "I/O" marks for 3 cutlery pieces is 2.1 mm × 2.4 mm. The napkin rings for this period are practically absent.

Between 1910 and 1922, the hollow ware pieces were using the mark "I/O", which was set in a quasi-quadratic box, except the small hollow ware objects. The mean size of the quasi-quadratic box with the mark "I/O" inside is 2.1 mm \times 2.5 mm (for 32 hollow ware pieces). The similar quasi-quadratic box (but smaller!) with the mark "I/O" inside was used by a part of cutlery. In this case, the mean size of the quasi-quadratic box for 24 cutlery pieces is 1.6 mm \times 1.7 mm. The remaining part of cutlery (2 pieces) together with the napkin rings (23 pieces) continued to use the mark "I/O" without the box. The mean size of "I/O" marks for cutlery pieces and napkin rings is 1.5 mm \times 1.9 mm.

Finally, between 1922 and 1930 the mark "I/O" was used without the box on all kind of objects. The mean size of "I/O" marks for hollow ware (5 pieces) is 1.6 mm \times 2.3 mm, for cutlery pieces (5 pieces) is 1.5 mm \times 2.5 mm and for napkin rings is 1.3 mm \times 1.7 mm.

For export to UK (or USA) in 1892-1910 the WMF hollow ware and cutlery with the mark "I/O", set in the prolonged box, was used. The measured mean dimension of the prolonged box with the mark "I/O" inside for 7 hollow ware pieces is 1.5 mm \times 2.9 mm. For one cutlery piece, the prolonged box with the mark "I/O" inside is equal to 1.2 mm \times 2.5 mm. For one napkin ring, the prolonged box with the mark "I/O" inside is equal to 1.2 mm \times 2.5 mm. For one napkin ring, the prolonged box with the mark "I/O" is used without the box. The mean size of "I/O" mark for hollow ware (2 pieces) is 1.9 mm \times 2.3 mm. The mean size of "I/O" mark for napkin rings (2 pieces) is 2.0 mm \times 2.5 mm.

For export to Austro-Hungarian Empire in 1886-1892 period for both hollow ware pieces and cutlery the mark "I/O" was used additionally two symmetric triangles (or quadrangles).

The mark "O", due to higher percentage of silver, is rarer. In my collection there are only 37 marks with "O" mark compared with 362 marks with "I/O" mark. These data, obtained for WMF objects, including hollow ware, cutlery and napkin rings, were issued between 1880 and 1922. By the way, while enriching my collection, I never select specially objects with the marks "O" (or "I/O").

Between 1880 and 1903, the mark "O" for the hollow ware pieces, cutlery and napkin rings was used in two different cases: the "O" letter set in a rhomb (very often) or in a quasi-quadratic box (rare). Once I purchased a napkin ring with only the "O" letter, see the photo below. For hollow ware, the mean size of the rhomb for 10 hollow ware pieces with the "O" mark is 1.7 mm × 3.0 mm (for 10 pieces). For cutlery and napkin rings, the mean size of the rhomb is smaller, 1.4 mm × 2.4 mm (for 10 cutlery pieces and napkin rings, both with the "O" mark). The mean size of the quasi-quadratic box with "O" mark inside is 1.6 mm × 1.6 mm (for 2 hollow ware pieces). The mean size of the quasi-quadratic box with "O" mark inside is slightly larger, 1.6 mm × 1.8 mm (for 2 cutlery pieces). Between 1903 and 1922, the mark "O" was used either with a prolonged box (for hollow ware) or in a rhomb (for cutlery). The mean size of the prolonged

box with "O" mark inside is 2.1 mm × 2.9 mm (for 3 hollow ware pieces). The mean size of the rhomb with the "O" mark inside for 7 cutlery pieces and 1 napkin ring is 1.3 mm × 2.3 mm. Finally, the double prolonged box was used for export to the UK (or USA) in 1892-1903 for cutlery pieces.





Fig. 26. Typical marks of silver from my collection, used between 1880 and 1922.

3) Marks "OX" and "aS" were used to specify the procedure of silvering [2]. These marks are associated with the artificial change of colour of silver coating from the greyish (mark "OX", so-called, oxidized silver finish) to very dark (nearly black) grey (mark "aS", so-called, antique silver finish). The reason for such artificial darkening is that the WMF pieces were often issued together with glass inlets (e.g., centrepieces for the table), or were used with the glass (e.g., tea glass holders), and the darkened silver coating goes perfectly with the glass. In connection with the preceding, it is very regretful to reveal that many WMF pieces with the darkened silver coating were ruthlessly polished up to a full glitter by ignorant antiques dealers/ebay sellers, effectively "killing" the genuine appearance.

My measurements of both marks "aS" and "OX" brought similar results. Between 1880 and 1903, the mean size values for hollow ware pieces were 1.6 mm × 2.3 mm for the "aS" mark (31 pieces) and 1.4 mm × 2.3 mm for the "OX" mark (11 pieces). For napkin rings we got the similar results: 1.5 mm × 2.2 mm for the "aS" mark (9 pieces) and 1.5 mm × 2.3 mm for the "OX" mark (19 pieces). I have in my collection only two cutlery pieces, one with the "aS" mark and other with the "OX" mark. Nevertheless, their measurements agree with the previous ones: 1.4 mm × 2.3 mm for the "aS" mark and 1.6 mm × 2.3 mm for the "OX" mark.

Now about the results between 1903 and 1922. Here both marks, the "as" and the "OX" are set in a quasi-quadratic box. The mean size of the box for 20 hollow ware pieces with the "as" mark is 2.1 mm × 2.4 mm. Notice that the "as" mark

disappears after 1907. The mean size of the box for 47 hollow ware pieces with the "OX" mark is 2.0 mm × 2.4 mm. Again, we see the similarity of results. The use of the "OX" mark continues until 1922. After 1910, a part of the "OX" marks is used without a quasi-quadratic box. The mean size for 15 hollow ware pieces with the "OX" mark is 1.4 mm × 2.1 mm.

In the 1892-1895 period for export to UK (or USA), the WMF hollow ware pieces with the mark "OX", set in the prolonged box, was used.



Fig. 27. Typical marks "as" and "OX" from my collection, used between 1880 and 1922.

4) There are five additional marks [2], used to specify the kind of coating for base metal by "gold-looking" film. From these marks the most usual is the "ig" mark, which means the internal coverage of the article with "gold-looking" film.

The mark "gg" (entirely covered) is frequent. Two marks: "zg" (fancy covered) and "go" (partly covered) are rather rare. The remaining mark "bg" (base covered) is extremely rare. In my collection, there are 6 pieces with the "ig" mark, 4 pieces with the "gg" mark, 4 pieces with the "zg" mark, 2 pieces with the "go" mark and only one piece with the "bg" mark. According to the calendar, the discussing marks from my collection were used thirteen times between 1892 and 1903 and four times between 1903 and 1910. Before 1903 these marks were used without the box, after 1903 they were set in a quasi-quadratic box. These additional marks were very rare used for cutlery.

It should be also underlined, that during the translation of the Denhardt list of the additional marks [2] to the list given inside the introduction of Graham Dry [5] (from German to English) an annoying mistake was made. From this translation the reader could understand that the coating with pure gold has taken place, though only gold-looking film was used.



Fig. 28. Typical marks to specify the coating with "gold-looking" film.

5) A special mark "rosette". In 1895 - 1903, it was used both on hollow ware (4 pieces) and on napkin rings (2 pieces). The mean size of "rosette" mark for 3 hollow ware pieces is 2.1 mm × 2.3 mm. The "rosette" mark on small hollow ware piece has a size of 1.4 mm × 2.1 mm. The mean size of "rosette" mark for remaining 2 napkin rings is 2.0 mm × 2.3 mm. During 1903 - 1910, the "rosette" mark is set in the quasi-quadratic box and was set only on hollow ware. The mean size of quasi-quadratic box with the "rosette" mark inside for 10 pieces is 2.0 mm × 2.1 mm. Finally in 1910 -1922, the "rosette" mark was set in the quasi-quadratic box mean size is 2.2 mm × 2.3 mm) or was used without it (1 small hollow ware piece and 2 napkin rings, mean size is 1.6 mm × 1.8 mm). Probably, this sign refers to the high quality of the object.

Attention. This additional mark was never used for cutlery!



Fig. 29. Typical "rosette" marks.

6) A special reject mark, consisting of the single "A" letter, see below. In my collection there are four rejected silver-plated hollow ware pieces marked with the "ostrich A" mark and produced between 1892 and 1910: one teapot 14.2 cm high, one sugar bowl 6.2 cm high, one milk can 6.9 cm high and one bonbon dish 13.8 cm in diameter. The mean size of the "A" letter in the case of these four pieces is 1.9 mm × 2.4 mm. I also have a rejected non-silvered dish of 30 cm × 36 cm size, issued between 1930 and 1935, with the value of "A" letter 1.4 mm × 1.7 mm. Finally, I possess two rejected silver-plated spoons, 18.4 cm and 25.9 cm long, made between 1922 and 1925. The mean size of the "A" letter for these silver-plated spoons is 1.2 mm × 1.3 mm. It should be noticed that such "A" letter mark can take up any position relatively to the concrete WMF mark.





Fig. 30. Typical reject marks and their position to the concrete WMF mark.

7) Now, I will discuss another additional mark, which was not mentioned by neither Annette Denhardt nor Graham Dry. It was used around 1900 on WMF silver-plated objects of all kinds: hollow ware, cutlery and napkin rings [6,7]. I called it the "centenary mark". It consists of the antler with four horns set inside the rectangular box, see Fig.31 below. The size of the rectangular box varies between 0.9 mm × 1.8 mm and 1.7 mm × 3.0 mm. The mean value of the rectangular box is 1.2 mm × 2.7 mm for 37 boxes. It should be emphasized that

such an "antler box" is a small part of the coat of arms, referring to the kingdom of Württemberg (in English Wurttemberg), which was used between 1817 and 1922 [12].



Fig. 31. Typical "centenary marks".

The centenary mark was added to the following WMF marks:

- a) WMFN (often) & W.M.F.N (very rare): without the box, "/", (hollow ware).
- b) W.M.F.N (rare), W.M.F.N. (often) & WMFN (very often): without the box, "/", (napkin rings);
- c) GEISLINGEN: with the box, "|", (cutlery);
- d) WMF (rare) or W.M.F. (often): with the box, "|", for export to the UK and/or to the USA (hollow ware + cutlery + napkin rings).

8) There are other numerous additional marks, used mostly between 1915 and 1930. I will discuss them later.
The famous "ostrich A" WMF mark.

Between 1880 and 1903, the same WMF marks were used for the hollow ware, cutlery and napkin rings. After 1903, the marks for hollow ware and for cutlery with napkin rings became drastically different. Therefore, I decided to describe the following WMF marks for each part separately. I will start with the description of the peculiarities inside the marks of hollow ware WMF pieces, beginning from 1903. Besides silver-plated WMF pieces, which dominated until 1925, I will discuss the marks of the hollow ware pieces produced from copper and/or brass (without silvering!) in Mayer atelier from 1903 until 1910. Then I will write about the WMF move to the production of kitchen accessories (Geschirr in German) and describe the marks for non-silver products. After that, I will present the marks of WMF cutlery, which dominated on the market since 1925. Separately, I will describe the peculiarities of the marks on the WMF knives. I will finish with the discussion of the napkin rings marks, which from 1903 were identical to the cutlery marks and from around 1925 became similar to the hollow ware marks. All my investigations continue up to 1945.

Now, we will return to the beginning of the XXth century. In 1903, all the WMF marks, used on silver-plated hollow ware, were replaced by the ostrich image together with the two-line inscription WMF/G, set in the rhombus, which is further placed inside a dashed rectangle (see Fig.32 below). I call this mark the "ostrich A". The mean size of the "ostrich A" mark is 3.8 mm × 4.4 mm, measured for 47 hollow ware pieces (with trays) in my collection.

It is widely accepted [2,5], that the choice of the ostrich image for the WMF mark could be explained by the consonance between the name of one of WMF founders (Straub) and the German name of the ostrich (Strauss). From the other side, the similarity between the GALLIA mark (developed by the French foundry "Manufacture de l'Alfénide", a division of the famous Christofle and used in 1900-1920) and the WMF ostrich mark was never mentioned. Indeed, this French firm produced very successful silver-plated items in "Art Nouveau" style ("Jugendstil" in German) and, like WMF, it used a tin-containing alloy as a base metal for silvering [13,14].



Fig.32. The goat mark of silvering, used by "Manufacture de l'Alfénide", Paris, France in 1900-1920 (*left*) and the famous "ostrich A" mark, used by WMF in 1903-1909 (*right*).

Concerning the date of "ostrich A" mark appearance, I have strong evidence that the corresponding mark ("ostrich A") appeared exactly in 1903 and not in 1880, as was stated before in literature [2,5]. Such a statement is supported by the following data:

1) I possess two advertisements, devoted to silver-plated Argentan metal (or Alpacca metal) WMF products, both hollow ware and cutlery (the photos of the ads are given in [7]). These ads were issued in 1898 and in 1903. Therefore, the production of WMF silver-plated items in Geislingen started in 1898 and continued at least until 1903.

2) I have collected two dated silver-plated WMF hollow ware products with the GEISLINGEN mark, among them are a tea cup, dated 1899, and a 0,3 L teapot, dated 1901. In addition, I possess two 20 cm long GEISLINGEN silver-plated forks, each hand-dated with 14.11.1902.

3) I purchased a decorative silver-plated vase with the WMFM mark and dated 31.07.1903, see the photo below. So, the production of items with WMFM mark also continued until 1903. See the corresponding photo below.

4) After a decade of continuous search, I finally bought a small beautiful beaker with the "ostrich A" mark, dated 1903, see the corresponding photos below.



Fig.33. A photo of WMF decorative silver-plated vase with corresponding main mark and secondary ones, dated 26-31 July 1903.



Fig. 34. A photo of WMF beaker with main "ostrich A" mark and additional secondary ones, dated 1903.

I also possess in my collection a number of WMF hollow ware pieces, bearing the ostrich mark and dated 1904 (twice), 1905, 1906 (twice), 1907 (four times), 1908 (twice). I also have in my collection two WMF cutlery pieces, dated 1909. Between them a ladle of 30 cm length, dated 24.12.1909 and a knife of 25.3 cm long, dated 08.10.1909.

According to [2], the next ostrich mark for silver-plated hollow ware items (the image of ostrich together with the two-line inscription WMF/G, set in the rhombus, which is further placed inside a fully-dashed arch) was introduced on the 1 July 1909. This data, revealed by Annette Denhardt, agrees well with my deductions. Summarizing all the above-mentioned information, I can conclude that the first WMF ostrich mark appeared in 1903 (after July) and was used until 1 July 1909.

Cooperation with foreign factories. I. Warsaw silver companies. Using the Internet, I am receiving many letters with the photos of different marks on silver-plated and no-silver objects. Usually, the authors are asking to date their objects and to explain the marks. Sometimes, I am getting a real treasure. At the end of 2017, I received an e-mail from Marylin S., USA, with the request to date the bowl of her grand grandmother who emigrated from Russia.





Fig. 35. The silver-plated bowl with two marks: "W.M.F." and "GALW:"

The most important for dating is the box with the "GALW:" inscription, which was often used between 1873 and 1883 by the Russian/Polish firm Bracia Henneberg (which means in English Brothers Henneberg) [15, 16]. The

inscription "GALW:" is the shortening of the Polish word GALWANIZACJA (in English GALVANIC PROCESS), which means silver deposition at high voltage). The mark shown below contains the inscription "B. HENNEBERG" (a short form of Bracia HENNEBERG), together with information on the factory location (inscription "WARSZAWA") in the oval with an 8-petal rosette in the centre. The "N" letter inside a cartouche of fancy shape as well as the inscription "GALW:", made with a sans serif font, refer to different amounts of deposited silver.



Fig. 36. The full mark of the firm Brothers Henneberg with some details, used between 1873 and 1883 [15, 16].

Returning to the bowl of Marylin S., USA, with the two marks: "GALW:" and "W.M.F.", it could be dated within the period 1883 - 1886. Interestingly, the second mark on the bowl, the inscription "W.M.F.", simultaneously could be deciphered as Warsaw Metal Factory and additionally as Wurttemberg Metal Factory.

The next continuing WMF cooperation with another Warsaw metal factory started in 1886. Roman Plewkiewicz from Warsaw together with Carl (or Karl) Haegele from WMF organised a joint company. WMF brought their objects in base metal to Warsaw, where they were silver-plated and after that sold on the extensive market of the Russian Empire. I will give two examples of the marks, used by the factory of Roman Plewkiewicz. First, we will discuss the normal mark on the bottom of the sugar bowl (WMF No.345).



Fig. 37. The sugar bowl, the full mark of the firm Plewkiewicz and the number of the WMF object. The photos are from literature (ebay).

The full mark on the sugar bowl contains the inscription PLEWKIEWICZ W WARSZAWIE (in English Plewkiewicz in Warsaw), set in the oval, then the B mark in quasi-quadratic box (B means Britannia metal), and at the end the 1/O sign, which is equal to the German original I/O sign.

Second, we will discuss the small mark (because shortage of place) for the candlestick (WMF, Model No.325).



Fig.38. The candlestick from my collection, with the small mark of the firm Plewkiewicz in Warsaw and the number of WMF object.

The small mark on the candlestick contains two inscriptions: PLEWKIEWICZ and WARSZAWA (in English Plewkiewicz and Warsaw), the silver layer 1/O sign, which corresponds to the German original I/O sign, and at the end the B metal mark without any box. The length of the two inscriptions, PLEWKIEWICZ and WARSZAWA, are 10.9 and 10.7 mm, correspondingly. The size of the 1/O sign is 2.4 mm × 2.3 mm and the size of the B metal mark (Britannia metal mark) is 1.4 mm × 2.2 mm.

The next topic, concerning the WMF cooperation with the Roman Plewkiewicz firm, is the triangle below, which was referred by the two authors Annette Denhardt [2] and Graham Dry [5] for the period 1886 - 1914.



Fig. 39. A fictive triangle [2], [5], which was referred to Plewkiewicz and Co.

Instead, I am proposing two following real triangles, used by the B.Buch company.



Fig. 40. A real triangle, which I refer to the B.Buch company (in English Brothers Buch) in 1883-1893 period [17]. Under the top is a sixth-pointed Star of David.



Fig. 41. A real triangle, which I refer to the B.Buch company (in English Brothers Buch) in 1893-1915 period [17]. Under the top is a five-pointed star.

My arguments.

1) A fictive triangle shows the WMF inscription instead of the W.M.F. inscription on real triangles. The W.M.F. inscription on the real triangles means only Warsaw Metal Factory and is not related to WMF.

2) On Fig. 39, at the top of the fictive triangle, there is a star with the eight rays. On Fig. 40, at the top of the real triangle, there is a six-pointed Star of David. On Fig. 41, at the top of the real triangle, there is a five-pointed star. This gives us the evidence that both authors [2], [5] never worked with real objects.

3) Finally, near the real triangles there is always the inscription of B.Buch company (in English Brothers Buch) and no traces of Roman Plewkiewicz.

I am strongly against such "irresponsible ideas"!

Cooperation with foreign factories. II. Export to Austro-Hungarian Empire and German Company in Vienna.

From the early beginning, WMF exported its production to the neighbouring Austro- Hungarian Empire. We can divide this export into two periods:

In 1886 - 1900, all export goods were produced in Wurttemberg. In 1900, WMF additionally acquires the Albert Koehler factory in Wien and used it until 1910.

Below I will show one of the most beautiful WMF marks: the WMF inscription in oval with the broken "F" letter. Such mark was used in 1886 - 1903 for the export products to Austro-Hungarian Empire. I will give examples for hollow ware objects, cutlery and napkin rings.





Fig. 42. A tray in Rococo style, marked with the WMF inscription inside the oval. Notice the broken upper part of the "F" letter.



Fig.43. A decorative fish fork, also in Rococo style, marked by the WMF inscription inside the oval and the additional silver mark "I/O" with two symmetric triangles. Again, notice the broken upper part of the "F" letter.



Fig.44. A napkin ring with a monogram "FREDERIC", marked by W.M.F. inscription inside the oval and the additional silver mark "O" without any rhombus (!). Again, notice the broken upper part of the "F" letter.

Now, I will present the results of the oval measurements with WMF (later W.M.F.) inscriptions inside. I possess only three hollow ware products and the mean size of the three ovals is 1.7 mm × 2.7 mm. Opposite, I have collected 9 cutlery pieces with mean oval size of 1.6 mm × 3.0 mm. Finally, my only single napkin ring has the oval size of 1.5 mm × 2.8 mm.

Now we will move to the next period 1903 - 1910. First, we will discuss the new marks on WMF hollow ware Wurttemberg products.



Fig. 45. A fruit bowl (above), No.645g, made before 1910, marked by W.M.F. inscription, set inside a rectangle. A vase support (below at the left) and an oil jug (below at the right) together with their marks below (semi-rectangles with W.M.F. inscription inside).

Here I am presenting the results of my measurements of the rectangle with W.M.F. inscription inside. In my collection, I possess 12 hollow ware products with rectangles. The mean size of a rectangle is $1.3 \text{ mm} \times 5.7 \text{ mm}$. In addition, I have measured the mean length of W.M.F. inscription (w.l.d. or without last dot). The measured mean length is 4.9 mm.

We will continue the discussion of the marks on WMF cutlery pieces, used in the same period 1903 - 1910. However, I possess only two marks, see below.



Fig. 46. The 21.7 cm long silver-plated spoon (90 grams of silver for 24 spoons) with its mark above (a rectangle with W.M.F. inscription inside + 90) together with the 18.5 cm long silver-plated fork (60 grams of silver for 24 spoons) with its mark (a semi-rectangle with W.M.F. inscription inside + 60) below. The values of W.M.F. inscription (w.l.d.) are 3.8 mm in both cases.

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In 1900 WMF purchases the factory of Albert Koehler in Vienna. There were two slightly different marks used by Albert Koehler. First, Albert Koehler used the English variant of the mark, namely, "K & C^o" (abbreviation of "Koehler & Company"). Though, from 1st January of 1907, the French variant of the mark, namely, "A.K. & C^{ie}" was used.

In my collection, I have 3 products of Albert Koehler & Company with the English variant of the Albert Koehler mark "K & C^{0} " (abbreviation of "Koehler & Company"). I will show two of them, starting with the tongs, made in Rococo style. Below the corresponding mark is presented.





Fig.47. The 14.8 cm long tongs, produced by Albert Koehler & Company between 1900 and 1906 with the mark "K & C ^o" (abbreviation of "Koechler & Company"). The size of the mark "K & C ^o" is 1.1 mm x 3.9 mm. The "N." letter is probably connected with the use of the "N" mark or "ALPACCA", see above "About Additional Marks".

Next, I will demonstrate the 10.5 cm high beautiful jardinière, made in Jugendstil style. About Jugendstil (Art Nouveau style), see below the text on page 141.



Fig.48. The 10.5 cm high beautiful jardinière, produced by Albert Koehler & Company between 1900 and 1906 with the mark "K & C °" (abbreviation of "Koehler & Company"). The size of the mark "K & C °" is 1.9 mm x 4.8 mm.

From 1st January of 1907, the French variant of the mark, namely, "A.K. & C^{ie}" (abbreviation of the French inscription "Albert Koehler & Compagnie") was used. In my collection, I possess 4 products with the inscription mark "A.K. & C^{ie}".

First I will show a "smoker's companion", which consists of a match holder, and two open pots. Each piece in this "companion" is decorated in Jugendstil style. The whole "companion" is attended by one mark "A.K. & C $\frac{ie}{2}$ ".



Fig. 49. A "smoker's companion", produced between 1907 and 1910 with the mark "A.K. & C^{ie}" (abbreviation of the French inscription "Albert Koehler & Compagnie"). The size of the mark "A.K. & C^{ie}" is 1.5 mm x 7.7 mm.





Fig. 50. A tea glass holder No.345 from WMF with the mark "A.K. & C^{ie}" (abbreviation of the French inscription "Albert Koehler & Compagnie"). The size of the mark "A.K. & C^{ie}" is 1.6 mm x 8.0 mm.

Finally, we discuss the WMF silver-plated cake server, produced and silver-plated in Vienna.



Fig.51. A WMF cake server, made and silver-plated in Vienna, with the corresponding mark "A.K. & C^{ie}". The size of the mark "A.K. & C^{ie}" is 1.6 mm x 7.9 mm. The full name of the abbreviation is the French inscription "Albert Koehler & Compagnie" plus the "N." letter, which was probably connected with the use of the "N" mark or "ALPACCA", see above "About Additional Marks".

Now, my results about the mean size of the "A.K. & C^{ie}" marks. For my 4 products the mean size is 1.6 mm \times 7.9 mm.

Cooperation with foreign factories. III. WEPCO (later WMF) company in London, UK.

In 1892, the shop WEPCO (Wurttemberg Electro Plate Company, later WMF) has been opened in London. However, though at that time other French and German silver companies (Christofle, Armand Frenais, August Wellner and Sons, B.Bohrmann Successor Company, Brothers HEPP and others) obtained worldwide recognition, only the products of WMF factory were well known in the United Kingdom (UK).

We can easily divide the time after 1892 into three periods: In 1892 - c.1895, the shop WEPCO sold the WMF products (hollow ware + cutlery), under WEPCO mark. In c.1895, the shop WEPCO sold the WMF products (hollow ware) without WEPCO mark. In c.1895 - 1910, the shop WEPCO sold the WMF products (hollow ware + cutlery + napkin rings) under WMF mark.

Immediately appears a question: are all of the products, sent from Wurttemberg to London, silver-plated in London or only a part of them? In my collection, there are 8 WMF products with the WEPCO marks and without WEPCO marks. From these eight products, 4 were bought in UK and 4 in Germany. That means, during 1892 - 1895 about 50% products were silver-plated in Wurttemberg and the same number of products were silver-plated in London. During c.1895 - 1910 amongst 56 products with WMF marks, 19 were bought in UK and 37 in Germany. According to my collection, that means about 67% products were silver-plated in Germany and remaining 33% products were silver-plated in London.

Now we will discuss the WEPCO marks, used in 1892 -1895. It is really difficult to find the objects with the WEPCO mark. In my collection, there are only four hollow ware pieces and two cutlery ones. I also will use some photos from the literature (ebay). Recently, I found probably the earliest type of WEPCO mark. It consists of four separate pieces, which organize together the word WEPCO.



Fig. 52. The oldest WEPCO mark, consisting of four separate pieces.



Fig.53. A fruit basket, sold by the WEPCO shop in London. The general mark consists of the mark "WEPC<u>O</u>" (abbreviation of "Wurttemberg Electro Plate

Company") inside the semi-rectangle, mark "EP" (abbreviation of "Electro Plate") inside the semi-rectangle and the additional mark "ig".



Fig.54. Next mark "WEPC<u>O</u>" (abbreviation of "Wurttemberg Electro Plate Company") contains the increased size of "<u>O</u>" and the mark "EP" (abbreviation of "Electro Plate") inside the rectangle.





Fig.55. A centrepiece with a new "WEPCO" mark. It differs from the previous one with the new word "WEPCO" instead of "WEPC<u>O</u>" and with the location inside the long rectangle with the triangle endings. Additionally, it contains the marks "EP" (abbreviation of "Electro Plate") and "NS" (abbreviation of Nickel Silver).



Fig. 56. A small tray with "WEPCO" mark inside the long rectangle with the triangle endings. Additionally, there are the marks "EP" (abbreviation of "Electro Plate") and "I/O" (additional mark for silvering).



Fig. 57. An ink stand with the "WEPCO" mark inside the long rectangle with the triangle endings. Additionally, there are the marks "EP" (abbreviation of "Electro Plate"), "I/O" (additional mark for silvering) and "OX" (abbreviation of oxidized silver finish).



Fig.58. Finally, another "WEPCO" mark together with marks "EP" (abbreviation of "Electro Plate"), "NS" (abbreviation of Nickel Silver) and "I/O" (additional mark for silvering).

Finishing the discussion of the "WEPCO" mark, I will present some results of my mathematical studies. The mean size of "WEPCO" box for 6 pieces (4 hollow ware and 2 cutlery) is 1.5 mm × 7.5 mm. The mean length of the WEPCO word is 7.2 mm.

Now we will discuss the intermediate marks, used in c.1895. They do not include neither "WEPCO" mark, nor new mark, which was probably not yet established. In my collection, there are only two pieces, which will be shown below. I will also add a couple of literature photos.



Fig. 59. A sugar basket with two marks "EP" (abbreviation of "Electro Plate") and "NS" (abbreviation of "Nickel Silver" or Alpacca).



Fig. 50. A bowl with marks "EP" (abbreviation of "Electro Plate"), "NS" (abbreviation of "Nickel Silver" or Alpacca) and "I/O" (mark for silvering).



Fig.61. A similar set of marks, taken from literature: "EP" (abbreviation of "Electro Plate") and "NS" (abbreviation of "Nickel Silver"), but with higher level of silvering ("O" in a rhomb instead of "I/O").



Fig.62. The next set of marks: mark "EP" (abbreviation of "Electro Plate"), mark "NS" (abbreviation of "Nickel Silver" or Alpacca), "I/O" (mark for silvering) and mark "aS" (abbreviation of antique silver finish).

My accurate reader probably took notice that the marks "EP" and "NS" were used very often inside the WEPCO mark. At the same time the marks "EP" and "NS" are absent on internal German WMF marks. Why? The answer is very simple. The combination "EPNS" (electro plate nickel silver) was already often used on English silver-plated objects, so the appearance of the marks "EP" and "NS" was used as the best advertisement. See the photo of the coffee pot from my English collection and the corresponding mark below.



Fig.63. An English coffee-pot from my collection with "EPNS" mark.

Now we will discuss the WEPCO marks, used after c.1895 and before 1910. Instead of WEPCO mark, the inscription WMF (or W.M.F.) was used, made by serif font, for the export to the UK and/or to USA.

Below, we will show the main "WMF" (former "WEPCO") marks, consisting of W.M.F. (or WMF) mark (always inside the box), "EP" and "NS" marks (always inside the boxes), "OX" and "as" marks - abbreviations of oxidized or antique silver finish (mostly, inside the boxes) and the additional silvering mark (only "I/O", with and without the box). Some unimportant marks, i.e. a model number or volume for jugs, cans and pots, were removed from my consideration. As a result, such consideration brought me to 15 marks, used in 1895 - 1910. Only two marks were taken from literature, all other originate from my collection.





Fig.64. A W.M.F. coffee-pot, made in English style, with a simplest mark W.M.F. inside the box. It possesses the typical double knob on the lid.



Fig.65. A WMF coffee-pot with two marks: 1) W.M.F. mark inside the box; and 2) "EP" (abbreviation of "Electro Plate") mark, also inside the box.



Fig. 66. A WMF sculpture with a naked woman going to swim with a serpent. Three marks: 1) WMF mark inside the box; 2) "EP" (abbreviation of "Electro Plate") mark inside the box; and 3) "OX" mark (abbreviation of oxidized silver finish).



Fig.67. A set of three marks, taken from the literature: 1) WMF mark; 2) "EP" (abbreviation of "Electro Plate") mark; and 3) "OX" mark (abbreviation of oxidized silver finish). All three marks are in boxes.



Fig.68. An ash tray with three marks: 1) "WMF" mark; 2) "EP" (abbreviation of "Electro Plate") mark; and 3) "as" mark (abbreviation of antique silver finish). All three marks are inside boxes.



Fig.69. A vase with two marks: 1) "WMF" mark inside the box and 2) "I/O" (mark for silvering) without any box.





Fig. 70. A sugar basket with three marks: 1) "WMF" mark inside the box; 2) "EP" (abbreviation of "Electro Plate") mark inside the box; and 3) "I/O" (mark for silvering) without any box.



Fig.71. Another sugar basket with three marks: 1) "WMF" mark; 2) "EP" (abbreviation of "Electro Plate") mark; and 3) "I/O" (mark for silvering). All three marks are in boxes.



Fig. 72. A basket with four marks: 1) "WMF"; 2) "EP" (abbreviation of "Electro Plate") mark; 3) "I/O" (the mark for silvering) and 4) "OX" (abbreviation of oxidized silver finish) mark. All four marks are in boxes.



Fig.73. A creamer with four marks: 1) "W.M.F." mark; 2) "EP" (abbreviation of "Electro Plate") mark; 3) "I/O" (the mark for silvering) and 4) "as" (abbreviation of antique silver finish) mark. All four marks are in boxes.


Fig. 74. A mug with two marks: 1) "W.M.F." and 2) "NS" (abbreviation of "Nickel Silver" or, simply, Alpacca). All marks are in boxes.





Fig.75. A casket in Rococo style with three marks: 1) "W.M.F." inside the box; 2) "NS" ((abbreviation of "Nickel Silver" or, simply, Alpacca) inside the box; and 3) "I/O" (the mark for silvering) without any box.



Fig.76. A fruit vase with three marks: 1) "WMF"; 2) "EP" (abbreviation of "Electro Plate"); and 3) "NS" (abbreviation of "Nickel Silver" or, simply, Alpacca). All three marks are in boxes.





Fig.77. A creamer with four marks: 1) "WMF"; 2) "EP" (abbreviation of "Electro Plate"); 3) "NS" (abbreviation of "Nickel Silver" or, simply, Alpacca); and 4) "I/O" (the mark for silvering). All four marks are in boxes.



Fig. 78. The set of five marks on the napkin ring: 1) "WMF" mark; 2) "EP" (the abbreviation of "Electro Plate") mark; 3) "NS" (abbreviation of "Nickel Silver" or, simply, Alpacca); 4) "I/O" (the mark for silvering); and 5) "OX" mark (the abbreviation of oxidized silver finish). All five marks are in boxes.

Finishing the discussion of "WEPCO"/"WMF" marks, used between 1892 and 1910, I would like to present some results of my mathematical studies. The mean size of "WMF" (or "W.M.F.") box for 35 items (including 23 hollow ware pieces, 7 cutlery pieces and 5 napkin rings) is 1.6 mm × 5.3 mm. The mean length of the WMF (or W.M.F.) word is 4.9 mm. The mean size of the "EP" box for 21 hollow ware pieces and 5 napkin rings is 1.8 mm × 3.4 mm. The mean size of the "NS" box for 8 hollow ware pieces and 3 napkin rings, is 1.8 mm × 3.3 mm. The mean size of the "as" box for 4 hollow ware pieces is 1.3 mm × 2.2 mm. The mean size of the "as" mark (no box!) for 1 napkin ring is 1.4 mm × 2.3 mm. The mean size of the "OX" box for 2 hollow ware pieces and 1 napkin ring is 1.4 mm × 2.3 mm. The mean size of the "I/O" box for 9 hollow ware pieces, 1 cutlery piece and 2 napkin rings is 1.7 mm × 2.7 mm. The mean size of the "I/O" mark (no box!) for 5 hollow ware pieces and 3 napkin rings, is 1.9 mm × 2.4 mm.

The "ostrich B" and "ostrich C" WMF marks.

At the same time when the "ostrich A" mark appeared on hollow ware pieces, the "ostrich B" mark started to be used for small marks at hollow ware pieces. We will remind readers that the small marks were normally used in case of space shortage. The "ostrich B" mark, chosen for hollow ware pieces, consists of two parts: the head (running ostrich in the rhomb) & the "WMF" inscription with a silvering sign, set inside the parallelogram, see Fig.79.



Fig. 79. Two "ostrich B" marks on hollow ware pieces.

Simultaneously, the similar marks appeared on cutlery pieces, see Fig.80.



Fig.80. Two early typical "ostrich B" marks on cutlery pieces.

Later, both parts of the "ostrich B" mark on cutlery pieces were changed, see Fig.81. Besides, the ostrich bird in rhombus sometimes looks like a lame duck. Inside the rectangle, instead of the "I/O" sign (remember, it refers to 1 gram of silver, put on 1 dm² of surface), a real amount of used silver (in grams), like 10, 8, 5, etc., appeared on cutlery marks, as well as a real amount of used silver (in grams) per 24 pieces of cutlery, like 90, 60, 40, 18, etc.



Fig.81. Next views of "ostrich B" mark on cutlery pieces. Sometimes, the head of the "ostrich B" mark (running ostrich in rhombus) looks like a lame duck.

Finally, with the beginning of export of WMF cutlery to the UK (and/or to the USA), more changes in the "ostrich B" mark were done, see Fig.82 and Fig.83, below. First, the right part of the "ostrich B" mark was divided into two pieces. Second, the head of "ostrich (duck) B" mark was changed to the beautiful ostrich picture. I called this last version the "ostrich C" mark.



Fig.82. Typical WMF export cutlery marks. Note that sometimes, instead of the ostrich profile in rhombus, a "lame duck" is used.



Fig.83. The transformation of a head of the "ostrich C" mark.

As I promised earlier, I will more thoroughly discuss the WMF cutlery marks after finishing the description of WMF hollow ware/trays marks. Here I made a small digression to show new ostrich marks, used on WMF cutlery in 1903 - 1910: "ostrich B" and "ostrich C". The "ostrich B" mark is used both for the domestic market (very often) and, with three-piece construction, also for the export market (rare), while the "ostrich C" mark, is used only for the export (very rare).

Art Nouveau WMF hollow ware/flat ware items from my collection, issued in 1903 - 1910.



Fig.84. A sugar bowl No.458 and of 6.7 cm high.



Fig.85. A visiting card tray No.196 "The kiss" of 16.6 cm × 27.8 cm size.



Fig.86. A coffee-pot No.358 of 27.6 cm high.



Fig.87. A salad bowl No.132 of 12.8 cm high and 20 cm in diameter.



Fig.88. A crumb tray of 21.2 cm \times 21.5 cm size, made in Albert Mayer atelier, see below.



Fig.89. A silver-plated beaker of 11.5 cm high.



Fig.90. A visiting card tray No.223 of 22.0 cm × 24.0 cm size.



Fig.91. A wine cooler of 23.4 cm high, made in Albert Mayer atelier, see below.



Fig.92. A crumb tray of 17.1 cm × 21.5 cm size, made in Albert Mayer atelier.



Fig.93. A silver-plated wine jug No.194 of 32.5 cm high.



Fig.94. A silver-plated wine jug of 37.7 cm high, made before 1905.



Fig.95. A jug of 38.5 cm high, made from copper/brass in Albert Mayer atelier.

WMF hollow ware pieces, produced from copper and/or brass in Mayer atelier, and their marks.

In 1895, the sculptor Albert Mayer was nominated as the head of the WMF Studio or simply the Mayer atelier [5]. Some WMF copper/brass products are mentioned in [18], see the photos 317-319 on the pages 357-358. In addition, the WMF wine jug, made of brass and copper, is mentioned in the Graham Dry introduction [5] on page xliv (in Latin) or on page 44 (in normal counting). However, in the Graham Dry's introduction it was established that this wine jug is dated with 1900, in spite of the fact that the first "ostrich mark" appeared only in 1903, see above [6].

In my collection, there are six copper/brass WMF hollow ware products, holding a rare intermediate mark, which I dated 1903-1904. At first sight, they look similar to the "ostrich A" mark, which appeared in 1903. However, they differ from the "ostrich A" by the size of the mark, more rare hatching and different position of the letter G (nearer to the half-distance between W and M letters instead of being exactly under M letter), see Fig.96. I call this intermediate mark the "ostrich D".





Fig.96. Comparison of the "ostrich A" mark for silver-plated hollow ware pieces (above) and the "ostrich D" marks for copper/brass WMF products (below). The second row contains two "ostrich D" marks with large sizes, 7.9 mm × 9.3 mm and 5.7 mm × 7.6 mm, respectively. The third row contains "ostrich D" marks with small sizes. The mean size value is 4,0 mm × 5.0 mm (for 4 pieces).

The size of the "ostrich A" mark is 3.8 mm \times 4.4 mm. The "ostrich D" mark shows a wide range of sizes. In my collection, there are six "ostrich D" marks. Two of them, shown in Fig.52, have large sizes, 7.9 mm \times 9.3 mm and 5.7 mm \times 7.6 mm, respectively. Besides, they both contain a beautiful ostrich profile. The other four "ostrich D" marks have similar sizes. The mean size value of these four marks is 4,0 mm \times 5.0 mm. Probably, the hatching on the copper/brass surface was rather difficult, and therefore this mark stopped to be used anymore at around 1904.

After 1904, the new simple marks with ostrich in rhomb for copper/brass hollow ware objects were developed, see Fig.97 below. I found that there were two sizes for the rhomb: the left larger one 7.1 mm \times 8.8 mm (mean value for 12 items, earlier size) and the right smaller one 4.7 mm \times 5.6 mm (mean value for 9 items, later size). These two different sizes also refer to the different forms of the ostrich tail. I called these marks "ostrich E" (early one, on the left) and "ostrich F" (late one, on the right).



Fig.97. Two different marks for copper/brass WMF products. The mean size of the left mark ("ostrich E") is 7.1 mm × 8.8 mm (for 12 items), while the mean size of the right mark ("ostrich F") is 4.7 mm × 5.6 mm (for 9 items).

I have in my collection a copper jug with the number 29 and the ostrich D mark. Interestingly, I found recently in the literature exactly the same copper jug again with the number 29, but with the "ostrich H" mark.





Fig.98. Two similar WMF copper jugs with similar number but with different marks: the "ostrich D" mark (above, my photos) and the "ostrich E" mark (below, photos from the literature).

In literature there is no information about the number (29 in our case), accompanying the "ostrich E" (and before the "ostrich D") mark. I tried to investigate the origin of the number, which was used in the Mayer atelier. In old times, if somebody visited the atelier, it meant that he/she wanted to order something rare or specific (and not related to the mass production!). What is known about this number? First of all, it is not large, for the marks "ostrich E" and "ostrich F" I never saw a number higher than 154. On the contrary, the model number, used in my collection of 70 pieces with the "ostrich A" mark (1903-1910), reaches 645.

I decided to make a couple of simple experiments with WMF copper/brass products to resolve this problem. First, I collected the literature photos of the products, having the same number 47. I didn't even expect that all these photos would be *so different*.



Fig.99. The "ostrich E" mark, referring to three different products made of brass/copper with the same number 47. The uppers photos are from the literature, while the last two photos are from my collection.



Fig. 100. The "ostrich F" mark, referring to two different products, made of brass/copper with the same number 47. All the photos are from the literature.

Second, I found the photos of the same jug with the same "grapes ornament", but under different numbers 29, 47, 72 and 123.





Fig. 101. All four similar jugs with the same "ostrich E" mark and the same "grapes ornament", referring to the different numbers 29, 47, 72 and 123. All the photos are from the literature.

These two experiments prove that studied numbers refer not to the models of the pieces, but to the concrete masters, working in the Mayer atelier and fulfilling the special orders for different clients. After that, I spent a lot of time, trying to find of at least one dated item, made of brass and/or copper. At the end, I found two pieces, dated with 1906 and 1909. Below are the photos, referring to the jug issued sometimes between 1906 and 1910.



Fig. 102. The photos of the jug, with the number 105 and the "ostrich E" mark. The photos are from the literature.

Later I found, that this jug was mentioned in the WMF Catalogue 1911/1912 under the model number 4611. This is a rather rare case when the specific item transfers to mass production. Interesting, that the master number (105) does not correspond to the model number (4611), which again confirms my previous hypothesis.



Fig. 103. The fragment of the page 16 in the WMF Catalogue 1911/1912, showing the hot water jug with the model number 4611.

Quite recently (06.11.2023), I found a similar jug, with a different mark, see below.



Fig. 104. My photos of newly-purchased jug and of its new mark, which consists of the new ostrich mark for non-silver WMF items, and two numbers: the upper number 2 (which means two pints, about 1,1 l, cf. Fig. 103) and the low number 106 (which refers to the master number, cf. Fig. 102).

I was lucky to purchase the jug shown in Fig.104, as it allowed me to establish the period when the "ostrich E" and "ostrich F" marks were used (1904 - 1909). The details of this study are below.

What about the "ostrich G"?

In order to construct the full "genealogy" of the ostrich images, I included in it the "ostrich G", which was used in 1903 - 1910 on the iron blades of WMF knives, issued by the Solingen metal factory. The detailed description of it follows below.

The new ostrich WMF marks: "ostrich H", "ostrich I", "ostrich J" and "ostrich K" and their descriptions.

The next ostrich mark, described in [2], was introduced on 1 July 1909. I called it "ostrich H" mark. It was used during very short time (between 1 July 1909 and 1 June 1910) for marking the silver-plated hollow ware objects, cutlery and napkin rings, including some non-silvered pieces. It contains the image of ostrich together with the two-line inscription WMF/G, set in the rhombus, which is further placed inside a fully-dashed arch. The mean size of the "ostrich H" mark during this short time period is 2.1 mm × 3.0 mm, measured for 9 hollow ware pieces in my collection. Concerning the small hollow ware pieces, I have in my collection only one mark with the size 1.5 mm × 2.1 mm.



Fig. 105. Typical "ostrich H" marks, used in 1909-1910. The mean size of the "ostrich H" mark is 2.1 mm × 3.0 mm (for 9 hollow ware pieces).

In a year, another ostrich mark for silver-plated WMF objects was introduced [2]. From 1 June 1910 and until 1922, the "ostrich I" mark was used for silver-plated hollow ware pieces, cutlery and the napkin rings (including some non-silvered pieces). It is similar to the "ostrich H" mark, but contains the image of ostrich together with the two-line inscription WMF/G, set in the rhombus, which is further placed inside a partly-dashed arch.

In my collection there are 54 silver-plated hollow ware pieces, marked by the "ostrich I" mark. The 40 pieces used the larger "ostrich I" mark. The mean size of the "ostrich I" mark (for 40 pieces) is 2.1 mm \times 3.2 mm. This mean size agrees well with the mean size of "ostrich H" mark (2.1 mm \times 3.0 mm for 9 pieces), measured above. The remaining 14 pieces refer to the small hollow ware objects. The mean size of "ostrich I" mark (for 14 hollow ware pieces) is 1.5 mm \times 2.3 mm again agrees well with size of "ostrich H" mark in the case of small object (1.5 mm \times 2.1 mm for 1 piece), measured above.





Fig. 106. Typical "ostrich I" marks, used in 1910 - 1922. The mean size of the "ostrich I" mark is 2.1 mm × 3.2 mm (for 40 hollow ware/tray pieces).

Simultaneously, after 1st June 1910 (and until 1922) two new marks were introduced for non-silvered hollow ware objects. These objects should be referred to as kitchen ware (in German "das Geschirr").

The first mark, called the "ostrich J", was used for hollow ware non-silver products made of brass, alpacca and nickel (see Fig. 107); the second mark, called the "ostrich K", was used for the hollow ware non-silver products from the base metal, covered with a thin layer of nickel or brass (see Fig. 108).

In my collection there are nine objects with the mark "ostrich J", which looks like a combination of the "ostrich D" and the "ostrich H" marks.



Fig. 107. Typical "ostrich J" marks, used between 1910 and 1922. The mean size of the "ostrich J" mark is $4.4 \text{ mm} \times 6.2 \text{ mm}$ (for 10 marks).



Fig. 108. Typical "ostrich K" marks, used in 1910 - 1922. The mean size of the "ostrich K" mark is 3.5 mm × 4.8 mm (for 9 marks).

I can enumerate the main differences between "ostrich J" and "ostrich K" marks. First, it is the size of the marks, which is larger in the case of "ostrich J". Second, in the case of "ostrich J", the front leg of the ostrich is lifted. Third, while in the case of "ostrich J" the "M" letter in most cases is shifted to the right relatively both the ostrich and "G" letter, in the case of "ostrich K", in most cases, the "M" letter lies exactly under the ostrich and above the "G" letter!

It should be also emphasized, that both marks: the "ostrich J" and the "ostrich K" are significantly larger than the "ostrich H" mark with its mean size of 2.1 mm \times 3.0 mm. This could be explained by the fact that the detailed hatching on the brass/nickel surface is rather difficult.

The last ostrich marks: "ostrich L" and "ostrich M".

The last ostrich marks were introduced around 1922. I will start with the "ostrich L" mark. It is absolutely a copy of "ostrich I" mark, but without the semicircle. Besides, the both legs of ostrich are shifted forward with regard to WMF letters.



Fig. 109. Typical "ostrich L" mark, used around 1922. The mean size of the "ostrich L" mark is 2.0 mm × 2.2 mm.

Relatively the "ostrich M", from beginning, I was not sure: is it a permanent mark or a trial one? Now with the acquisition of the third sample, I am sure it is a permanent mark, but like a previous "ostrich L", it is very rare. Both marks were used for the non-silver-plated pieces. As the "ostrich I" mark, it contains the image of an ostrich together with the two-line inscription WMF/G, set in a rhombus, which is further placed inside a quasi-quadratic box. Attention! There is no lines around the rhombus! The mean size of a quasi-quadratic box of the "ostrich M" mark of three silver-plated pieces in my collection (two hollow ware pieces and one tray) is 1.8 mm × 1.9 mm. From the right side and from below there are additional parallelograms, which gives to this mark a three-dimensional character (cf. with similar 3D character of the cutlery mark, issued at the same time, see below).



Fig. 110. Two "ostrich M" marks from my collection. The mean size of a quasiquadratic box for the mark is $1.8 \text{ mm} \times 1.9 \text{ mm}$. Note the highly raised forward ostrich leg and two additional parallelograms.

About "suspicious ostrich N", see full list of WMF ostrich marks below.

The marks on WMF hollow ware pieces in 1922-1930. My German friends explained to me that the worst economic situation (with hyperinflation) in Germany happened not immediately after the end of World War I (1918), but between 1922 and 1925. Consequently, in this period, the production of the WMF factory decreased dramatically and a lot of output was exported, mainly to the UK. Therefore, to find WMF silver-plated pieces from this period is quite difficult nowadays.

Around 1922 (or even earlier), all ostrich marks on WMF products disappear and instead appears the combination of the three letters W, M and F, usually set inside a quasi-quadratic box. It should be underlined, that such combination of three letters was probed already as early as in 1903 together with the logo of the Solingen factory inside the inscription on the iron blade of the knife.



Fig. 111. A trial of the combination of the three letters W, M and F, set inside a quasi-quadratic box, issued in 1903 - 1910. The compressed inscription "WÜRTTEMBERGISCHE METALLWAREN FABRIK GEISLINGEN" (in English "Wurttemberg Metal Factory") is placed between the WMF logo and the logo of Solingen factory. The size of a quasi-quadratic box is 5.0 mm × 5.3 mm.

However, such WMF logo as a permanent mark was not used until about 1922. In my collection I keep a WMF invoice (in German die Rechnung), issued in 1926 (I saw in literature a similar WMF invoice of 1925). Below I am presenting a part of this invoice.





Fig. 112. The fragments of a WMF invoice, issued on 13th of September, 1926.

On this invoice, the new WMF mark, WMF logo in a quasi-quadratic box, is clearly visible. However, the famous old "ostrich A" mark is also present. When I revealed the ostrich mark, I was confused, as after 1922 the ostrich marks were not used. However, after some thinking, I understood that during World War I (1914 - 1918), and the following stagnation and hyperinflation, the WMF factory accumulated a large number of unsold productions with old ostrich marks. It is clear that with the passing of time, the number of unsold productions would be diminished and the logo of the old ostrich mark on the different invoices would disappear. As a proof of my finding, I am presenting below the WMF invoice, issued in 1932.

-Oiro: Oeli 4th, 5th, 6	allege Sign: / Komparing Mallinger Sign No.7 * Editor: Carlouin-Carl, Eadel Mans.Carl Minne Lifred K o b p , Jhrmachermeister & Optike Spaichingen/Württb.	Ihr Zeiden. Unsere Auftragnummer. Versandert: per Po -Zeiden: -Gewicht: Versandenschrift: ei Rechnung Nr.	lhr Auf 12272 st 1 Karto gene 10990 Liefents	trag vom å Joser Zeichen on, 10Kg Kö/Ste: g, 7.11	20.10.32 Neokar 3. inle mp.
Cubick	Bezeichnung des Gegenstandes	Konston No.	Austührung	Freis	Gesamtore
1	einges. Schublade 46/2 mit gelber Seide nach b ausgeschlagen und eing	x 54 x 972 cm eil. Muster erichtet für E	Bestecke	6 Rabat	47.25 t_ 15.75
4. 4. 9.					31.50
	E.1.	60 /P 90 /V	.50 T10	RM.	34.40
			•		2,65.80

Fig. 113. The WMF invoice, issued on 20th of October, 1932.

Now I will return to the typical WMF marks, which appeared around 1922. They contain the combination of the three letters W, M and F, usually set inside a quasi-quadratic box. In my collection, there are 17 such pieces with this WMF mark, issued until around 1926 (instead of export hollow ware pieces). The mean size of the quasi-quadratic box is 2.1 mm × 2.3 mm.



Fig. 114. Typical WMF marks, used in 1922 - 1930. The mean size of the quasiquadratic box is $2.1 \text{ mm} \times 2.3 \text{ mm}$.

Sometimes, you can come across WMF marks without a quasi-quadratic box. In my collection, there are two such marks. They possess the combination of the three letters W, M and F with the similar mean size of 2.0 mm × 2.2 mm.



Fig.115. The WMF mark without the quasi-quadratic box. The mean size of the quasi-quadratic box is $2.0 \text{ mm} \times 2.2 \text{ mm}$.
Five of my seven pieces with WMF marks, instead of the "N" letter (sign of Neusilber, which means artificial silver, see the paragraph "About additional marks" above) keep the ALPACCA inscription, set inside an oblong box. The mean length of the ALPACCA inscription is 6.7 mm. The mean size of the oblong box is 1.1 mm × 7.0 mm.



Fig. 116. The use of the word "ALPACCA" instead of the "N" letter. The word "ALPACCA" is disposed to the right of a quasi-quadratic box, while the "N" letter is disposed to the left of a quasi-quadratic box.

Another two small pieces (from seven in my collection) with WMF marks, set inside a quasi-quadratic box, have a smaller ALPACCA inscription, set inside an oblong box. The mean length of the ALPACCA inscription is 5.4 mm. The mean size of the oblong box is 1.0 mm × 5.9 mm.

The export marks on WMF hollow ware pieces, used in 1922-1930. It is very easy to distinguish the export pieces, in this case instead of the "N" letter the "NS" sign (which means "nickel silver", see the paragraph "About additional marks" above) is used. The "NS" sign is set before the WMF mark, as in the case of the "N" letter. Now we will discuss the export pieces with WMF mark. Between 1922 and 1926 were used different marks for large and small hollow ware pieces. For the large pieces (only three in my collection), the WMF mark is written in one line (!), see upper part of Fig.117 below. The mean length of the WMF mark is 5.4 mm, the mean ratio (length to height) is 3.7. For other small pieces and trays (four pieces), the WMF mark consists of three letters (W, M and F), set inside a quasi-quadratic box, see lower part of Fig.117. The mean size of a quasi-quadratic box is 1.8 mm × 2.0 mm.



Fig. 117. Two different approaches for large and small export hollow ware pieces.

Interestingly, the export signs of two letters "NS" are very different. While for large hollow ware pieces, the mean size of "NS" is rather small, $1.2 \text{ mm} \times 1.9 \text{ mm}$, for small pieces and trays it is significantly higher, $1.4 \text{ mm} \times 2.6 \text{ mm}$.

After 1926 and until 1930, all export pictures for hollow ware pieces have a special text, exactly: WÜRTT. METALW. FABRIK GEISLINGEN - STEIGE which in English means WURTTEMBERG METAL FACTORY in GEISLINGEN-STEIGE (the last two words determine the location of the factory).



Fig.118. Typical view of the use of export pictures for hollow ware pieces after 1926.

It should be noticed that a a quasi-quadratic box with the WMF sign is very unstable and its size changes between $1.3 \text{ mm} \times 1.4 \text{ mm}$ and $2.3 \text{ mm} \times 2.7 \text{ mm}$. The similar behaviour shows the "NS" sign, whose size changes between $1.5 \text{ mm} \times 1.9 \text{ mm}$ and $1.6 \text{ mm} \times 2.9 \text{ mm}$.

More additional marks.

Earlier, I promised to discuss the unknown additional WMF marks, used between 1903 and 1930. Usually these marks are disposed rather far from the main mark ("ostrich H" or the next marks) and therefore were ignored by most investigators.



Fig.119. The disposition of main and additional marks. In most cases, the additional marks are displayed below the main mark.

There are two types of additional marks: 1) four "large letters" marks from the Latin alphabet, which I could print immediately; 2) at least eight "small marks", which I could not type with the computer keyboard. That circumstance forced me to present them as pictures. Figs.120 and 121 show all known to me additional WMF marks, used on hollow ware objects, as well as on napkin rings.





Fig. 120. Four different additional "large letter" marks.





Fig. 121. The eight additional "small marks", which are known to me.

So far, I deciphered only one additional mark, the "E" large letter. Below, the photo of a milk can and its mark are shown. Above the main mark, the inscription ALEMANIA is present. ALEMANIA in Spanish means GERMANY. From this, it is clear that the discussed milk can was made for export. The "E" letter means in German "für Export" (in English "for export").





Fig. 122. The milk can with the main mark and the "E" letter.

I thought about the other "large letters" which could also be produced on the factory. I looked through the German/English vocabulary and found four explanations: "*H*" means in German "die Höchstleistung" (in English means "supreme performance"), "R" means in German "die Rarität" (in English "rarity") and " κ " means in German "die Klasse" (in English means "top-class"). I think, these "instructions" from the factory were added in order to sell the WMF products with the maximal possible price.

Now, this is the most appropriate deciphering. I hope the next generation of German investigators will find in the archives a better explanation for these two "large letters". Concerning "small marks", I am sure, that they do not carry any information besides belonging to a special shop of the factory. The small table, presented below, allows the size comparison of most prevalent additional marks.

Additional mark	Number of pieces	Mean size (in mm)
"Е"	4	1.3 mm × 1.8 mm
<i>"H</i> "	10	1.3 mm × 1.5 mm
"R"	11	1.1 mm × 1.6 mm
"к" type 1	2	1.3 mm × 1.6 mm
"κ" type 2	2	1.1 mm × 1.7 mm
g	7	1.6 mm × 1.7 mm
The	9	1.5 mm × 1.7 mm
R	3	0.9 mm × 1.6 mm
02	3	1.2 mm × 1.3 mm

Mean size comparison of additional marks.

Art Nouveau/Art Deco WMF hollow ware items from my collection, issued in 1909 - 1930.



Fig. 123. The sugar bowl No. 358/8 made in 1910 - 1922.



Fig. 124. The tour price in 1909 Bremen competition.



Fig. 125. The blue-glass sugar basket produced in 1910 - 1922.



Fig. 126. The jug for hot water made in 1910 - 1922.



Fig. 127. The coffee-pot No. 8283 coated with a thin layer of brass in 1910 - 1922.



Fig. 128. The gravy boat produced in 1910 - 1922.



Fig. 129. The tea glass holder No. 114 made in 1922 - 1930.



Fig. 130. The green glass fruit basket made in 1922 - 1930.



Fig.131. The coffee pot No.378/8 made in 1910 - 1922.



Fig. 132. The flower vase made in 1922 - 1930.

The full list of WMF ostrich marks.

1) "Ostrich A", (hollow ware/trays), the ostrich image together with the two-line inscription WMF/G, "I", set in the rhombus, which is further placed inside a dashed rectangle, 1903 - 1909;



2) "Ostrich B", small mark, (hollow ware), "ostrich in rhomb" + WMF inscription and additional silvering mark "I/O" (or "O") inside the parallelogram, "/", 1903
- 1910;



3) "Ostrich B", (cutlery), ostrich in rhomb + WMF inscription and additional silvering mark inside the parallelogram, "/", 1903 - 1910;



4) "Ostrich C", (cutlery), for the export to the UK (or to the USA) with the WMF inscription in the rectangle, "I", and the silvering mark "I/O" in the second rectangle, (or another silver mark "O" in the rhomb) with two different "ostrich in rhomb", the first one being equivalent to the ostrich in rhomb from "ostrich B", while the second one presents the most beautiful ostrich picture;





5) "Ostrich D", (hollow ware), for the objects made of brass and/or copper, 1903 - 1904;



6) "Ostrich E" and "Ostrich F", (hollow ware/trays/cutlery), for the objects made of brass and/or copper, 1904 - 1910;



7) "Ostrich G", (knives), accompanied with the "twins" logo of the J.A.Henckels factory in Solingen, 1904 - 1910;



8) "Ostrich H", (hollow ware/cutlery), contains the image of ostrich together with the two-line inscription WMF/G, "I", set in the rhombus, which is further placed inside a fully-dashed arch, 1909 - 1910;



9) "Ostrich I", (hollow ware/trays/cutlery), contains the image of ostrich together with the two-line inscription WMF/G, "I", set in the rhombus, which is further placed inside a partly-dashed arch, 1910 - 1922;



10) "Ostrich J", used for hollow ware non-silver products made of brass, alpacca and nickel, is a mixture of "ostrich D" and "ostrich H", 1910 - 1922.



11) "Ostrich K", used for the hollow ware non-silver products, made from the base metal covered with thin layer of nickel or brass, looks similar to "ostrich H", 1910 - 1922.



12) "Ostrich L", a very rare WMF mark, used around 1922.



13) "Ostrich M", a very rare WMF mark, used after 1922.



14) "Ostrich N", in my opinion it is not a mark. I think it was used only once (perhaps in 1953) to celebrate the fifty years anniversary of the first ostrich mark. I have two examples of this sign and I found third one in literature. The barrel form of this last ostrich symbol should be mentioned. Rather rare.



General view on WMF handle models for Rococo and Jugendstil cutlery pieces (1880 - 1903).

As all the details of the marks of WMF hollow ware pieces more or less were described above, we can start studying the marks of WMF cutlery. As I have shown, in the period 1880 - 1903 the marks of hollow ware pieces, cutlery and napkin rings were similar. However, the cutlery pieces, beside the marks, also carry the shape and performance of their forks, spoons or knives, which refer to the concrete models. Such additional information allowed me to establish that in the period between 1892 and 1903 the WMF cutlery in Jugendstil style (in English New Art style, in French Art Nouveau style) appeared.

In the book published nearly 25 years ago [19], all WMF Jugendstil cutlery pieces from the Solingen Blade Museum are dated not earlier than 1903. Recently Mr. Ralph Prüschberg published a more or less full list of WMF handle models [20], used in the above-mentioned period. He refers only to a single handle model named Rococo (probably because of the limited interest for Rococo cutlery), while I could easily find 10 (!) Rococo handle models, using pieces from my collection in the period 1880 - 1903, see below. Concerning WMF Jugendstil handle models, Mr. Ralph Prüschberg claims 10 Jugendstil handle models (together with one non-existent handle model in the above-mentioned period). At the same time, I found in my collection a much larger amount of Jugendstil cutlery handle models, namely 31 (!) pieces referring to the chosen period. Now I invite my readers to take a thorough look at the mentioned cutlery, first on the Rococo pieces and later on the Jugendstil ones.

WMF handle models for Rococo cutlery pieces (1880 - 1903).



Fig. 133. Handle model "Rococo a". Above are the whole cutlery views together with their marks; below are the handles, referring to the same model.



Fig. 134. Handle model "Rococo b". Above are the whole cutlery views together with their marks; below are the handles, referring to the same model.



Fig. 135. Handle model "Rococo c". Above are the whole cutlery views together with their marks; below again are the handles, referring to the same model.



Fig. 136. Handle model "Rococo d". Above are the whole cutlery views together with their marks; below are the handles, referring to the same model. Both cutleries are the real "Rococo" pieces.



Fig. 137. Handle model "Rococo e". Above are the whole cutlery views together with their marks; below are the handles, referring to the same model. Note some Rococo details.



Fig. 138. Handle model "Rococo f". Above are the whole cutlery views together with their marks; below are the handles, referring to the new "plane" ornament model. They use the same Rococo details.



Fig. 139. Handle model "Rococo g". Above are the cutlery views together with their marks; below are the handles, referring to the new "puffed up" ornament model which also used some "Rococo f" details. It should be noted that exactly this model was mentioned by Mr. Ralph Prüschberg as WMF R Rococo [20].



Fig. 140. Handle model "Rococo h". Above are the whole cutlery views together with their marks; below are the handles, referring to the same model. A very popular handle model. Note the ornament along the handle axis.



Fig. 141. Handle model "Rococo i". Note the slightly different ornament along the handle axis (concerning the previous model).



Fig. 142. Handle model "Rococo j". Above are the cutlery views together with their marks; below are the handles, referring to the same model. The third popular handle model has a new ornament in comparison with a previous model.

New WMF Jugendstil handle models for cutlery made after 1892. In the beginning, the WMF factory was using the Rococo handle models on cutlery, ten of them (from my collection) I have presented above. After 1892, the new handle models (so-called Jugendstil ones) appear and their amount starts to increase. Simultaneously the number of previous Rococo handle models starts to decrease. See below my table with a number of Rococo and Jugendstil handle models referring to the mentioned periods based on my investigations.

	Rococo handle models	Jugendstil handle models
1880 - 1892	15 (100%)	0
1892 - 1895	6 (46%)	7 (54%)
1895 - 1898	5 (31%)	11 (69%)
1898 - 1903	2 (10%)	19 (90%)

Number of Rococo and Jugendstil handle models and comparison of their percentage during the mentioned periods.

Note. Only the numbers of different handle models were used in my calculations.

From literature [19] it follows, that new WMF Jugendstil handle models evolved only after 1903. However, I got the proof of the appearance of first Jugendstil handle models between 1892 and 1895, which is approximately 10 years earlier (!). I can describe the appearance of Jugendstil handle models like a great jump forward. If you will look again at the Ralph Prüschberg list of WMF Jugendstil handle models [20], you will find that the new handles are based on: 1) nature (water lily, ivy, corn); 2) geometrical pieces (cube, band, ornament and pyramid); 3) story (fairy tale); and 4) other ideas (sometimes, strange ones). Leaning on these observations and my collection, I have easily revealed the appearance between 1892 and 1903 of 31 (!) Jugendstil handle models. This number is three times superior to the number given on the Prüschberg website [20]. Below, I am presenting all Jugendstil handle models from my collection, produced in the 1892 - 1903 period, and discussing them together with their marks.





Fig. 143. Handle model "Jugendstil a". It is based on maple leaves. Above is the mark of a concrete cutlery piece.



Fig. 144. Handle model "Jugendstil b". It is based on an anemone flower. Above is the mark of a concrete cutlery piece.





Fig. 145. Handle model "Jugendstil c". It is based on flora (WMF Jugendstil No. 28a [5]). Here the main part of Jugendstil picture displayed beside the handle. Above is the mark of a concrete cutlery piece.




Fig. 146. Handle model "Jugendstil d". It is based on a sunflower (WMF Jugendstil No. 29a [5]). Here the main part of Jugendstil picture displayed beside the handle. Above is the mark of a concrete cutlery piece.





Fig. 147. Handle model "Jugendstil e". It is based on imagination. Above is the mark of a concrete cutlery piece.





Fig. 148. Handle model "Jugendstil f". It is based on a marguerite flower. Rather popular. Above is the mark of a concrete cutlery piece.





Fig. 149. Handle model "Jugendstil g". It is based on flora. Above is the mark of a concrete cutlery piece.





Fig. 150. Handle model "Jugendstil h". It is based on a water lily (WMF Jugendstil No.27 [20]). Rather popular. Above is the mark of a concrete cutlery piece, related to the centenary (in 1900). See pages 35-36 above.





Fig. 151. The variation of handle model "Jugendstil h". It is based on a water lily flower (WMF Jugendstil No.27 [20]). Below are three photographs of main flower: the first photo was made at 90 degrees to the plane part of the blade and the other two were made at 45 and 135 degrees to the plane part of the blade. Above is the mark of a concrete cutlery piece.





Fig. 152. Handle model "Jugendstil i". It is based probably on a tulip flower (WMF Jugendstil No. 117 [5]). In this case, the main part of Jugendstil picture is displayed outside the handle. Above is the mark of a concrete cutlery piece.





Fig. 153. Handle model "Jugendstil j". It is based on one ivy leaf and three berries (WMF Jugendstil No.29 [20]). Very popular. Above is the mark of a concrete cutlery piece.





Fig. 154. The variation of handle model "Jugendstil j". This ladle is also based on one ivy leaf and three berries (WMF Jugendstil No. 29 [20]). Above is the mark of a concrete cutlery piece.





Fig. 155. Another variation of handle model "Jugendstil j". The couple of carving knife and fork is also based on one ivy leaf and three berries (WMF Jugendstil No.29 [20]). Above is the mark of these concrete cutlery pieces, related to the centenary (in 1900).





Fig. 156. Handle model "Jugendstil k". It is based on three leaves and six berries. Above is the mark of a concrete cutlery piece.





Fig. 157. The variation of handle model "Jugendstil k". It is based on three leaves and six berries. Above is the mark of a concrete cutlery piece.





Fig. 158. Handle model "Jugendstil l". It is based on six leaves and six berries. Above is the mark of a concrete cutlery piece.





Fig. 159. Handle model "Jugendstil m". It is based on three leaves and twentynine (!) berries (WMF Jugendstil No.31 [5]). Above is the mark of a concrete cutlery piece.





Fig. 160. Handle model "Jugendstil n". It is based on corn, more precisely on the direction of corn wheat spikes (WMF Jugendstil Corn No.42 [20], with concrete direction of wheat spikes). Above is the mark of a cutlery piece.





Fig. 161. Handle model "Jugendstil o". It is based on petals (WMF Jugendstil No.65 [21]). Above is the mark of a concrete cutlery piece.





Fig. 162. Handle model "Jugendstil p", the same for both salad servers. Like the previous handle model, this one is also based on petals. Above is the mark of both concrete cutlery pieces.









Fig. 163. Handle model "Jugendstil q". It is based on an interlaced band (WMF Jugendstil No. 200 [20]). Above is the mark of a concrete cutlery piece.





Fig. 164. Handle model "Jugendstil r". It is based on the fourfold leaf (WMF Jugendstil No. 24 [5]). Above is the mark of a concrete cutlery piece.





Fig. 165. Handle model "Jugendstil s". It is based on a fairy tale (WMF Jugendstil No.43 [20]). Above is the mark of a concrete cutlery piece.









Fig. 166. Handle model "Jugendstil t". It is based on cube mosaic (WMF Jugendstil No.34 [20]). Above is the mark of a concrete cutlery piece.





Fig. 167. Handle model "Jugendstil u". It is based on a combination of seven cords (WMF Jugendstil No.37, Bands [20]). Above is the mark of a concrete cutlery piece.



Fig. 168. Handle model "Jugendstil v". It used a combination of five cords (WMF Jugendstil No.37, Bands [20]). Above is the mark of a concrete cutlery piece.







Fig. 169. Handle model "Jugendstil w". It is based on a combination of different small WMF ornaments (WMF Jugendstil No.44 [20]). Above is the mark of a concrete cutlery piece.





Fig. 170. Handle model "Jugendstil x". It includes an edge pearl row (WMF Jugendstil No. 500 [20]). Above is the mark of a concrete cutlery piece.





Fig. 171. Handle model "Jugendstil y". It is based on circular lines (WMF Jugendstil No.70, Pyramid [20]). Above is the mark of a concrete cutlery piece.





Fig. 172. Handle model "Jugendstil z". It includes some small WMF ornaments (WMF Jugendstil No.332 [5]. Above is the mark of a concrete cutlery piece.







Fig. 173. Handle model "Jugendstil aa". A known WMF ornament (cf. WMF Jugendstil No. 44 [20]) is situated outside of the punch handle. Above is the mark of a concrete cutlery piece.











Fig. 174. Handle model "Jugendstil bb". Beautiful ornaments and signs! Above is the mark of a concrete cutlery piece.







Fig. 175. Handle model "Jugendstil cc". Again beautiful ornaments and signs! Above is the mark of a concrete cutlery piece.

In addition at the end, I would like to pronounce a couple of words concerning the most famous Jugendstil handle model. The name of this model is Empire (WMF Jugendstil No.26 [20]). However, all knowledge, received from the literature and from my collection (together more than 100 sources), confirms that the Empire handle model was produced only after 1903.

Non-Rococo and non-Jugendstil handle models of cutlery, produced by WMF (1898 - 1903).

Finishing the description of WMF Rococo/Jugendstil cutlery handle models, I am presenting a couple of non-Rococo and non-Jugendstil handle models.





Fig. 176. Handle model, which I could not identify with Rococo style or Jugendstil style. Above is the mark of the concrete cutlery piece.





Fig. 177. Another handle model which I also could not identify with Rococo style or Jugendstil style. Above is the mark of the concrete cutlery piece.

Standard classic cutlery handle models produced by the WMF division, called METALLFABRIK GEISLINGEN (1898 - 1903).

At the end of the nineteenth century, the WMF Jugendstil cutlery production became so profitable that WMF decided to open a special division for standard classic handle models (developed by Christofle, Berndorf, Wellner and other companies to the end of XIX century). This division (under the name GEISLINGEN) worked only five years. Nevertheless, I decided to include these classic handle models in my description of WMF cutlery models.

METALLFABRIK GEISLINGEN mostly produced the cutlery pieces with classic handles. In my collection, there are 10 classic cutlery from 12 pieces (83 % of all cases) produced in 1898 - 1903 [except the Jubilee year in 1900 (centenary), when the cutlery production with all handle types (Rococo, classic, Jugendstil) was allowed].

The best-known classic handle model was introduced in France at least 180 years ago. In France, it is called "Filet" or "Chinon". In Germany, the same handle model is known as "Augsburger Faden" and in England as "Fiddle & Thread". This handle model was mentioned as No.2 in the French Christofle catalogue in 1862 [22] and it was still used as No.2 up to 1891 [23]. It was later called as handle model No.5002 in 1898 [24] and was used with this number up to 1904 [25].



Fig. 178. Remarkable classic handle model "Augsburger Faden" was used first by METALLFABRIK GEISLINGEN (1898- 1903) and later by WMF. Besides this model,

there are about ten classic handle models. It is quite easy to distinguish them from Rococo style as well as from Jugendstil one.



Fig. 179. Another classic handle model used by Sächsische Metallwarenfabrik August Wellner Söhne under No.1 [26].



Fig. 180. Third classic handle model used by Sächsische Metallwarenfabrik August Wellner Söhne under No.11 [26].



Fig. 181. Classic handle model with shell, used by Berndorf Metallwaaren-Fabrik Arthur Krupp under No.900 [27].

Cutlery pieces with new Jugendstil handle models, produced by WMF in 1903 - 1910 and in 1910 -1922.

Practically every WMF cutlery piece, issued by WMF in 1903 - 1922, used Jugendstil or classic handle (and very rare Rococo one). Amongst 112 cutlery pieces in my collection, there are 102 Jugendstil pieces (91%), 6 classic pieces, which were used by the main WMF department after closing METALLFABRIK GEISLINGEN (5%), 2 Rococo pieces (2%) and 2 "unknown" pieces (2%). Besides 31 Jugendstil handle models, issued in 1892 - 1903, in 1903 - 1910 I discovered 10 new models and in 1910 - 1922 another 5 ones.

Between 10 new handle models, opened in 1903 - 1910, there was the famous model No.26 Empire. It was very popular, in my collection, this model was used 14 times, and between them six times for export. All other nine new Jugendstil handle models was used between 2 and 5 times. Contrary to this, model No.26 Empire is used 14 times. Below, I am presenting the photos of 14 new Jugendstil handle models, starting with the model No.26 Empire.





Fig. 182. The standard table fork using handle model No.26 Empire "Jugendstil dd" was developed by WMF in 1903 - 1910. It was based on petals, which were organised inside two slowly growing/widening tubes. These tubes are present only on the facial side of the fork. Above is the mark of this concrete cutlery piece, including the main part - ostrich in rhombus.




Fig. 183. The carving fork with the handle model No.26 Empire "Jugendstil dd" was used in 1903 - 1910. It is a variation of the previous handle model. It is also based on petals, organised inside two slowly growing/widening tubes, but these tubes are present on both sides of the fork. In addition, the mark of this concrete cutlery piece is placed also on both sides of the fork: the main one, ostrich in rhombus, is placed on the facial side and the normal silvering sign is found on the opposite side of the fork. A similar order was used on knives, which also used Empire handle model, see below.





Fig. 184. The fish set knife also refers to handle model No. 26 Empire "Jugendstil dd". At a glance, this new handle looks like the fork from the previous handle model at Fig. 182. It is also based on petals, which were organised inside two slowly growing/widening tubes on the facial part of the fish set knife. However, in this case besides these two growing/widening tubes there is an additional third growing/widening tube on the facial part of the fish set knife (due to low thickness of 1.3 mm this third tube is also visual from the other side of the fish set knife). In addition, the main part of the mark for the concrete cutlery piece (see above) was significantly changed: 1) the ostrich figure inside the rhombus is rotated for 90 degrees in an anticlockwise direction and 2) the ostrich figure was significantly changed. Such change was used in the case of cutlery export to the UK (1907 - 1909).





Fig. 185. The fish set fork also refers to handle model No.26 Empire "Jugendstil dd". At a glance, this new handle looks like the fork from the previous handle model at Fig. 182. It is also based on petals, which were organised inside two slowly growing/widening tubes on the facial part of the fish set fork. However, in this case, besides these two growing/widening tubes, there is a second pair of two growing/widening tubes on the facial part of the fish set fork (due to low thickness of 1.3 mm this second pair of tubes is also visual from the other side of the fish set fork). In addition, the main part of the mark for the concrete cutlery piece (see above) was significantly changed. That means: 1) the ostrich figure inside the rhombus was rotated for 90 degrees in an anticlockwise direction and 2) the ostrich figure was significantly changed. Such change was used in the case of cutlery export to the UK (1907 -1909).





Fig. 186. The special service spoon also refers to handle model No.26 Empire "Jugendstil dd". At a glance, this new handle looks like the fork from the previous handle model at Fig. 182. It is also based on petals, which were organised inside two slowly growing/widening tubes on the facial part of the special service spoon. However, in this case, besides these two growing/widening tubes, there is also a second pair of two growing/widening tubes on the facial part of the special service spoon. These tubes are present only on the facial side of the special service spoon. In addition, the main part of the mark for the concrete cutlery piece (see above) was significantly changed: 1) the ostrich figure inside the rhombus is rotated for 90 degrees in an anticlockwise direction and 2) the ostrich figure was significantly changed. Such change was used in the case of cutlery export to the UK (1907 - 1909).





Fig. 187. Handle model "Jugendstil ee". It is based on two leaves and four berries. Above is the mark of a concrete cutlery piece, including the main part - ostrich in rhombus.



Fig. 188. Handle model "Jugendstil ff" (WMF Jugendstil Elephant Feet No. 45 [20]). See the end of the handle from both sides of the spoon. Above is the mark of a concrete cutlery piece, including the main part - ostrich in rhombus





Fig. 189. Handle model "Jugendstil gg". It is based on corn, more precisely on the direction of corn wheat spike (WMF Jugendstil Corn No.42 [20], opposite direction of wheat spike). In all three cases, shown above, there is a handle model with opposite direction of wheat spike (cf. with direction of wheat spikes at Fig. 160). However, there could be the additional wheat spikes with the same opposite direction, see the left parts of all three cases. In the first case (see above photos of the fork), there are no additional wheat spikes. In the second case (see intermediate photos of cheese knife), there is only one additional wheat spike. Finely, in the third case (see two last photos of cake server), there are two additional wheat spikes. Above are the marks of the concrete cutlery pieces, including the main part - ostrich in rhombus.



or







Fig. 190. Handle model "Jugendstil hh". It is a very successful design (WMF Jugendstil No.80/300 [20]). Above there are the typical marks of the concrete cutlery pieces, including the main part - ostrich in rhombus.





Fig. 191. Handle model "Jugendstil ii". It also has a rather successful design (WMF Jugendstil Small Roses No. 400 [20]). Above there are the typical marks of the concrete cutlery pieces, including the main part - ostrich in rhombus.







Fig. 192. Handle model "Jugendstil jj". It has a beautiful design (WMF Jugendstil Tartlet Server No.92 [5]). Above there is a mark of the concrete cutlery piece, including the main part - ostrich in rhombus.









Fig. 193. Handle model "Jugendstil kk". It is a rather simple design (WMF Jugendstil No.600 [5]). Above there is a mark of the concrete cutlery piece, including the main part - ostrich in rhombus.









Fig. 194. Handle model "Jugendstil II". This punch ladle has a beautiful design including wine grapes (WMF Jugendstil No. 528 [21]). Above there are two marks of the concrete cutlery pieces, including the main part - ostrich in rhombus.





Fig. 195. Handle model "Jugendstil mm". This punch ladle was made in a rather severe style. This WMF Jugendstil ladle for me is still unknown. Above there is a mark of the concrete cutlery piece, including the main part - ostrich in rhombus.

Now for completeness we will add new Jugendstil handle models, produced by WMF in 1910 -1922. There are only five new handle models.





Fig. 196. Handle model "Jugendstil nn". It has a beautiful design (WMF Jugendstil Tartlet Server No.92 [5]). Above there is a mark of the concrete cutlery piece, including the main part - the ostrich image with the two-line inscription WMF/G, set in a rhombus, which is further placed inside a partly-dashed arch.



Fig. 197. Handle model "Jugendstil oo". This fork has a beautiful design (WMF Jugendstil No.900 Fan-like [20]). Above there is a mark of the concrete cutlery piece, including the main part - the ostrich image with the two-line inscription WMF/G, set in a rhombus, which is further placed inside a partly-dashed arch.



Fig. 198. Handle model "Jugendstil pp". This fork has an interesting design (WMF Jugendstil No. 1800 Standard [20]). Above there is a mark of the concrete cutlery piece, including the main part - the simplified ostrich image









Fig. 199. Handle model "Jugendstil qq". This ladle looks beautiful and includes a rose (WMF Jugendstil No. 116 [21]). Above there is a mark of the concrete cutlery piece, including the main part - the image of ostrich together with the two-line inscription WMF/G, set in the rhombus, which is placed inside a full-dashed arch.







Fig. 200. Handle model "Jugendstil rr". This punch ladle was made in a beautiful style. Though this WMF Jugendstil ladle for me is still unknown. Above there is a mark of the concrete cutlery piece, including the main part - the ostrich image with the two-line inscription WMF/G, set in a rhombus, which is further placed inside a partly-dashed arch.

Of course, I am not claiming that I have discovered and investigated all existing cutlery Jugendstil handle models. Nevertheless, my collection started 20 years ago and I am sure that I discovered at least 70% of existing cutlery pieces, including new Jugendstil ones. And I can use my data for correct calculations. For example, I can easily compare the data received during three periods: 1892 - 1903, 1903 - 1910 and 1910 - 1922. There are 31 new handle models for the first period, 10 for the second period and 5 for the third one. Let us compare the efficiency of new handle model production for all three periods.

To get such efficiency it is enough to divide the number of new models by the number of years, namely, for the first period: 31/11 = 2.8; for the second period: 10/7 = 1.4 and for the third period: 5/13 = 0.4. These dates also mean that the efficiency decreases in 2.0 times during the transfer from the first period to the second one and in 7.0 times during the transfer from the first period to the third one. In other words, for the WMF cutlery handle models the Jugendstil (or Art Nouveau) revolution started between 1892 and 1895 and stopped before the beginning of World War I (~ 1910).

I realised that namely the numerous cutlery with new handle models were the reason for the Jugendstil revolution. That means, the Jugendstil revolution

started with cutlery pieces and not the hollow ware jugs, tea/coffee pots, glass holders, trays, etc. I decided to check this idea using the hollow ware pieces in my collection. For this experiment, I chose three most often used marks with the four letters WMFB and studied them for Jugendstil hollow ware pieces. The oldest mark, W.MF.B inside the box, was from the 1886 - 1892 period.



In my collection, I have 12 hollow ware pieces with this mark, but neither one possesses the Jugendstil style.

The next mark, WMFB inside the box, was used in the 1892 - 1898 period.



In my collection, among 18 hollow ware pieces with this mark, I found 12 hollow ware pieces, made in Jugendstil style (67 % of whole number). Comparing with similar data for cutlery pieces in the Table on page 141, we can see, that the percentage of the hollow ware pieces, made in Jugendstil style (67 %), is roughly the same than for the data for cutlery pieces (69 %) during the mentioned period (1895 - 1898).

Finely, the last mark, WMFB without any box, was used in the 1898 - 1903 period.



In my collection, among 15 hollow ware pieces with the last mark, I found 13 hollow ware pieces (87 % of whole number) in Jugendstil style. Comparing with similar data for cutlery pieces in the table on page 141, we can see again that the percentage of the hollow ware pieces made in Jugendstil style (87 %) is near to the data for cutlery pieces (90 %) in the same period (1898 - 1903).

The mathematical investigation of cutlery marks, produced by WMF in 1903 - 1910 for Germany and UK.

The mathematic investigation of WMF cutlery pieces, issued in 1903 - 1910, is quite easy. Part of WMF cutlery pieces (including ladles) was produced for Germany (52 pieces) and another part (26 pieces) for export to UK. All marks, issued for Germany, consist of two geometrical parts: a) the rhombus with the ostrich silhouette; and b) the prolonged box with three capital letters (WMF) + the information about silvering. This prolonged box could be a rhomboid (in the case of I/O sign, which refers to 1 gram of silver put on 1 dm² of surface) or a rectangle (right-angled parallelogram) with information of used silver in grams for 1 cutlery piece or for 24 cutlery pieces. The corresponding pictures of typical marks are shown above (Figs.80 and 81).

Other WMF cutlery pieces issued in 1903 - 1910 were prepared for export to the UK. The corresponding marks consist of three geometrical parts: a) the rhombus with the ostrich silhouette; b) the rectangle with three capital letters (WMF); c) the second rectangle/rhombus with information of used silver, which means using of I/O or O signs, respectively. It corresponds to use of 1 (I/O) or 1.5 (O) grams of silver, put on 1 dm² of surface. Otherwise, the information of used silver

in grams is given by one cutlery piece (e.g. 10, 8, 3.5, the last number refers to three and a halve). One sauce spoon, which was sent to UK, contains no silver. The corresponding pictures are shown above (Fig.82).

We will start from the discussion of the received results, first, from the table with ostrich rhombus and WMF rhomboid (with I/O inside). I think this is the oldest part of cutlery marks, used in 1903 - 1904.

Ostrich	Rhomboid*	WMF	WMF	Silver	Number of
rhombus	with WMF	length	length	amount	experiments
size (mm)	and silver	(mm)	divided per	(in grams)	
	amount (mm)		height		
			(ratio)		
1.5 x 3.0	0.9 x 5.3	3.0	4.8	1 gram of	9
				silver per	
				1 dm ² of	
				surface	
1.3 x 2.9	No	3.9	5.2	90 grams	1
	measurement			per	
				24 pieces	
1.4 x 3.3	No	4.0	5.0	60 grams	1
	measurement			per	
				24 pieces	
1.4 x 2.9	No	3.0	4.3	18 grams	1
	measurement			per	
				24 pieces	

The dimensions of ostrich rhombus, rhomboid and other mean parameters.

*The square of rhomboid (parallelogram) is equal to a × h, where "a" is the length above or below and "h" is the height of the rhomboid.

We see that all the results received in different experiments are in good agreement. After that we will discuss the results, obtained for the ostrich

rhombus and the rectangle WMF box (mostly with the description of silver amount inside). The very rare rectangle WMF box with I/O inside is also used.

Ostrich	Size of box	WMF	WMF length	Silver	Number of
rhombus	with WMF	length	divided per	amount	experiments
size (mm)	and silver	(mm)	height	(in grams)	
	amount (mm)		(ratio)		
1.6 x 2.5	1.1 x 6.1	3.9	4.5	1 gram of	2
				silver per	
				1 dm ² of	
				surface	
1.7 x 3.0	1.3 x 6.5	3.5	4.7	10	1
1.6 x 2.8	1.2 x 5.7	3.6	4.5	8,6,5,4,2	9
1.6 x 2.5	1.2 x 6.1	3.4	4.3	90 grams	16
				per	
				24 pieces	
1.6 x 2.5	1.1 x 6.0	3.3	4.5	60 grams	7
				per	
				24 pieces	
1.7 x 2.9	1.2 x 5.9	3.1	5.0	40 grams	2
				per	
				24 pieces	
1.8 x 2.6	1.2 x 5.5	3.0	4.3	18 grams	3
				per	
				24 pieces	

The dimensions of ostrich rhombus, box with WMF and silver amount and other mean parameters.

We can see that all the parameters are more or less keeping their size!

Around 1910, one more box with the inscription ALPACCA was added to the standard marks (see Fig. 120 below). It was placed before the mark with ostrich rhomb + one of two WMF rectangle boxes inside: with silver amount for one

cutlery piece or for 24 cutlery pieces. Below, I am presenting such new marks and their dimensions. However, such new marks on cutlery pieces soon disappeared. By the way, at the same time the similar "new marks" with the word ALPACCA also appeared on hollow ware marks and then soon disappeared.



Fig. 201. Two "absolutely new" cutlery marks.

Below, the table with additional data referring to ALPACCA box are given.

The dimensions of alpacca box, box with WMF and silver quantity and other mean parameters.

Size of	Alpacca	Alpacca	WMF	WMF length	Silver amount
alpacca	length	ratio	length	divided per	(in grams) and
box (mm)	(mm)		(mm)	height	number of
				(ratio)	experiments
1.1 x 7.1	6.6	8.7	3.4	4.7	8,5 and 2
0.8 x 6.9	6.4	9.5	3.2	5.2	60 per
					24 pieces and 2

Finally, we will investigate the data referring to the export to UK (maybe to USA as well). The corresponding marks consists of three different parts: a) the rhombus with the ostrich silhouette; b) the rectangle with three capital letters (WMF), so-called WMF box; c) the second rectangle/rhombus with information of used silver amount, that means using of I/O or O signs, respectively. It corresponds to the use of 1.0 (I/O) or 1.5 (O) grams of silver, put on 1 dm² of surface. Otherwise, the information of used silver in grams is given by one

cutlery piece (e.g. 10, 8, 3.5). One sauce spoon from my collection contains no silver.

Ostrich	Size of	WMF	WMF	Size of	Size of	Silver
rhombus	WMF box	length	length	O rhomb	I/O box	amount
size	(mm)	(mm)	divided	(mm)	(mm)	(in
(mm)			per			grams)
			height			
			(ratio)			
1.7 x 2.4	1.3 x 3.9	3.9	3.3	1.4 x 2.3	1.8 x 1.9	
14 times	14 times	14 times	14 times	2 times	12 times	
1.8 x 2.3	1.2 x 4.0	3.2	4.3		1.3 x 2.0	10,8,3.5
4 times	4 times	4 times	4 times		3 times	or no
						silver
1.9 x 3.6	1.3 x 4.3	3.8	4.2	1.2 x 2.2	1.7 x 2.0	
8 times	8 times	8 times	8 times	1 time	7 times	

The dimensions of ostrich rhombus size, second box with WMF and third box with I/O (or instead O rhombus), silver quantity and other mean parameters.

The last table shows the data obtained from the export to UK (maybe to USA as well). It is easy to establish, that the dimension of the rhombus with the ostrich silhouette was increased due to use of large picture of oscrich; simultaneously, the position of the ostrich was rotated by 90 degrees.

In order to finish the description of cutlery issued by WMF in 1903 - 1910, let us return to cutlery made of copper/brass. Concerning hollow ware pieces, for copper/brass WMF there are known two different marks (see above Fig.97). The mean size of the first mark (12 items with ostrich tales directed up) the ostrich rhombus is 7.1 mm × 8.8 mm, while the mean size of the second mark (9 items with round ostrich tales) is 4.7 mm × 5.6 mm.

In my collection there are exactly two cutlery pieces, one with ostrich tale directed up and second with round ostrich tale (see Fig. 121). The size of ostrich

rhombus in the first case is 7.0 mm \times 8.8 mm, while the size of ostrich rhombus in the second case is 4.6 mm \times 5.6 mm. Therefore, our data for two different cutlery pieces are exactly correlate with the data for hollow ware pieces.





Fig. 202. The size of two ostrich rhomb's with different ostrich tales. The data for two cutlery pieces are very well correlate with the data for hollow ware pieces.

The ostrich marks: "ostrich H" and "ostrich I" on cutlery pieces. The ostrich mark, called "ostrich H", was introduced on 1 July 1909. It was used during very short time (until between 1 June 1910) for marking on cutlery pieces. It contains the image of ostrich together with the two-line inscription WMF/G, set in the rhombus, which is further placed inside a fully-dashed arch. The mean size of the "ostrich H" mark during this short time period is 1.9 mm × 2.6 mm, measured for 6 cutlery pieces in my collection. Concerning the small cutlery pieces, in my collection there were four marks with the mean size 1.3 mm × 2.1 mm. The data of the mean size for the "ostrich H" for the cutlery pieces corresponds well to the mean size for data for the hollow ware pieces 1.5 mm × 2.1 mm (see page 99 above).



Fig. 203. Typical "ostrich H" cutlery mark, used in 1909 - 1910. The mean size of the "ostrich H" mark is 1.9 mm × 2.6 mm (for 6 large cutlery pieces) and 1.3 mm × 2.1 mm (for 4 small cutlery pieces)

In a year, another ostrich mark for silver-plated WMF objects was introduced [2]. From 1 June 1910 and until 1922, the "ostrich I" mark was used for silver-plated cutlery. It is similar to the "ostrich H" mark, but contains the image of ostrich together with the two-line inscription WMF/G, set in the rhombus, which is further placed inside a partly-dashed arch.

In my collection, there are 42 silver-plated cutlery pieces, marked by the "ostrich I" mark. The 19 pieces used the larger "ostrich I" mark. The mean size of the "ostrich I" mark (for 19 pieces) is 1.6 mm \times 2.4 mm. This mean size agrees well with the mean size of "ostrich H" mark (1.9 mm \times 2.6 mm for 6 large cutlery pieces), measured above. The remaining 23 pieces refer to the small silver-plated cutlery objects. The mean size of "ostrich I" mark (for 23 small cutlery pieces) is 1.4 mm \times 2.0 mm and again agrees well to the mean size for data for the hollow ware pieces of "ostrich H" mark in the case of small objects (1.3 mm \times 2.1 mm for 4 pieces), measured above.



Fig. 204. The best "ostrich I" cutlery marks from my collection, used in 1910 - 1922. The mean size of the "ostrich I" mark is 1.6 mm × 2.4 mm (for 19 large cutlery pieces) and 1.4 mm × 2.0 mm (for 23 small cutlery pieces)

As usual, we will present the new marks with ALPACCA mark and their dimensions. However, such new marks on cutlery pieces soon disappeared. By the way, at the same time the similar "new marks" with the word ALPACCA also appeared on hollow ware marks and then soon disappeared.



Fig. 205. In my disposition was one ladle of 35.3 cm long and 3 small cutlery pieces of mean 18.0 cm long. The dimensions of large ALPACCA box is 1.1 mm × 7.3 mm, while the mean size of small ALPACCA box is 0.9 mm × 6.2 mm. The length of large ALPACCA word was 6.8 mm with ratio 9.4. The mean length of three small ALPACCA words is 5.7 mm with ratio 9.1.

It should be noticed, that most of "ostrich I" marks on cutlery pieces in my collection were fulfilled in rather bad non-accurate style. This could be explained by two reasons: 1) World War (1914 - 1918) and 2) much smaller size of cutlery marks in comparison with larger size of hollow ware ones.

The ostrich marks: "ostrich J" and "ostrich K" on cutlery pieces. Now we will consider the cutlery pieces made without the silver, so-called "das Geschirr". We have two different groups of cutlery: 1) with the mark corresponding to "ostrich J" and 2) with the mark corresponding "ostrich K". While the first group contains five cutlery pieces with the mean length 39.2 cm, the second group contains seven cutlery pieces with the smaller mean length of 27.5 cm. The mean size of the "ostrich J" mark is 3.6 mm × 5.7 mm (for 5 large cutlery pieces). The mean size of the "ostrich K" mark is 2.8 mm × 3.9 mm (for 7 smaller cutlery pieces).



Fig. 206. The best "ostrich J" and "ostrich K" cutlery marks from my collection, used in 1910 - 1922. The mean size of the "ostrich J" mark is 3.6 mm × 5.7 mm (for 5 large cutlery pieces). The mean size of the "ostrich K" mark is 2.8 mm × 3.9 mm (for 7 small cutlery pieces).

Finally, we will discuss two export cutlery pieces, both of them refer to "ostrich K" marks. The first one besides the lying "ostrich K" mark includes the strange inscription "WCROM". After long investigation, I found that the word CROM means CHROME in Swedish. So, together with letter W the combination "WCROM" means Wurttemberg Chrome. The second export cutlery piece beside the lying "ostrich K" mark includes the strange word "ALPACA", which in Spanish corresponds to the German word ALPACCA.





Fig. 207. Two export inscriptions ('WCROM" 5.4 mm long and "ALPACA" 5.5 mm long) are in combination with horizontal lying "ostrich K" cutlery marks from my collection, used in 1910 - 1922.



Fig. 208. The mean size of the "ostrich K" marks are 2.0 mm × 3.3 mm (for "WCROM" cutlery piece of 37.1 cm long cutlery piece) and 2.1 mm × 3.3 mm (for "ALPACA" cutlery piece of 34.2 cm long cutlery piece).

Art Deco revolution during 1922 - 1930.

Until about 1922, hollow ware, napkin rings and cutlery pieces, all silver-plated, continued to be produced by the WMF factory. However, after about 1922, all hollow ware pieces and napkin rings lost their belonging to silver-plated society: only silver-plated cutlery pieces became the main stream of WMF development. We could name it as the Art Deco revolution!

Starting from WMF 1400 Lily until WMF 2900, one can count all together 10 new handle models! I can remind, that during the 1910 - 1922 years only 5 new handle models of cutlery were developed (that means 5/12 = 0.4 new models per year). However, starting from the 1922 and until 1930, I can enumerate 10 new cutlery handle models which were developed. According to [20] reference, I can list the following models: WMF 1400 Lily, WMF 1500 Chippendale, WMF 1600 Acanthus, WMF 1700, WMF 1900, WMF 2000, Art Deco, WMF 2200, WMF 2300, WMF 2500 and WMF 2900. That means 10/8 = 1.25 new models per year were developed and the productivity increased by 3 times!

Due to necessity and freedom at the same time, a lot of different marks were probed and used during the 1922 - 1930 years. I will start with the description of common marks used for the production of 24 normal spoons (or forks). They were marked by 90 grams, which was the real amount of used silver for the mentioned content.

In my collection there are 5 dinner spoons 20.8 cm - 21 cm long. The mean size of the box with two-row WMF inside is 1.6 mm \times 1.7 mm. The mean size of the box "90" is 1.3 mm \times 1.7 mm. There are also two short spoons 13.7 cm - 13.8 cm long. For short spoons, the mean size of the box with two-row WMF inside is 1.1 mm \times 1.3 mm and the mean size of the box "90" is 0.9 mm \times 1.3 mm.



Fig. 209. The views of two sides of the dinner spoon 20.9 cm long (model No. 200 Kreuzband).



Fig. 210. The general view of the mark put on the dinner spoon 20.9 cm long. The size of the box with two-row WMF inside is $1.7 \text{ mm} \times 2.0 \text{ mm}$ and the size of the box "90" is $1.4 \text{ mm} \times 1.8 \text{ mm}$.



Fig.211. The views of two sides of the dinner fork 20.3 cm long (model No.1600 Akanthus).



Fig.212. The view of the mark put on the dinner fork 20.3 cm long. The size of the box with two row WMF inside is 1.5 mm \times 1.6 mm; the size of the box "90" is 1.2 mm \times 1.6 mm.

In my collection there are 3 dinner forks 18.2 cm - 20.3 cm long. The mean size of the box with two-row WMF inside is $1.4 \text{ mm} \times 1.6 \text{ mm}$. The mean size of the box "90" is $1.2 \text{ mm} \times 1.6 \text{ mm}$.

I cannot show the views of dinner spoons/forks with lower silver as they are absent in my collection. As well, this refers to the corresponding marks. However, according to the WMF catalogue [28], Mr. Stefan Tausch-Marton from Dresden generously presented me the copy of it; now we can easily reconstruct the view of marks with lower silver content.



Fig. 213. The proposed view of the mark with low silver content.



Fig.214. In my collection, there is one teaspoon with lowest silver content. The views of two sides of the teaspoon 13.9 cm long (model No.70 Pyramide).





Fig.215. The view of the mark put on the tea spoon 13.9 cm long corresponds well with the lowest silver content, mentioned in [28]. The size of the box with two-row WMF inside is 1.6 mm \times 1.8 mm; the size of the rhomb "40" is 1.6 mm \times 2.9 mm.

Next, I will describe the single cutlery pieces with corresponding marks, consisting of horizontal WMF inscription with the signs in boxes: "100", "90", and "I/O" signs. Such numbers could refer to 100 grams and 90 grams of used silver and "I/O" sign refers to 1 gram of silver, put on 1 dm² of surface. However, I think that such data does not give any information about the real amount of used silver. Below, we will be showing the marks with horizontal WMF inscription and their size.


Fig.216. The general view of the mark is shown as well as the separate boxes WMF and "100". The size of the box WMF is 1.0 mm \times 3.9 mm, the WMF length is 3.7 mm and the ratio (length/height) is 4.5. The size of the box "100" is 1.1 mm \times 2.4 mm.



Fig.217. The general view of the mark is shown as well as the separate boxes WMF and "90". The size of the box WMF is 1.1 mm \times 4.7 mm, the WMF length is 4.5 mm and the ratio (length/height) is 4.2. The size of the box "90" is 1.1 mm \times 1.9 mm.





Fig. 218. The general view of the mark is shown as well as the separate inscriptions WMF and "I/0". The length of the inscription WMF is 4.6 mm and the ratio (length/height) is 3.1. The length of the separate sign "I/0" is 1.6 mm \times 2.5 mm.

Different trial cutlery during Art Deco revolution.

After describing two main ways to produce Art Deco cutlery, I found another four different WMF trial productions, which I decided to describe in this paragraph.

1) The first trial approach was to use the ostrich put in the rhomb, which was already used between 1903 and 1910. However, instead of one row used to write WMF between 1903 and 1910, after 1922 the two-row WMF inscription was used (see below). First, I show the general view, after that the separate ostrich rhomb, the box WMF (with two-row inscription) and the box "90".







Fig. 219. In my collection there are 3 dinner spoons 20.4 cm - 21.1 cm long. The mean size of the ostrich rhomb is 1.7 mm × 2.9 mm. The mean size of the WMF box (with two-row inscription) is 1.7 mm × 1.9 mm. Finally, the mean size of the box "90" is 1.6 mm × 1.9 mm.

2) The next trial used simultaneusly two different silver amounts in grams: one refers to silver used for mentioned production and second refers to silver, really covered 24 cutlery pieces. The use of shorter spoons and forks brings to a smaller second silver amount! First, I will show the general view, after that separately the box WMF (with two-row inscription) and two boxes: the box "90" (90 grams was a real amount of used silver for mentioned production) and box "45" (45 grams of silver was accepted by 24 cutlery pieces).







Fig. 220. In my collection there are 2 dinner spoons and 1 dinner fork 20.4 cm - 21.2 cm long. The mean size of the WMF box (with two-row inscription) is 1.7 mm × 2.3 mm. The mean size of the box "90" is 1.4 mm × 1.8 mm. Finally, the mean size of the box "45" is 1.5 mm × 1.8 mm.

With the next material, I again started with a demonstration of general view, after that separately the box WMF (with two-row inscription) and two boxes, the box "90" (90 grams is a real amount of used silver for mentioned production) and box "30" (30 grams of silver was accepted by 24 cutlery pieces).







Fig.221. In my collection 1 have only one dinner spoon 18.4 cm long, produced before 09.09.1924. The size of the WMF box (with two-row inscription) is 2.1 mm × 2.1 mm. The size of the box "90" is 1.6 mm × 1.8 mm. Finally, the size of the box "30" is 1.6 mm × 1.9 mm.

With the last material, I will again start with a demonstration of general view, after that separately the box WMF (with two-row inscription) and two boxes, the box "90" (90 grams is a real amount of used silver for mentioned production) and the box "18" (18 grams of silver was accepted by 24 cutlery pieces).







Fig.222. In my collection, I have only one small spoon 13.8 cm long. The size of the WMF box (with two-row inscription) is 1.8 mm × 2.2 mm. The size of the box "90" is 1.4 mm × 1.6 mm. Finally, the size of the box "18" is 1.6 mm × 1.6 mm.

3) The next trial is connected with horizontal WMF inscription plus two additional boxes showing different silver amount in grams: one refers to silver used for the mentioned production and the second refers to silver, found on the concrete cutlery piece. First, I will show a general view, after that separately the box with horizontal WMF inscription and two accompaning boxes: the box "90" (90 grams of silver was used for the mentioned production) and box "8" (or box "5").







Fig.223. In my collection, I have two spoons 30.6 cm and 17.0 cm long with horizontal WMF inscription plus 2 boxes showing different silver amount in grams: one refers to silver used for mentioned production and the second one refers to silver, found on the concrete cutlery piece. The mean size of two boxes with horizontal WMF inscription is $1.4 \text{ mm} \times 4.9 \text{ mm}$. The mean size of the box

"90" is 1.4 mm × 1.9 mm. Finally, the mean size of two boxes "8" and "5" is 1.5 mm × 1.8 mm.

Finally, I will describe the spoon with horizontal WMF inscription plus two additional circles showing different silver amounts in grams: one refers to silver used for mentioned production ("60 grams") and the second one refers to silver, found on the concrete cutlery piece ("3 grams"). First, I will show the general view, after that separately the box with horizontal WMF inscription and two accompaning circles: the circle "60" and the circle "3".



Fig. 224. In my collection, I have a spoon 25.5 cm long with horizontal WMF inscription plus 2 boxes showing different silver amounts in grams: one refers to silver used for mentioned production and the second refers to silver, found on the concrete cutlery piece ("60 grams" and "3 grams"). The size of the box with

horizontal WMF inscription is 1.4 mm \times 4.9 mm. The length of WMF inscription is 4.7 mm with ratio (length/height) 4.1. The diameter of the circle "60" is 1.8 mm. Finally, the diameter of the circle "3" is also 1.8 mm.

4) The last trial is somewhat similar to the "ostrich M" by the "additional parts of the window", which gives to these marks a three-dimensional character (see above pp.104 -105). Though there are strong differences, namely: 1) the absence of ostrich profile; 2) the absence of "G" letter; 3) the appearing of two-row WMF inscription or, opposite, the use of long WMF inscription.





Fig. 225. In my collection, there are two spoons, 18.4 cm and 23.7 cm long, with two-row WMF inscription and horizontal WMF inscriptions plus 2 boxes, showing similar silver amount in grams ("90"). The size of the box with two-row inscription is 1.1 mm × 1.2 mm, the size of the box "90" is 0.9 mm × 1.2 mm.

The size of the box with long WMF inscription is $1.1 \text{ mm} \times 4.1 \text{ mm}$, the size of the box "90" is $1.0 \text{ mm} \times 1.7 \text{ mm}$.

WMF knives with iron blades.

Before starting the presentation of WMF cutlery knives marks, it is necessary to remember some peculiarities of the cutlery knives themselves. It is clear that any knife (in German "das Messer") consists of the blade (in German "die Klinge") and the handle (in German "der Griff") and they are produced from different materials. Most people think that such a construction lasts forever. However, in reality, the "life" of the blade is often shorter than that of the handle, as it could lose its sharpness or even be broken. For the knives, used in cutlery, it is possible to exchange the old blade with a new one; it is a rather simple operation.

The blades used in the WMF knives in the period 1898 - 1922 were made of iron; later appeared the stainless steel blades, later in 1922 - 1927 the so-called "Blade Revolution" took place. Thousands of people brought or sent their knives to the factories or to small workshops in order to replace the iron blades with the stainless steel ones and until the end of the Twenties, practically all cutlery knives in use possessed stainless steel blades. In summary, while collecting old cutlery knives, one should understand that the blade could be either younger than the handle or of the same age.

It should be emphasized, that for the description of knives, the blade marks are the most important elements, and the handle marks are given as supplementary material. Moreover, the dating of the WMF knives is based on the blade dating. Usually, I tried to collect and investigate the knives with the blades and handles, which were issued at the same time. Rarely, I described the knives with handles, which were much older than the blades.

Beside the marks, the blades are also characterized by their contours. Some of the blades of special form are very rare. Using the data, published earlier in [29,30], I chose the four most often used contours and made a joint picture of them. The capital letters involved contain the information about the knife contour, namely:

A means the French contour, **B** refers to the English contour, **C** means the German contour and **D** a slightly modernized German contour.



Fig. 226. Typical contours of Wellner knives, used between 1900 and 1930 [29,30]. Only half of all shown blades is marked by Wellner marks. Below I will demonstrate my WMF blades, which all are marked.

I have started to collect WMF knives from 2016 and until now purchased around 100 different pieces. My collection mainly consists of the standard dinner knives with the 21-26 cm length. All WMF knives were produced in line with the following rule: the blade mark and the handle mark (which could be made of pure Alpacca or silver-plated) are set on the opposite sides of the knife. All handles of the WMF knives, as well as other cutlery pieces, have the model name and the model number. If I got the knife with the empty blade, that means, the initial blade was changed. Therefore, in my WMF knife collection there is no pieces with changed blade.

The first WMF factory, producing knives, started in 1898 and continued until 1903. It has the mark METALLFABRIK GEISLINGEN. Probably, the first WMF factory was using the blade material (iron), which was bought from Solingen, the German capital of blade production. Below is the first WMF knife (which reached us!) with the mark presented below.



Fig. 227. The upper one of two first WMF knives was produced between 1898 and 1903 (except centenary year 1900). The mark METALLFABRIK GEISLINGEN on the blade is set perpendicular to the knife axis. The length of the first word is 15.9 mm; the Ratio (Length/Hight) is 8.2. The length of the second word is 12.8 mm, the Ratio (Length/Hight) is 7.4. The length of the knife is 25.4 cm. The contour of the concrete blade is D.





Fig. 228. The second WMF knife was produced exactly in the centenary year 1900. The mark METALLFABRIK GEISLINGEN is set on the blade parallel to the knife axis (!). The size of "MFG" is 9.1 mm × 4.0 mm (without stars). The length of the knife is 25.1 cm. Notification: A part of the WMF knives, produced in the year 1900, contains an old METALLFABRIK GEISLINGEN mark, put perpendicular to the knife axis. The contour of the concrete blade is also D.

The next material is devoted to the appearance of the mark of the J.A. HENCKELS foundry with the simultaneous disappearance of the mark METALLFABRIK GEISLINGEN on the blades of WMF knives.



Fig. 229. Advertisement of the J.A.HENCKELS foundry, published in 1896. Please, notice the picture "die Zwillinge" (the Twins), the most famous mark of the J.A.HENCKELS factory.

The previously discussed two types of METALLFABRIK GEISLINGEN marks, put on the blade, were used between 1898 and 1903. Below, I will show a rare cooperation of "The Twins" and J.A.HENCKELS TWINS SOLINGEN FACTORY (my translation), which was put on the blade, while the handle uses the model "Jugendstil u" (page 166).







Fig. 230. The inscription J.A.HENCKELS TWINS FACTORY in SOLINGEN (my translation) is presented on the blade parallel to the knife axis (!). Opposite, the logo "The Twins" is presented perpendicular to the knife axis (!). The size of "The Twins" is 3.5 mm × 4.8 mm. The length of the word HENCKELS is 11.6 mm, Ratio is 7.7 mm. The length of the word SOLINGEN is 10.9 mm, Ratio is 7.7 mm. The size of the whole inscription is 3.6 mm × 28.1 mm. The length of the knife is 24.9 cm. The contour of this blade is A.

With similar disposition of "The Twins" and the two-line inscription J.A.HENCKELS TWINS SOLINGEN FACTORY (my translation) on the blade below, I am presenting together with the handle model "Jugendstil t" (page 165).





Fig. 231. The inscription J.A.HENCKELS TWINS FACTORY in SOLINGEN (my translation) is presented on the blade parallel to the knife axis (!). Opposite, the logo "The Twins" is presented perpendicular to the knife axis (!). The size of "The Twins" is 3.8 mm × 5.1 mm. The length of the word HENCKELS is 11.6 mm, Ratio is 8.7 mm. The length of the word SOLINGEN is 10.6 mm, Ratio is 8.0 mm. The size of the whole inscription is 3.6 mm × 27.4 mm. The size of the ostrich rhombus is 1.8 mm × 2.7 mm. The length of the knife is 25.4 cm. The contour of this blade is C.

These two rather rare knives possess similar logos of "The Twins" and similar inscriptions (J.A.HENCKELS FACTORY in SOLINGEN) with similar sizes. They both have silver-plated handles with the same value of silvering. Nevertheless,

between them there is an important difference, namely, the presence of the ostrich rhombus in the second case. That brings us to the result that the second knife was made after 1903; at the same time the first knife existed before 1903!

Now we will switch to the next fifth knife (to count out from the beginning) with the rarest mark on the blade. I found it in the literature in 2016 (see below), but I could buy my sample only eight years later. This finally allowed me to measure the sizes of all the pieces belonging to the mark on the fifth knife.





Fig.232. Two pictures of very rare fifth knife found in literature: 1) the inscription on the blade WÜRTT. METALLW. FAB. GEISLINGEN (my translation WÜRTTEMBERG METALLWAREN FABRIK GEISLINGEN) with the new combination WMF inside the rectangle together with the old logo "The Twins", all three parts on the blade are parallel to the knife axis (!). 2) the ostrich rhombus on the handle near the blade.

Now we will switch to my sample of the rarest fifth knife, which I bought in 2024 from ebay.de for only 1 euro (!). See below this sample together with blade inscription and its parts.





Fig. 233. The main difference is the new WMF combination, put inside the rectangle. All three parts on the blade are parallel to the knife axis (!). The size of the WMF rectangle is $5.0 \text{ mm} \times 5.3 \text{ mm}$. The size of the logo "The Twins" is $3.7 \text{ mm} \times 4.7 \text{ mm}$. The length of word GEISLINGEN is 14.4 mm, Ratio is 9.6 mm. The size of the whole inscription is $3.6 \text{ mm} \times 27.4 \text{ mm}$. The size of the ostrich rhombus is $1.7 \text{ mm} \times 2.4 \text{ mm}$. The length of the sample is 20.9 cm. The contour of this blade is A.

My next idea was to replace on the blade the WMF combination by the new profile of the ostrich. All other pieces on the blade: the inscription WÜRTT. METALLW. FAB. GEISLINGEN and "The Twins" are the same. Again, all three parts on the blade are parallel to the knife axis (!). I call it the sixth knife.





Fig. 234. The only difference between the blades of the fifth and the sixth knives is the use of new profile of the ostrich instead of two-row WMF combination, put inside the rectangle. The size of the ostrich is 3.9 mm × 4.4 mm. The size of the logo "The Twins" is 3.6 mm × 4.7 mm. Both the ostrich and "The Twins", as well as the inscription are parallel to the knife axis. The length of the word GEISLINGEN is 14.1 mm, Ratio is 9.3 mm. The size of the whole inscription is 3.5 mm × 25.1 mm (without last dot). The size of the ostrich rhombus is 1.7 mm × 2.5 mm. The length of the sample is 25.3 cm. The contour of this blade is D.

The next seventh knife is simpler. There is no inscription on the blade, only profiles of the ostrich and of "The Twins". Attention! Now these profiles are put **perpendicular to the knife axis** (!). In my collection, there are six knives bought from different owners: from Berlin (A), Münster (B), Durmersheim (D), Heikendorf (D), Magdeburg (D), Ulm (D). The contour of each knife is given in the brackets after the local position.





Fig. 235. The only difference between the blades of the sixth and the seventh knives is that in the last one the inscription has been removed. The size of the ostrich is $3.8 \text{ mm} \times 5.2 \text{ mm}$. The size of the logo "The Twins" is $3.6 \text{ mm} \times 4.9$

mm. Both the ostrich and "The Twins" are displayed perpendicular to the knife axis. The size of the ostrich rhombus is $1.8 \text{ mm} \times 2.5 \text{ mm}$. The length of the sample is 25.0 cm. The contour of this concrete blade is D.

Below I am listing mean values for the seventh type of these in my management (8 pieces). The mean size of the ostrich is $3.8 \text{ mm} \times 4.5 \text{ mm}$. The mean size of the logo "The Twins" is $3.7 \text{ mm} \times 4.8 \text{ mm}$. The mean size of the ostrich rhombus is $1.8 \text{ mm} \times 2.6 \text{ mm}$.

The next eighth type of knives, used between 1903 and 1910, is quite numerous (12 pieces of this type in my collection).







Fig. 236. The blade of the eighth knife demonstrates the return to the fifth knife, but without any inscription. Both the WMF rectangle and the logo "The Twins" are displayed perpendicular to the knife axis. The size of the WMF rectangle is $4.7 \text{ mm} \times 5.1 \text{ mm}$. The size of the logo "The Twins" is $3.3 \text{ mm} \times 4.0 \text{ mm}$. The size of the ostrich rhombus is $1.7 \text{ mm} \times 2.7 \text{ mm}$. The length of the sample is 24.9 cm. The contour of this concrete blade is D.

The mean values of all eighth type knives from my collection. The mean size of the ostrich is 4.8 mm \times 5.1 mm. The mean size of the logo "The Twins" is 3.4 mm \times 4.2 mm. The mean size of the ostrich rhombus is 1.8 mm \times 2.5 mm.

From about 1903 until 1910 (7 years), 21 knives in my collection were used. From 21 different knives, the three ones (fourth, fifth and sixth) took $3/22 \times 6$ = 0.8 of one year. That means the three different knives were used roughly only one-year period between 1903 and 1904! Moreover, the most of time (6 years), the two remaining types (seventh and eighth) were used.

During the next period, from about 1910 until 1922, a very little amount of new knives were used (only one type of knives in my collection). This fact is connected with the worst economic situation (and hyperinflation) in Germany near 1922. Consequently, in this period, the production of the WMF factory decreased dramatically and a lot of output cutlery was exported.

The ninth type of knives is similar to the previous one, except for the disappearance of the ostrich rhombus and appearance of the "ostrich I" mark (see pages 100-101 above), but not every time.





Fig. 237. The blade of the ninth knife is similar to the eighth one. Both the WMF rectangle and the logo "The Twins" are displayed perpendicular to the knife axis. The size of the WMF rectangle is $5.1 \text{ mm} \times 5.4 \text{ mm}$. The size of the logo "The Twins" is $3.8 \text{ mm} \times 4.6 \text{ mm}$. The size of the "ostrich I" mark: the beehive size is $1.4 \text{ mm} \times 1.6 \text{ mm}$; the arch size is $1.4 \text{ mm} \times 0.4 \text{ mm}$. The length of the sample is 25.4 cm. The contour of this concrete blade is A.





Fig. 238. The blade of the tenth knife, used in 1922-1930, is similar to the eighth and the ninth ones. It is the last iron blade. Both the WMF rectangle and the logo "The Twins" are displayed perpendicular to the knife axis. There is no additional marks. The size of the WMF rectangle is 4.8 mm × 5.1 mm. The size of the logo "The Twins" is 3.2 mm × 3.9 mm. The length of the sample is 25.4 cm. The contour of this concrete blade is D.

The mean values of the knives (with non stainless steel blades) from my collection (6 pieces). The mean size of the WMF rectangle is $5.1 \text{ mm} \times 5.3 \text{ mm}$. The mean size of the logo "The Twins" is $3.7 \text{ mm} \times 4.3 \text{ mm}$.

WMF knives with iron blades for the Austro-Hungarian Empire. Now I will make a small turning towards the Austro-Hungarian Empire. In my collection, there is a couple of similar knives with a blade made in Geislingen between 1903 and 1910.





Fig. 239. The only one type of mark on the blade of the knives specially made for Austro-Hungary is known. The length of the W.M.F. is 7.6 mm (w.l.d.), Ratio 2.6. The size of the logo "The Twins" is 3.9 mm × 4.6 mm. Both the W.M.F. and "The Twins" are displayed perpendicular to the knife axis. The size of the ostrich rhombus is 2.0 mm × 2.8 mm. The length of the sample is 25.0 cm. The contour of this concrete blade is A.

WMF knives with stainless steel blades.

Now we shall discuss four types of stainless steel blades, used in 1922 - 1930. The first three: one with the inscription "ROSTFREI" (in English "Stainless Steel") and two others with the inscription "NICHT ROSTEND" (in English "None Rusting") are very rare, so we should accept them like trial ones.







Fig. 240. The first stainless steel blade, used for the eleventh knife, was fulfilled by the WMF rectangle and the logo "ROSTFREI", put inside oval box. They both are displayed perpendicular to the knife axis. The size of the WMF rectangle is 4.9 mm × 5.0 mm. The length of the word "ROSTFREI" is 10.8 mm, Ratio is 6.2 mm. The word "ROSTFREI" is put inside oval logo. The size of the oval logo is 3.1 mm × 12.4 mm. The size of the box WMF on the handle is 1.2 mm × 1.7 mm. The length of the knife is 25.7 cm. The contour of the concrete blade is D.

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Fig. 241. The second stainless steel blade, used by the twelfth knife, is fulfilled by the logo "The Twins" and the logo "NICHT ROSTEND" (in English "None Rusting"). These two parts are displayed perpendicular to the knife axis. The size of the logo "The Twins" is 4.7 mm × 5.1 mm. The length of the logo "NICHT ROSTEND" is 3.5 mm × 8.5 mm. The size of the box WMF on the handle is 1.8 mm × 1.8 mm. The length of the knife is 25.0 cm. The contour of the concrete blade is D.





Fig. 242. The third stainless steel blade, used for the thirteenth knife, is fulfilled by the WMF rectangle and the logo "NICHT ROSTEND". They both are displayed perpendicular to the knife axis. The size of the WMF rectangle is $4.5 \text{ mm} \times 4.6 \text{ mm}$. The size of the logo "NICHT ROSTEND" is $3.6 \text{ mm} \times 7.5 \text{ mm}$. The size of the box WMF on the handle is $1.0 \text{ mm} \times 1.9 \text{ mm}$. The length of the knife is 21.1 cm. The contour of the concrete blade is A.

Finally, we are reaching the widely used in 1922 - 1930 fourteenth type knife with stainless steel blade. In my collection, there are nine such knives













Fig. 243. The third stainless steel blade, used for the fourteenth knife, was fulfilled by the pyramid, the logo "NIROSTA" (in English Stainless Steel!) and the WMF rectangle. Again, they all are displayed perpendicular to the knife axis. The height of pyramid is 3.0 mm. The length of the word "NIROSTA" is 8.1 mm, Ratio is 5.2 mm. The word "NIROSTA" is set inside the oval logo. The size of oval logo is 2.9 mm × 10.2 mm. The size of the WMF rectangle is 4.8 mm × 5.1 mm. The size of the box WMF on the handle is 1.1 mm × 1.9 mm. The length of the knife is 21.1 cm. The contour of the concrete blade is A.

The mean values of the knives from my collection. The mean height of pyramid is 3.3 mm. The mean length of the word "NIROSTA" is 10.5 mm, Ratio is 6.0 mm. The mean size of oval logo with "NIROSTA" is 2.9 mm × 13.1 mm. The mean size of the WMF rectangle is 4.7 mm × 4.9 mm.

WMF marks on napkin rings.

During two years, I have investigated marks of WMF hollow ware and cutlery pieces, and the results of my investigations (concerning WMF activities during 1880 - 1930) were collected in this book. Now I am going to compare the dimensions of the marks on the objects made of hollow ware and cutlery with the same marks on the napkin rings.

Let us start from the very early years. One of the earliest (1880 - 1883) threeletter marks consists of the WMF inscription with the letters M and F, glued together (see above page 19). I have three photos from hollow ware, cutlery and napkin rings. All three pictures demonstrate similar photographs of WMF inscription. But, what is really impressive, are the results of the measuring of all three pictures, see below.



Fig.244. The first picture represents a tea glass holder (hollow ware) and the view of the mark for this picture.





Fig. 245. The second picture represents a fork (cutlery) and the view of the mark for this picture.



Fig.246. The third picture represents the figure of a clown on napkin ring and the view of the mark for this picture.
The dimensions of the length and the ratio (length/height) for three different objects in the case of hollow ware, cutlery and napkin rings (1880 - 1883).

Object	Length (mm)	Ratio
Fig. 244.	4.0	3.1
Fig.245.	3.9	3.0
Fig.246.	3.8	3.2

It is clear that three different objects demonstrate the similar result.

Now we will compare the dates from the WMFN and WMFN. These data were the most popular for the cutlery, where the most of Jugendstil pieces have been registered. I have compared these data with those from hollow ware pieces and napkin rings.

The mean dimensions of the length and the ratio (length/height) for the numbers of hollow ware pieces, cutlery and napkin rings (1895 - 1903).

Object	Number of pieces	Length (mm)	Ratio
Hollow ware	13	4.4	3.6
Cutlery	40	4.2	3.5
Napkin rings	17	4.9	3.7

This time, we obtain the similar result for different pieces (hollow ware, cutlery or napkin rings).

Now we will compare the size of the "ostrich H" mark (between 1 July 1909 and 1 June 1910), used for marking the silver-plated hollow ware objects (see page 99), cutlery and napkin rings. I have to remind that the image of the "ostrich H" consists of the ostrich above the two-line inscription WMF/G, set in the rhombus, which is further placed inside a fully-dashed arch.

The mean dimensions of the mark for WMF hollow ware pieces, cutlery and napkin rings (1909 - 1910).

Object	Number	Mean size of	Number	Mean size of
02,000				
	of pieces	normal mark	of pieces	cmall mark
	of pieces	normat mark	of pieces	Siliali ilialik
Hollow ware	9	$2.1 \text{ mm} \times 3.0 \text{ mm}$	1	1.5 mm x 2.1 mm
		2	•	
Cutlery	8	19 mm × 26 mm	Λ	13 mm × 21 mm
cuttery	0	1.7 mm ~ 2.0 mm	т	1.5 mm ~ 2.1 mm
			_	
Napkin rings	-	-	7	1.4 mm × 2.1 mm

We obtain the similar result for different pieces (hollow ware, cutlery or napkin rings).

Now we will compare the size of the "ostrich I" mark (between 1 June 1910 and until 1922) used for marking the silver-plated hollow ware objects (see page 100), cutlery and the napkin rings. I have to remind that the image of the "ostrich I" consists of the ostrich above the two-line inscription WMF/G, set in the rhombus, which is further placed inside a partly-dashed arch.

The mean dimensions of the mark for WMF hollow ware pieces, cutlery and napkin rings (1910 - 1922).

Object	Number	Mean size of	Number	Mean size of
	of pieces	normal mark	of pieces	small mark
Hollow ware	40	2.1 mm × 3.2 mm	14	1.5 mm × 2.3 mm
Cutlery	16	1.6 mm × 2.3 mm	20	1.3 mm × 2.1 mm
Napkin rings	-	-	17	1.4 mm × 2.2 mm

Again, we got the similar result for different pieces (hollow ware, cutlery or napkin rings).

Resume. The marks of different pieces are very similar in size.

Some napkin rings produced by WMF between 1880 and 1930.



Fig. 247. A very common theme on a napkin ring is fruits, in this case grapes.



Fig. 248. In this case, one of the German literary heroes, Moritz, is depicted.



Fig. 249. Here, the owner's initials in the oval are simply given.



Fig.250. Here is shown one of the architectural monuments of Bavaria, the Neuschwanstein castle.



Fig. 251. Here, in the napkin ring two butterflies are depicted on both sides.



Fig. 252. The meeting of two friends, a dog and a cat.



Fig. 253. Here on the napkin ring lilies are depicted.



Fig. 254. Here on the ring a picture of two women meeting.



Fig. 255. High rank lines on the ring!



Fig. 256. One of the last images on the napkin ring.

Supplement. One more excellent punch ladle.

At the end of my two-year work, I am returning to 31 handle models, established before 1903 (see p.179). With a new punch ladle, the whole number of Jugendstil handle models before 1903 will reach 32. The full number of Jugendstil handle models (1892 - 1922) will reach 47.







Fig. 257. Handle model "Jugendstil ss". This punch ladle was made in a beautiful style, especially, the ladle with pistils! This WMF Jugendstil ladle is unknown. Above there is a mark of the concrete cutlery piece, including the main part, the inscription WMFN. This mark is a good witness of the ladle appearance before 1903.