
Albert Nestler: Innovation and Quality

Guus Craenen

Note: This article was adapted from a paper read before the International Slide Rule Meeting held in Munich on 15 September 2001.

Introduction

This article covers the Nestler company and its slide rules, as well as their prehistory and dating. It represents a short version of the just-edited book with the same title. [1] The displayed Nestler products are compared with those of other manufacturers of the same time period: 1872 to 1972. This period could be called the German period in the manufacture of slide rules; German companies seem to have had the leadership in Europe in this field.

Germany had three important manufacturers in this period: Faber-Castell in Stein/Nürnberg; Dennert & Pape in Hamburg-Altona; and Nestler in Lahr, Black Forest.

The Nestler-Rechenschieber era is known to collectors as one full of puzzles; books, catalogs, and slide rules of Nestler were offered for a long time without dating, while products of Dennert & Pape were always dated, and those of Faber-Castell were dated beginning in 1910. This peculiarity often led to wild speculations: Had Nestler something to hide?

In 1880, relatively late, Nestler began manufacturing slide rules. Nevertheless, Nestler reached an outstanding position with innovative systems and with high-quality products. Exports went to 60 countries. How did Nestler manage that?

The City of Lahr

The city of Lahr, located about 40 km north of Freiburg in the Black forest, is the home of Nestler. In 1872, the city counted 7800 inhabitants; by 1972, this number had grown to 36000.

Even in the Middle Ages, Lahr was a successful market and trade city. Through changes in demographics the city lost its strong trade position; however, it then focused on industrial development. This change was financed from former business profits. Industrialization in Lahr started early. The first factories owe their foundation to the private initiative of individual personalities from Lahr. The merchant Carl Ludwig Lotzbeck opened a tobacco factory in 1774; by 1809, 80 workers were employed there, a big number for a business at that time. In the 19th century industry and trade bloomed: in 1815, there were three factories and 47 business firms; by 1880, these numbers had climbed to 42 factories and 113 businesses.

The population of Lahr is open minded, progressive and friendly. The city has a comfortable atmosphere.

Spring comes early to Lahr, and that has influenced wine-growing.

The Nestler family made their home here, and their factories were established here.

The Nestler Family

There is no chronicle about the Nestler family. The author obtained information on the predecessors of the family from an article by Ernst Schlosser published in 1975. [4]

“The Nestlers come from the Erzgebirge. They immigrated via the Alsace in the second half of the 18th century. In Lahr, at the beginning of the 19th century, they started to process linen and hemp, and to engage in trade with the manufactured products like canvas, Kölsch, half-cloth, and pack-cloths. In the beginning of the 19th century, no trade was as strong in Lahr as linen weaving. The Nestlers were first active in Lahr in this trade as weavers and flat-makers¹. They carried on their business from the beginning at the corner of Bahnhofstrasse and Tiergartenstrasse, where the Nestler company is still located.”

The father, Christian Daniel Nestler, 1811-1894, had four sons: Albert², Hermann, Carl, and Adolf.



Figure 1. Albert Nestler, 1851-1901.

Albert Nestler, son of Christian Daniel, was born in 1851 in Lahr. He was educated as a merchant. A passport for him was recorded in 1869, but whether he ever used it is not known.

¹Flat-maker: old job title for a textile expert who smooths cotton under high pressure.

²Albert Nestler is still known today under the name Maßstab-Nestler (Maßstab = measuring rule).

In 1876, Albert Nestler married Luise Bähr from Friesenheim near Lahr. They had six children.

Richard, 1878-1956, the eldest son of Albert Nestler, became a prominent personality. After completing his education as a merchant, he apprenticed the first year at Wich company, a customer of Nestler's in Paris.



Figure 2. Albert Nestler's mansion in 1904: Bergweg 74, Lahr.

About the turn of the century, the Nestler family suffered heavy losses: the two-story factory building burned down in 1899, and Albert Nestler died in 1901. The two sons, Richard and Albert, Jr. took over the leadership. They were only 23 and 24 years of age, respectively, at the time.

The Nestler bank considered this change of leadership a high risk. The mother of the two young entrepreneurs achieved financial security through the sale of some properties. Luise Nestler-Bähr died in 1917 at the age of 62.

The period between the turn of the century and World War I is marked by intense development. Almost every year, Nestler brought a new slide rule model to market, that often sold in large quantities for decades. Family and company survived World War I without losses.

Economically viewed, the years between the world wars were a successful period. In 1922, Nestler became a public company, with Albert, Jr. and Richard Nestler as managers. The two brothers opened up new export markets: Albert Nestler concentrated on the Soviet Union, Scandinavia, and the Balkans, Richard Nestler traveled mainly to South America. The brothers were very different. Albert was gregarious, loved wine and a good meal; Richard was serious, strict, and very reserved.

Richard developed into a prominent entrepreneur, who turned Nestler into a big, international business. Between 1930 and 1947, Richard was president of the chamber of commerce of Lahr, and became chairperson of the gymnastic club in 1932. In 1952, the technical college of Darmstadt bestowed the title of honorary senator on him;

in the same year, he was nominated as Kommerzienrat by the South Baden government.



Figure 3. Richard Nestler, 1878-1956.

After world war II, the descendants Richard (Kurt), Jr., son of Richard, and Erich, son of Albert, Jr., took over the management. The third generation now held the steering wheel. Richard, Sr. remained the caring mentor of the company, however. Endurance, vision and efficient use of all operational strengths helped to return the company to the market after World War II.

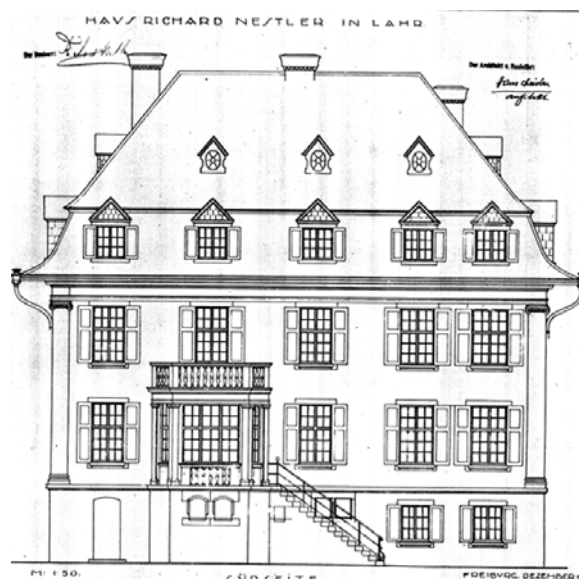


Figure 4. Richard Nestler's mansion in 1921 – Obertorstrasse 21, Lahr.

In 1968, the son-in-law of Richard, Jr., Heinrich Friedrich, 1907-1985, assumed the management of Nestler. He was Mayor of Lahr previously. Dr. Friedrich had much leadership and economic experience. His son, Dr. Bernd Friedrich, assumed the management in 1978. The production of slide rules had already ended by this

time. The name of Nestler is still known throughout the world.

Development of the Company

In 1878, the optician Theophil Beck from Schaffhausen (Switzerland) and the merchant Albert Nestler from Lahr established the Maaßstabfabrik Beck and Nestler. The annual report of the chamber of commerce to Lahr about the year 1878 states:

“The Maaßstabfabrik of Beck and Nestler founded this year in this very place is driven with a gas engine of 4 horsepower and employs 12-15 workers. In addition to a completely furnished carpentry and mechanical workshop, six self-constructed dividing machines are working, on which each Maaß can be divided into the finest parts.

All types of drafting and gauging instruments are prepared. The only existing machine was that Logarithmentheilmaschine (logarithmic dividing machine) recently invented by business partner Beck, and built in the factory. This very complicated machine delivers Rechnungsmaassstäbe, well-known among experts, and which could previously only be delivered from Paris, from the manufacturer Tavernier-Gravet.”

Beck was therefore the inventor of the automatic logarithmic dividing engine that became a success factor for Nestler. Beck left the company in 1881; the reason for his exit is unknown. Was his departure due to the fact that the dividing machine for the Mannheim system, at that time still the only scale system, had been finished?

After twenty years in business, production included rulers, drafting appliances, and photo-tripods. In 1880, slide rule production is included in the production program. The markets were Germany, France, Switzerland, Belgium, Holland, and Italy.

The slide rules of the new company soon enjoyed a good reputation. The geodesist W. Jordan writes in 1880 in a surveying magazine:

“The Maaßstabfabrik of Beck and Nestler in Lahr delivers wooden slide rules... which are to be recommended very much by virtue of their good technical implementation and moderate price.”

In 1895, the name of the company was changed to Albert Nestler.

The company of Beck in Schaffhausen was followed by the Masstabfabrik Schaffhausen, Inc. later. Here, most probably the Swiss-made slide rules were produced in the years 1952-1954. A final proof of that is admittedly missing, but this suspected course of events seems very probable.

Altogether three Swiss-made slide rules are known so far: Two in the collection of Hans-Peter Schaub (Mannheim, and Darmstadt systems), Allschwil (Switzerland), and one in the collection of the author (Mannheim system).

A close cooperation existed between Nestler and Denert & Pape. In the period 1895-1905 Nestler received raw material (slide rule bodies) from D&P. In 1895, D&P received the DRGM 37 191 for a slide rule with slotted base plate that reduced contortion of the body; Nestler also bought such slide rules from D&P. In the same year Engineer Wilhelm Rees received the DRGM 41 294 for the veneered well and back of the stock; Nestler adopted this patent right of Rees. The veneered well and back of the stock was used also for the slide rules with slotted ground bought by D&P.

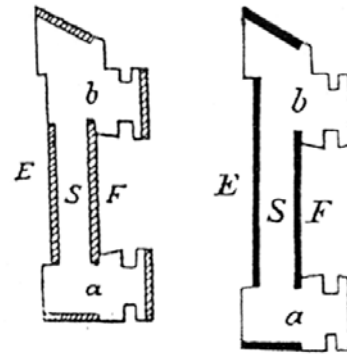


Figure 5. Slide rules with veneered well and back of the stock (S), from 1895 and from 1901.

In 1901, Nestler got DRGM 164 885 for: “Standard rules, slide rules, etc., with screws or pins for tightening and aligning the stators.”

This DRGM is known under the keyword “German silver screws”; however, the original description is much more extensive. The DRGM prohibited Faber from using pins until 1906. After 1901, the only symmetrical order of the celluloid edition takes place on the back.

Another example for the cooperation with D&P is the Frank system, for which Frank got DRGM 173 095 in 1902. D&P arranged to have Nestler engrave the scales of the Frank system on D&P bodies; D&P offered the slide rules of the Frank system until 1928. The aware collector recognizes this easily by the typical pi-sign of Nestler.

In 1901 D&P received DRP 126 499 for a “Schiebermaassstab” with “springy plate”, and went in a different direction. In 1905, Nestler went on its own way with the DRP 173 660 “with springy back plate pressed against the ruler”.

Until 1904, D&P delivered cursors to Nestler. In the “Instruction to the application of the slide rule” of Nestler, even the bilateral nose-cursor appears in brass. This cursor fits only on one single slide rule model that was produced between 1888 and 1895. The author pos-

sesses one of this model. Can one infer from that, that D&P had immediately—after the beginning of the production of the first slide rules with celluloid—also supplied Nestler with it?

The leadership change of 1901 put Nestler into the beginning of a boom period: in only twelve years three-quarters of all system innovations were realized. In 1902, the company launched a slide rule of the Reitz system, which became the parade-horse in following years in the Nestler line. Max Rietz acquired a high reputation with the development of slide rules in the German period.

Extensive orders from federal authorities, from industry, as well as from the technical colleges was responsible for the rapid development after 1900. Between 1901 and 1905 Nestler's income from trade tripled. In 1905 a three-story production building went up, and in 1911 a generous, brand-new building in reinforced concrete was constructed. In 1913 wood trade was incorporated and a sawmill added to the business, in order to be more independent from suppliers.

Further opening of the foreign markets and personal contacts with foreign customers increased the output. "Those marketing conditions were bright at the beginning of WW I. The company experiences its best developments", so Richard Nestler wrote describing the situation of the company in 1914.

The number of the workers grew constantly: in 1901 there were 40, in 1910 about 150, and by 1914, 250 workers were active. The company improved itself constantly; again, new markets were opened up abroad.

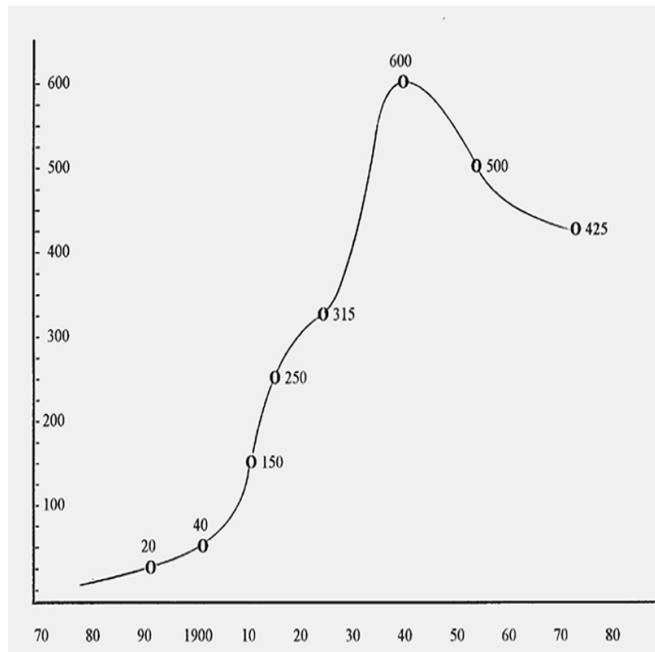


Figure 6. Number of staff employed for the years from 1880 to 1975.

In 1923, Nestler started the production of drawing tables and machines. The first calculating-cylinders were offered in the same year. Important patents protected

the know-how of the company.

In 1934, at the mathematical institute of the technical college in Darmstadt, under management of Professor Alwin Walther (1898-1967) a new scale order was developed. This slide rule, the Darmstadt system, joined the Rietz system as another standard slide rule.

In the anniversary year 1938, the company exported to 60 states and had a record level of 600 employees. Annual production amounted to over one million pieces. Nestler was then the largest German manufacturer of slide rules.

Development during the two world wars is the subject of an individual chapter. The two war phases were marked by efforts to survive as well as possible, and by the problems of rebuilding and restoration of former relationships.

After World War II, Nestler came back again, but only with difficulty. The rebuilding was very hard. Forty percent of production capacity was destroyed by bombs on February 21, 1945. Sixty-six modern dividing machines were confiscated and dismantled in 1946 by the French. Repairing the damaged dividing machines was a difficult and time-consuming task. In addition, French economic controls were even stricter than those of the Germans during the war. Markets were limited.

The French essentially claimed all production for their own country, and only tolerated supply of companies in the French zone. International markets partially got lost, because Nestler's competition in the other occupied zones of Germany had no export controls. Nestler could no longer assert itself with slide rules on the international market as before.

Rebuilding was largely completed in 1954. An extension building for production was furnished. Again, approximately 500 workers were employed. The main focus changed to the manufacture of drawing tables and drawing machines.

A new wave of innovation began. The first slide rules from plastic (Anagit) were produced. In 1952, Nestler received an important Federal patent on round, hidden elastic steel springs, that allowed a mild tightened movement of the slide.

Particular slide rules were developed for new specialties like reinforced concrete and communication engineering. Moreover, the program was widened with double-sided slide rules. Astralon, a first-class plastic, was used as a material for slide rules.

One of the most important developments of this period was the concrete slide rule of the Dutch civil engineer, Michel van Maarschalkerwaard. His revolutionary invention made all previous slide rules for concrete obsolete with one stroke.

Nestler was back again on the markets, and profited well from the huge upswing in the application of the slide rule. But the end was already in sight.

Logarithmic arithmetic, and with it also the application of slide rules, reduces the complexity of calculations about one step as you know. Multiplying turns into

adding, dividing turns into subtraction. On the other hand, adding and subtraction of numerical values is not possible. That is a fundamental restriction of slide rules. This system-induced limitation was taken advantage of by the manufacturers of electronic calculators. With the invention of the transistor, an unstoppable ascent of the electronics industry began in 1947. This ascent was marked by the introduction of integrated circuits in the year 1964, by the first electronic watch 1969, and by the introduction of microprocessors in computer construction in 1971.

Hemmi, the biggest slide rule manufacturer in Japan, began to develop electronic products in 1967. By 1971, the mass production of pocket calculators started there. Hewlett-Packard goes another step further, announcing in 1972 the famous HP-35, naming it the electronic slide rule. The number 35 stood for the number of its functions, and this pocket calculator was equal to the most complete slide rules of that time. The price was admittedly high at its introduction, but began to decrease rapidly.

The reaction of the slide rule manufacturers was dramatic; within a few months almost all of them terminated production. The last slide rules were sold from the stock on hand. Slide rules for schools were still fabricated for some years, and were sold; they were affordable in comparison to pocket calculators, and learning the logarithmic system remained useful for some time³.

An epoch that had begun auspiciously with the discovery of the logarithmic system four centuries earlier, ended abruptly.

Patents (DRP, DBP)

and Design Patents (DRGM, DBGM)

Inventions are protected legally in Germany by patents or design patents. Patents are described in patent letters and are marked with a patent number.

DRP means Deutsches Reichs Patent (German Reich patent) and was introduced on May 25, 1877. The term of protection amounted to 15 years; after 1914 that increased to 18 years. After 1942, an application for a patent by a company had to carry as well the name of the employee who made the invention. In 1948, DRP became DBP, Deutsches Bundes Patent (German Federal patent).

After 1891, Germany had also the protection of a design/utility model; it is granted for small inventions, without actual examination, merely by reason of application and enrollment; the term of protection amounts to three years and can be extended for another three years. A DRGM Deutsches Reichs Gebrauchsmuster (German Reich design patent) is therefore a type of mini-patent. In 1948, it became Deutsches Bundes Gebrauchsmuster (German Federal design patent), DBGM.

Patents

The most important Nestler patents are described briefly

below; they are presented in the sequence of their age. Swiss patents occur besides German. They are marked with the addition "Switzerland" after the number.

One Swiss patent is not explained here in more detail, although its number is known from the literature and from products; it is Swiss patent 17 284. (See Figure 7.) The patent letter affiliated with this number describes quite different inventions, however: Moteur at eau et vent (water - and wind-motor). All efforts of the author to determine the right patent number have been unsuccessful.

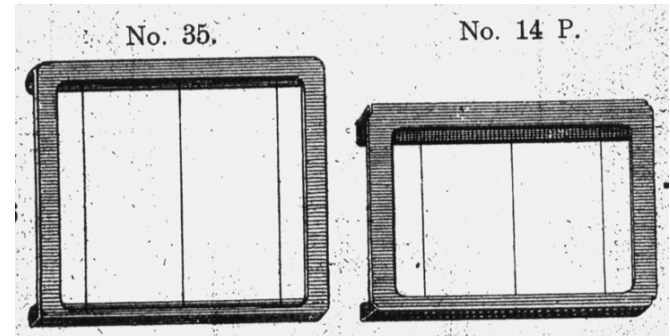


Figure 7. Cursor by Hans-Heinrich Peter, 1909.

Patentnr.: 173 660 Year: 1905 Re: "slide rule with springly against the body pressed guidance." Description: the slide rule is marked so that the guidance is interconnected under insertion of an elastic plate (c) with its base, as well as to achieve a solid contact of the slide at its guidance and also a smooth movement.

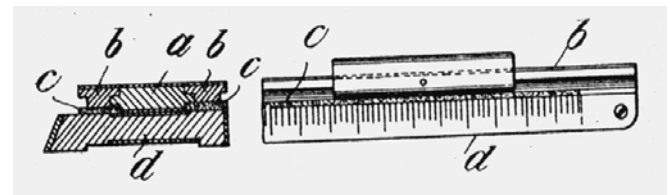


Figure 8. Slide rule with spring guidance (c), 1905.

Patentnr.: 410 565 Year: 1924 Re: "slide rules with a divided body interconnected with stem spring slide rule bodies", Description: the slide rule with a divided body, whose parts are interconnected through tension rings; it is remarked that the body parts are held together without special fasteners.

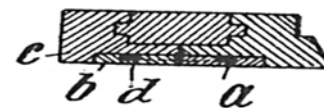


Figure 9. Wooden slide rule with tension rings (a), 1924.

Patentnr.: 650 658 Year: 1934 Re: "cursor with lateral index window." Description: the cursor is marked so that it has a lateral index window (e) for the partitions on the longitudinal edge of the body.

³Ed. Note: Some would say it is still useful.

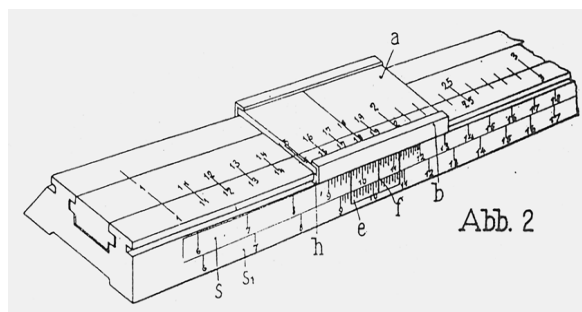


Figure 10. Cursor with lateral index window, 1934.

Patentnr.: 712 707 Year: 1939 Re: "slide rule-framework-cursors with movement-free glass pane." Description: the framework-cursor is marked so that the fortification of the glass pane takes place within the framework through clamping with a tension spring (6), which the disk and with it the line regulates rectangularly the guidance-surface of the cursor.

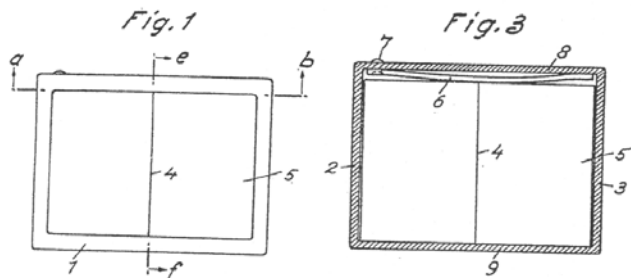


Figure 11. Cursor with exchangeable glass, 1941.

Patentnr.: 917 215 Year: 1952 Inventors: Wilhelm Stahl, Lahr, Re: "slide rules and procedures and equipment for the manufacture of the same." Description: the slide rule from thermoplastic resin is marked so that the two parts locking up the slide part of the body through tension rings embedded in the longitudinal direction of the same are interconnected in distances that show preferably the same thickness as the tension rings.

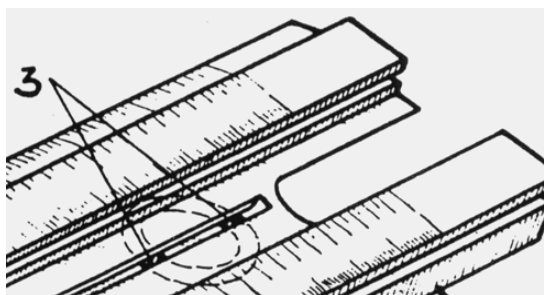


Figure 12. Plastic slide rule with tension rings (3), 1952.

Design patents

The design patents partially refer to discrete slide rules marked with names and type number.

Year	DRGM	Short description
1902	173 095	System Frank
1902	181 110	System Rietz, No. 23
1902	192 462	System Nestle, No. 30
1906	272 915	System Fix, No. 29
1908	334 146	Wiring Calculations, No. 32
1909	400 077	System Peter, No. 35
1909	405 280	System Hanauer, No. 34
1910	409 844	chemists, No. 33

In 1902 Nestler received DRGM 172 862. The German patent letter mentions "slide rules with potency-scale arranged on the slide". Probably it refers to the "universal-slide rule", later type 28.

In 1911, Nestler received DRGM 490 374. The German patent letter mentions here merely "Slide rules, Albert Nestler, Lahr i/B". Probably this very general description refers to a general invention, and involved the smaller version of existing models. In 1912 Nestler wrote: "This small rule is an accommodation of the factory to those users who don't want to use the wider version, because of their long use of the smaller slide rule."

A particular DRGM is 180 463 from 1902: "Logarithmic slide rule, consisting of two movable parts and one including riders with tension." Whether this invention through Nestler was realized, is not known to the author.

Nine further design patents are of general type: They do not refer to slide rules marked with name and type number.

Year	DRGM	Short description
1895	41 294	"slide rules with celluloid covering on both sides of the bridge" (Wilhelm Rees)
1901	164 885	German silver screws for the strengthening of the celluloid application
1909	400 076	cursors with frame glass, with extensive visual field, H. MR. Peter
1910	462 133	steel tension rings for mild but nevertheless tight movement
1911	490 374	extensions of the DRGM 462 133
1911	494 756	"slide rule with jointly interconnected guidance cheeks"
1912	492 786	"crosswise through the bridge well, a bent steel plate spring"
1924	889 460	"slide rules with extended scale"
1953	1 711 381	slide rule made from Anagit

The original description of DRGM 164 885 is given above (page 40), but note that silver screws are not mentioned therein. To the author's knowledge no Nestler slide rules with pins exist.

Dating

For dating a slide rule, trademarks, company names, system names and type number can give useful information. But patent and DRGM numbers also are good indicators.

For the collector dating means more than merely determining the time of the manufacture of a slide rule. He wants to recognize also the context with other slide rules, to determine the rarity of a slide rule, in order to be able to assess better its value. With these considerations, much from the previous chapters applies.

The following problems can appear with dating:

- The duration of an application of signs, names, and materials is not exactly known.
- Patents have a term of 15 years (after 1914 for 18 years); the protection of a design patent may last for 6 years.
- In the period between 1940 and 1945, the sale of slide rules was restricted for civilians. Nestler accumulated a reserve of 200,000 pieces until 1946. What was delivered in 1948 and 1949 carried one of these two-year dates engraved on the front. One finds slide rules with and without fixing screws for the celluloid layer.
- From other observations the author has determined that often the engraved date indicates the delivery date and not that of manufacture.

For an approximate dating, for example with a spontaneous purchase, the following recognizable company dates can be useful:

- 1878 foundation of the “Maaßstabfabrik Beck and Nestler”
- 1880 start of slide rule production
- 1895 the company name changed to “Albert Nestler”
- 1905 Nestler receives DRP 173660. Enrollment of the company into the Lahr register of companies.
- 1922 transformation of the company into a public company
- 1924 Nestler receives DRP 410565
- 1938 the last brochures, in which slide rules are shown with fixing screws for the celluloid layer
- 1952 the first slide rules made from Anagit
- 1957-1958 shift from two- to four-digit type numbers
- 1965 the first slide rules made from Astralon

For another, more exact dating, the following sections can give useful hints.

System names and type-number

Up to the year 1901, Nestler had produced only one single slide rule model, that of the Mannheim system. Until then, there was, therefore, no need to name and give type numbers to the slide rules.

Walther Dyck [2] mentioned in 1892 in his catalog (for an exhibition in conjunction with the convention of the

German mathematician’s union) Albert Nestler as “mathematical mechanical institute”. He reported on the following slide rule lengths: 21 cm, 26 cm, and 52 cm. Consequently, length is an indicator for slide rules from this time.

The book “Instruction to the application of the slide rule” published by Nestler is presented with two different publication dates: 1904 on the first page, and 1905 on the cover. For the mentioned simplest model, no name is declared there, while the other slide rules carry the following names:

- Schieber Rietz
- Schieber Peter
- Schieber Perry
- Universal-Schieber
- Precision-Schieber

The author has a slide rule with following text in the ground: “NESTLER’S UNIVERSAL-SCHIEBER”. Whether other “Schiebers” have a similar ground text, is unknown to the author.

On the cover of the aforementioned book the following names are highlighted:

- System Mannheim
- System Rietz
- System Perry
- System Nestlers Universal
- System Nestlers precision

The system Peter is not mentioned on the cover, but is described later in the section about the system Perry.

A new edition appeared in 1907; the slide rules were now equipped with type-numbers and names:

- Nr. 14 Logarithmic slide rule
- Nr. 23 System Rietz
- Nr. 27 Nestlers Präzision
- Nr. 28 Nestlers Universal
- Nr. 29 Nestlers Fix

The first price list, along with the following statements, appeared in 1911/12:

- miscellaneous Taschen-Rechenstäbe, after model Mannheim, 12.5 cm
- miscellaneous slide rules, after model Mannheim, 20 cm and longer
- Nr. 23 System “Rietz”
- Nr. 25 System “Perry”

- Nr. 27 Nestlers “Präzision”
- Nr. 28 Nestlers “Universal”
- Nr. 29 Nestlers “Fix”
- Nr. 30 System “Nestle”
- Nr. 35 System “Peter”

The names of the system are printed with fat characters and put down between quotation marks. In the body-ground of the slide rule, first comes the name and then the number, for example, “PRÄZISION No. 27”.

Trademarks



Figure 13. Logo used from 1895-1900.

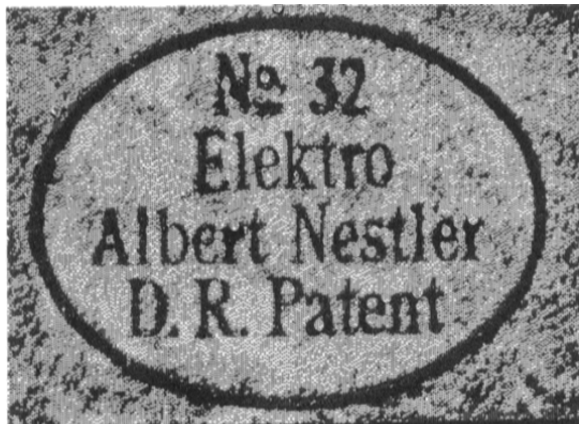


Figure 14. Logo used from 1900-1910.

Trademarks (signet) also allow an approximate dating. Particularly with slide rules that were manufactured over a long period of time, such as those of the Mannheim and Rietz systems, this dating opportunity is very useful. Those signets are obvious on the cases. Two signets are discussed here.

The oldest signet that the author knows, shows a sphinx on a pedestal (31 mm) with the text “Albert Nestler Lahr”. The author takes this trademark from a small wooden protractor. The stamping is quite worn. Probably, the signet was used between 1895 and 1900. The picture is not unusual for the “symbolism” of the art period. Until 1907 neither patent nor type-numbers are used.

In the period between 1900 and 1910 an elliptical trademark was used. Through that the possibility emerged to include type-number and name of the system,

and to point out the patent. The signet is embossed and filled with gold.

The complete patent number is shown in the coming years. The ellipse vanished, since it looked too antiquated for the taste of that time. Peter Behrens has developed an illustrative row of signets for the AEG (an electrical company) between 1908 and 1914. The series of signets appears in the book “Art nouveau” of Gabrielle Fahr-Becker. [3] With the help of this work, one can date the Nestler signets easily.

Company Names and Addresses

Albert Nestler began offering his slide rules in Southwest Germany and became an enterprise exporting to 60 countries. This development led also to changes in the presentation of the name and address, making them useful for dating the slide rules.

“ALBERT NESTLER” modestly appears in the body-ground of the first slide rules. For the buyer to whom the manufacturer is personally known, this is enough. For a prospect on the other side of the globe this statement gives little information; however, a signet instead can be autonomous, distinctive, and catchy, and much more personal for him. The name stands for quality and recognizability, the signet must be short and meaningful, and the word picture “Nestler” fits this purpose ideally. The development from small and modest to powerful and catchy proceeded in ten phases:

Only two examples are discussed here.

1900-1907: ALBERT NESTLER

In the first years, the writing is small and the address is missing. Through personal acquaintance of the manufacturer with the users, the name alone is sufficient.

1908-1911: ALBERT NESTLER LAHR ⁱ/B

In the following years, the company name was supplemented with its location; the “ⁱ/B” means “in Baden” (Baden was a dukedom until 1918). The writing has become somewhat larger, there is no space between “Lahr” and “ⁱ/B” and the letter “i” is a superscript. A “No” (Numero) is put in front of the type statement.

Acknowledgements

This essay covers only a small part of the book: *Albert Nestler, Innovation and Quality*.

The author thanks the following collector-friends, who have made significant contributions to the manuscript:

- Nanco Bordewijk, Ir., Amsterdam, Netherlands, for directions for type 43a.

- Hans Dennert, Hamburg, Germany, for expert information and for a copy of the first hand-made sample of system Rietz.

- Herman van Herwijnen, Ir., Voorschoten, Netherlands, for information from his slide rule catalog, “the blue book”.

- Dieter von Jezierski, Stein, Germany, for expert information and newspaper reports concerning Max Rietz.

- Heinz Joss, Dällikon, Dipl. Architect ETH/SIA, Switzerland, for the linguistic review of the manuscript

of this book.

- John Knott, Boltons, England, for information on an English investigation concerning the German Instrument Industry, 1946.

- Günter Kugel, Dr. - Ing. E.h., Moers, Germany for his detailed information about Nestler, corrections, and for his support for the preparation of the manuscript of this book.

- Klaus Kühn, Dr., Gröbenzell, Germany, for literature from the beginning of the German Period.

- Otto van Poelje, Ir., Hilversum, Netherlands, for documentation and swaps.

- David Rance, Sassenheims, Netherlands, for his translations.

- Simon van der Salm, Hilversum, Netherlands, for his investigations on the formulae of Nagaoka and Thomson.

- Hans-Peter Schaub, Allschwil, Switzerland, for his visit to the archives in Schaffhausen that contained detailed documentation, and for his support of my research.

- IJzebrand Schuitema, Ir., Odijk, Netherlands, for

documentation, swaps, and encouragement to the author to produce the manuscript of this book.

- Peter Soole, Sherborne, England, for a Nestler catalog.

- Pierre Vander Meulen, Ir., Brussels, Belgium, for his investigations concerning the Nestler slide rule, type 40.

References

1. Craenen, Guus, *Albert Nestler: Innovation and Quality*, Noorderweg 41, NL-3761 ET, Soests, Netherlands, The Author, 2001.

2. Dyck, Walther, *Katalog mathematischer und mathematisch-physikalischer Modelle, Apparate und Instrumente*, (in conjunction with an exhibition during the convention of the German Mathematicians Union) Munich, 1892. Reprint: Hildesheim, Georg Olms, 1994.

3. Fahr-Becker, Gabriele, *Art Nouveau*, Cologne, Könemann, 1996.

4. Schlosser, Ernst, *Hundert Jahre Armaturen in Lahr*, Lahr, Geroldsecker Country, Yearbook of a Landscape, v17, 1975.