

Overview of A.W. Faber-Castell Slide Rule Dating Chronology 1892-1920 - Updated

Colin Tombeur

Update

This article was first published in the UKSRC Slide Rule Gazette Issue 17, Autumn 2017 [8]. Since then new information has emerged resulting in some updates being needed to the core of the article - the three-page Chronology Chart. The main updates simplify the chart a little, with four change points being re-dated as a result of reanalysing the change points of some features in the light of the new information. All these changes are within the range 1908 to 1920. The text of the original article, which mainly explains background and how to interpret the chart itself, follows with minor amendments and the new chart replacing the original one.

Background

This article is one of a series which details the early slide rules of A.W. Faber-Castell (hereafter referred to as Faber). The series, by Trevor Catlow and myself, is based on our research collaboration and the resulting development and analysis of a database of slide rule specimens, as described in [1] and whimsically called TOMCAT.

Faber began production with just one known slide rule model in 1892 [4] and quickly developed their designs, production processes and model range. Due to the scarcity of detailed reliable information it was difficult to date these slide rules before Faber introduced blind date stamps in 1920 [5]. Trevor's 2009 JOS article [2] and subsequent 2013 update [3] were the first major steps in rectifying this situation. The findings of these articles were broadly correct but very limited in scope as they there were based on Trevor's slide rule collection at that time, a fact that he acknowledged in the articles. The TOMCAT research has produced a more comprehensive chronology of changes to features on these early slide rules, based on the study of many more specimens and cataloguing and dating as many changes as possible. This article provides an overview of these feature changes and gives an approximate year, or span of years, for each change, believed to be accurate to within about one year. It is not within the scope of this article to describe the features themselves or their changes in detail, but some pictorial examples are given for reference.

The author does not claim this chronology to be definitive, but the TOMCAT research has reached a stability in the findings described in this article. Nevertheless, if any reader can provide additional information, please do get in contact either directly or via the UKSRC.

Introducing the Chronology Chart

A slide rule can only be as old as the introduction of its most recent feature, and as young as the earliest time a feature present on it was phased out. [1]

A slide rule without a blind stamp can be given an approximate date range of the completion of its manufacture by comparing and aligning its features with the Chronology Chart below. In theory all the date ranges of features on a specimen should overlap at some point on the chart and an approximate date of manufacture easily established. Occasionally however, due to peculiarities in the design and manufacturing process this is not the case, but a manufacture date can still be estimated using the above guideline from the latest overlapping range of features. Care should be taken when considering cursors and boxes, which may have been replaced with non-original items. Unless a definite connection can be established, for example by the addition of names or dates by a previous owner, these items should be considered as confirming the dating, rather than defining it.

The Chronology Chart has rows detailing slide rule features, grouped into the following five categories: **STOCK & SLIDE, SCALES, CURSOR, TEXT & LABELS** and **BOX**. Each feature may have several manifestations. Some features have references to chart notes, either a single character for further description, e.g. (a), or two characters for picture examples, e.g. (aa). The columns indicate an estimated year, or year span, when a change occurred, '**Approximate Change Point**'. Where it has not been possible to define change points

unambiguously for certain features, some year ranges overlap others. Such cases are highlighted in light blue, and special care should be taken when comparing features around these points. This and other colour coding conventions noted below are summarised in the 'Chart Notes' section at the bottom of the chart.

In the main body of the chart, features that are present at the change points are indicated by solid green shading. Thus, an approximate start-point when the feature first appeared on slide rules, and end-point (unless it was ongoing after 1920) when it was phased out, can be determined for each feature. Orange shading indicates an unknown status, where there is insufficient or no evidence to determine whether a feature was present or not. The green shading is either dark, indicating a generic presence across all slide rules current at that time, or one of two lighter shades, indicating that the presence is specific to a certain set of slide rules. Where the presence is specific, the set is indicated inside the shading either with text or, when there is insufficient space, as a reference to a one or two digit chart note (e.g. 10.). Sets are generally models (e.g. '350, 360, 365' or 'not 350, 360, 365'), languages (e.g. 'German', 'non-German'), models of certain scale length or construction (e.g. '50cm scale', 'not 50cm scale', 'all-wood', 'not all-wood'), or a combination of these. While it is possible to use the chart for dating without knowing a model number, it is easier if the model is known. For Faber rules without date stamps the model number, if present, is the three-digit number before the maker's name. If there is no model number, the model can be quickly established using the guide at the end of this article.

Referring to the first few rows of the Chronology Chart, examples of the above conventions for representing specific changes can be seen. In the first row it is shown that a 15cm stock length is found only on models with a 12.5cm scale length, from 1907-8 onwards. The second row shows that a 26.4cm stock was seen only in 1892. The dark green colouration of this cell indicates that "all current models" were of this length (even though in fact only one model actually existed at the time). The third row shows that the generic stock length changed to 26cm in 1892-3. The fourth row shows that stocks with a length of 28cm were introduced in 1899 for the six models indicated. Referring again to the third row, the 26cm stock length is no longer generic but specific to models 350, 360 and 365 from this time until 1909 (although this does not define the date of the introduction of these models, see below). In 1907, note 1. indicates that a different subset of models had a 28cm stock, and this subset changed again in 1910. The fifth row shows that the model 368 had a 28.5cm stock between 1907 and 1910-11.

As previously stated, all change point dates are approximate and believed to be accurate to within about one year, but some change points can only be estimated to have occurred over a span of a few years (those highlighted in blue, e.g. '1908-1913'), and these may overlap over other change points. Thus, a change point can include more than one status of a feature, such as a presence or not of a feature, a transition to another set of rules or a change to an unknown status, because of overlap with other known statuses. In these cases, to avoid potential ambiguity, crosshatching in the two relevant colours of the statuses is used to indicate the possible statuses. For example, "Cursor grooves - above both top and bottom edge rulers". This feature was true of all slide rules from 1903-4 ongoing, apart from the 368 from 1906 to when it was withdrawn in 1910-11. Therefore from 1903-4 up to 1906 and from 1911 to the end, this feature is coloured dark green (generic), and the chronological points in-between, 1906 to 1910-11, are light green (specific) with the model 368 indicated. The overlap change points 1908-13 and 1910-12 are crosshatched light and dark green to indicate a change of status in these periods.

The chronology is necessarily complex because features can be specific to certain sets of slide rules, or there can be different evolutionary timescales for a particular feature for different sets of rules. To simplify the chart, shading and specific notes do not necessarily indicate exactly when models were introduced or discontinued, since this is often unclear. Therefore, generally, the chronology should not be used for this purpose [6]. However, some models were introduced with dateable model defining features, for example the 360 with the introduction of celluloid scales, the 367 with its digit registering cursor, and the 368 'electro' model with its unique features.

Assigning Model Numbers to Faber Slide Rules

Faber did not print model numbers on their slide rules until about 1908. Before this, model numbers are known to have existed, appearing on boxes and in manuals and catalogues from around 1895 [7]. From their introduction until 1935, Faber model numbers were three digits beginning with a '3'. It is unclear if the very first slide rules made between 1892 and 1895 were assigned model numbers, but examples show marked

similarities to the model identified in 1895 as the 350, so for identification purposes these first slide rules are also considered as the model 350. From 1908 until about 1922, the model number was usually found on the front, bottom centre, or occasionally in the centre of the back of the slide rule. In either case it appeared before the maker's name, and separated from it by a '*', for example "368 * A.W. FABER."

Using Table 1 it is easy to determine the model number of any of the fourteen models in production before 1908, when model numbers began being printed on the slide rules, from a few specific, obvious features. Note, some of these features changed over time on certain models (for example the model 360 changed from 26cm to 28cm stock length) but only after model numbers appeared on them. For some models (354, 357 364 and 367) the guide depends on the slide rule having retained its original digital-registering or normal cursor. As a check, slide rules originally supplied with a digit registering cursor carried the label 'DRGM 116832' until around 1905.

Starting at the left-hand side of the table, compare the feature options listed between the bold black lines in the first column, to the slide rule to be identified. Choose the matching option and move to the adjacent options between the bold lines in the column to the right. Once again, compare and select the appropriate option, and move to the next column. Repeat the process until reaching the model number on the right-hand side of the table. Feature comparisons at each stage are mutually exclusive. For example, is the slide rule not faced or celluloid faced? If celluloid faced, then is the stock length 15cm, 26cm, 28-29cm, or 53cm? If 26cm, then does the slide rule not have slide springs or are they present? If it does not have slide springs, then it is a model 360, if it does then it is a model 365.

Start here and work to the right to find a model				Model		
Not faced	<28cm stock			350		
	28cm stock	Non-Mannheim		358		
		Mannheim	Normal cursor*		354	
			Digit registering cursor*		357	
	53cm stock			370		
Celluloid faced	15cm stock			369		
	26cm stock	No slide springs		360		
		Slide springs		365		
	28-29cm stock	Scale on back of stock	Normal cursor*		374	
			Digit registering cursor*		377	
		No scale on back of stock	No scales on back of slide		Mannheim	361
			Non-Mannheim		366	
			Scales on back of slide		Log-log scales on edge	368
			No log-log scales on edge	Numbers with decimal point		363
				decimal points	Numbers no Normal cursor*	
	Digit registering cursor*		367			
	53cm stock			380		

Table 1 : Faber model identification 1892-c1908

* see text

References & Bibliography

- [1] *Every Slide Rule Tells a Story - Establishing an Early A.W. Faber-Castell Chronology* (Colin Tombeur), United Kingdom Slide Rule Circle (UKSRC), Slide Rule Gazette, Issue 17, page 15, Autumn 2017
- [2] *Suggestions for Dating pre-1920 Faber-Castell Slide Rules* (Trevor Catlow), Journal of the Oughtred Society, 18.2, page 46, Fall 2009
- [3] *Suggestions for Dating pre-1920 Faber-Castell Slide Rules: an Update* (Trevor Catlow), Journal of the Oughtred Society, 22.1, page 45, Spring 2013
- [4] *Slide Rules: A Journey through Three Centuries* (Dieter von Jezierski), Astragal Press, 2000
- [5] *Rechenschieber Slide Rules A.W. Faber A.W. Faber-Castell* (Peter Holland), self-publication
- [6] For a comprehensive compendium of the dates of Faber slide rule models, see [5]. Due to differences in methodology, dates in this book do not always agree with those in this article, see also [1].
- [7] *Transition from boxwood to celluloid on boxwood within A.W. Faber* (Dieter von Jezierski), United Kingdom Slide Rule Circle (UKSRC), Skid Stick, No. 11, page 7, June 2002
- [8] *Overview of A.W. Faber-Castell Slide Rule Dating Chronology 1892-1920* (Colin Tombeur), United Kingdom Slide Rule Circle (UKSRC), Slide Rule Gazette, Issue 17, page 49, Autumn 2017

A full bibliography of sources used in the development of this article can be found in [1].

Overview of A.W. Faber-Castell Slide Rule Dating Chronology 1892-1920 - Updated

SCALES (continued)		1892	1892-3	1893-5	1895	1896-9	1898-9	1899	1900	1900-3	1901	1901-3	1903	1903-4	1904	1904-5	1905	1905-6	1906	1906-7	1907	1907-8	1908	1908-9	1908-11	1908-13	1909	1910	1910-11	1910-12	1911	1911-13	1912	1913	1914-19	1915-20					
On A & Bonly scales (e)	On A, B, C & D																																								
SLT scales	On back of slide																																								
M gauge mark (cc)	Script M (with long tail) on A & B Serif Mon A & B Sans-serif Mon A & B On D as well as C																																								
c & c1 gauge marks	"Dynamo"/"Motor" & "Volt" scales in well																																								
Electro scales	Metric (287 & 746 on A & B scales)																																								
Electro gauge marks	Imperial (287 & 746 on A & B scales) Unlabelled on non-electro rules																																								
Log-log index marks	2.9 on left & right ends of D																																								
System Pickworth	W on right end of C																																								
System Schumacher	Cube scale and window on back of stock Non-logarithmic scales and indexes																																								
TEXT & LABELS																																									
Brand name	'A.W. Faber' 'A.W. Faber "Castell"'																																								
Brand typeface	Gold serif Gold sans-serif Black sans-serif																																								
Numbers on scale subdivisions (f)	Decimal notation Displaced 1.5/15 on A & B scales																																								
Scale numbering typeface (aa)	Style A Style B Style C																																								
Scale numbering marking (g)	Hand printed Template printed																																								
Origin ('MADE IN...')	English language rules only																																								
Quotient/Product ± on lower stock ends	'QUOTIENT'+1' & 'PRODUCT'-1' 'Quot'+1' & 'Prod'-1'																																								
Arrow ± symbols (aa)	On left & right upper stock ends 3-digit, followed by ** before brand																																								
Model number	Boxwood springs in well for slide																																								
'DRGM 98350' (1898)	Digit registering cursor																																								
'DRGM 116832' (1899)	Slide end index edge for well scales																																								
'DRGM 247514' (1905)	Cursor with hook index for edge scales																																								
'DRGM 271169' (1908)	Wood fixing pins for celluloid																																								
'DRGM 371190' (1908)	Longitudinal metal inserts																																								
'DRP 206428' (1908)	System Schumacher																																								
'DRGM 344576' (1908)	System Pickworth																																								
'DRGM 371189' (1908)	System Pickworth																																								
'DRP 215722' (1909)	System Pickworth																																								
Back label style (bb)	Style 1 (German) Style 2 (German) Style 3 (German) Style 4 (English) Style 5 (English) Style 6 (French) Style 7 (French) Style 8 (English electro), 9 (Non-English electro)																																								
Back advertising label (bb)	Paper																																								
Back label text style (dd)	Celluloid Style A Style B																																								

Overview of A.W. Faber-Castell Slide Rule Dating Chronology 1892-1920 - Updated



Chart Notes (refer to text for more detail):

(a) All stocks in this timeframe were made from wood. Initially the two stock rails and well were formed from one solid piece. Two longitudinal slits were introduced into the well that usually penetrate both the solid wooden stock (which may be covered on the back with a paper label) and the celluloid facing in the well (if present), occasionally they are only in the wood. A two piece celluloid sprung stock is distinguished by an end-to-end longitudinal split in the wood of the stock with no corresponding split in the celluloid facing in the well. As steel sprung stock is distinguished by an end-to-end longitudinal split in both the wood and the celluloid facing (if present) of the well.

(b) Cursor grooves will either: split an edge ruler (numbers above groove and divisions below) and be perpendicular to the edge face; be entirely above a ruler and parallel to the top face of the rule; be angled into the stock at the join of the top and edge faces.

(c) Slide is slightly shorter than stock with an aluminium index edge for reading the scales in the well.

(d) Hand printed scales are smooth on the face of the rule and exhibit random marking differences from being drawn from a pattern. Template printed scales are also smooth, but differences are consistent. Lightly incised scales show a faint texture when a fingernail is drawn across the marks. Deeply incised scales show an obvious texture when a fingernail is drawn across the marks.

(e) Ticks are the small extensions to the division marks which extend beyond the railway track lines. See also (aa).

(f) Identification numbers of the subdivisions on the Mannheim scales between the major divisions of 1, 2, 3 etc. are either Decimal notation (eg 1.2, 1.2.1, 2.3 etc.) or Non-decimal notation (eg 1, 2, 3 etc.). In the decimal notation the 1.5 and 15 numbers were initially displaced on the A and B scales compared to the rest of the subdivision numbers. See also (aa).

(g) Identification numbers for the divisions on the Mannheim scales were initially printed by hand one digit at a time and consequently show some variation in the alignment of the digits. Subsequently the numbers were printed using a template giving a more uniformly aligned appearance. See also (aa).

(h) Nickel plated brass and nickel silver cursors are heavy and shiny (if the plating has not worn off) compared to aluminium cursors. Worn plated cursors will show an underlying brass colour. Plated cursors are slightly magnetic, nickel silver cursors are not.

- 16. 350, 355, 360, 361, 363
- 17. 350, 355, 361, 363
- 18. 363, 364, 367
- 19. 50 cm scale & 363, 364, 365, 367, 368, 374, 377
- 20. 50 cm scale & 363, 364, 365, 367, 374, 377, 378
- 21. 50 cm scale & 363, 364, 367, 374, 377, 378
- 22. 50 cm scale & 360, 363, 364, 367, 374, 377, 378
- 23. 50 cm scale & 354, 357, 360, 363, 364, 367, 374, 377, 378
- 24. 354, 357, 363, 364, 367, 368, 374, 377, 380
- 25. 354, 357, 364, 367, 368, 374, 377, 380
- 26. 354, 357, 363, 364, 367, 374, 377, 380
- 27. 354, 357, 364, 367, 374, 377, 380
- 28. 367, 377, 380
- * 369 possible flat or rebate back

(ea) Scale formats

Plain scales, decimal notation, hand printed numbers typeface A, displaced 1.5

Unequal double line railway track scales, no ticks, decimal notation, hand printed numbers typeface A, displaced 1.5

Double line railway track scales, ticks, non-decimal notation, template printed numbers typeface C, arrow ± symbols

Single line railway track scales, ticks, non-decimal notation, template printed numbers typeface C, arrow ± symbols

(eb) Cursor examples

Nickel plated brass, chisels, 2 mm adjusting screws, rounded window, no spring

Aluminum, digit registering with 2 domed rivets, rounded window, centre riveted spring

Aluminum, hook index, square cut window, centre riveted spring

(ec) Script M gauge mark

30 M

(ed) Slide rule back label text style

A. With tails	7,8	0,128	0,152	7,8	0,128	0,103
B. Without tails	7,8	0,139	0,177	7,2	0,188	0,177
	11,4	0,068	0,112	11,4	0,088	0,119

(ff) Box profile and model label

Square box, label with no border

Square box, label with rounded edges

Square box, label with broken border

Oval box, label with solid border

(eg) Box brand text

Rechenstab von A.W. FABER

A.W. FABER

A.W. FABER

Arched script 'Rechenstab..'

(eh) Box back label style examples

A. English (gold on black or black on white)

B. English (gold on black or black on white)

C. English (red & green text)

C. Non-English (green & red text)

D. Non-English (with care instructions)

D. English (with care instructions)

(bb) Slide rule back-style label examples

- German
- German (large text)
- German (small text)
- English (large text)
- English (small text)
- French (large text short equals)
- French (small text long equals)
- English Electro
- Non-English Electro
- In/cm conversion scale