Barbotheu[1]

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(translated into English by David Rance)

Abstract

Barbotheu: the unknown French slide rule.

Introduction

From studying the history of the slide rule it appears to have been conceived and had its childhood in England before studying part-time in France prior to spending its working life in Germany (Japan and North America). The English makers of yester-year are still praised for their slide rules and they are highly sought after by collectors. The 20th century German makers "flooded" the world with their high-quality slide rules but less is known about their French counterparts. Only the name of Frenchman Mannheim is familiar to every avid collector. However, one does also come across French makers. Naturally Graphoplex but also makers like Tavernier-Gravet, Marc, Morin and Barbotheu. Three branded models from Barbotheu are discussed in detail and compared with maker Tavernier-Gravet.

Barbotheu [1]

This simple wooden slide rule has the scales: 25 cm / A = B B = D | 26 cm, with = S L T = on the back of the slide. The repeated B shows that the basic A and B scale pairing from 1 - 10 is also used for the (otherwise C) lower scale of the slide. Slide rules lacking a cursor ("Soho" slide rules) was common at this time[2]. The D scale is subdivided 1-10-100. The slide rule is quite damaged and needs restoring. The raised finger button on the slide (right-hand end) does not get in the way because there is no cursor. The vague sticky remnant on the back of the stock suggests (probably) the prior existence of a table.

Finger Button

The L scale on the back of the slide is ideal for finding the log of a number. For example: What is the log of 3.5? On the front face line up the left index of the lower B scale to 3.5 on the D scale. Turn over the stock and use the right-hand side edge to read off the value from the L scale (in the middle of the inverted log scale on the back of the slide): 5.44 → 0.544. When calculating an antilog the usefulness of the button on the slide becomes apparent. Using the button and one finger, the slide can be adjusted without looking.

Of course similar operations can be performed using the sine and tangent scales.

Barbotheu [1], front face

Back of the slide with the scales S, LI and T

Pair of 63s

← Stock and slide are stamped with a pair of numbers

The brand name is centred at the bottom of the front face →

Stamped name

[1] Originally published in the 10th Anniversary Edition of the *Mededelingen en Informatie voor Rekenlinialenverzamelaars* (MIR 32) - the magazine of the national Dutch Collectors Circle (KRING) issued three times a year, November 2002, pages 35-39

[2] See also: "Slide Rules", Dieter von Jezierski, pages 11-12

Pair of Numbers

The pair of numbers found on the right-hand side edge of the stock and on the side edge of the slide shows that this model was made as one of a series. Despite meticulous manufacturing, differences in tolerances did occur and these impacted on how well a slide fitted a stock. This was solved by finding the best fitting combinations of slides and stocks. From examining (loupe!) the left and right tracks for the slide it is clear that only after being matched with a stock was the slide cut to length with a radial arm saw. After that the pair of numbers had to be stamped in.

Scales

The scales on the back of the slide must line up with the scales on the front face. With this slide rule the right-hand side edge of the stock acts as the "hairline" for the scales on the back of the slide. In other words if the ends of the scales on the slide are flush with the right-hand side, all the scales on the front face should be at their starting position. The end of a scale – for an accurate reading – should not be on the side edge of the slide rule but rather just short of it. This means the slide needs to extend just proud of the stock to get a good view of the end of the scale.

The process used for incising the scales must reflect this method of use:

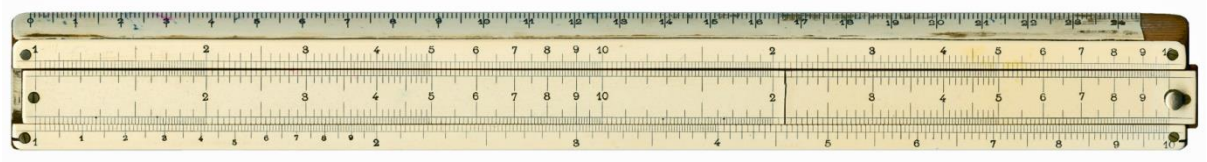
1. First, the scales are incised into the back of a slide.
2. Then the slide is fitted into a matching stock so that the end of the scales line up with the right-hand (reading) side edge.
3. Now the scales are incised into the front face.

Tavernier-Gravet

In this context the slide rule shown below from Tarvernier-Gravet is remarkable. It has almost the same dimensions (the slides are interchangeable!) and identical scales. Also the style and placement of the numbering is similar, as is the position chosen for the company name.

Only the plastic veneering suggests a more "expensive" quality finish but other than that …

The similarity between Barbotheu [1] and this Tarvernier-Gravet slide rule can hardly be a coincidence.



Tavernier-Gravet, type "Soho"

Back of the slide

On the back, centred at the top TAVERNIER-GRAVET and the address RUE MAYET – 19 PARIS →

Pair of 920s

← Pair of 920 numbers on the stock and on the slide

Back top right-hand end is stamped: 1-12
possibly January 1912 ? →

Date stamping ?

Question: When seen from the front there are small saw cuts in the bottom left-hand and the bottom right-hand ends of the stock. What is the purpose of these saw cuts? Could they be for an accessory?

The 19th edition of the *Méthode Simplifiée et Applications Pratiques de la Règle à Calcul* written by *Maurice Leclair* and published by TAVERNIER-GRAVET came out in 1908. In this booklet (60 pages) the "Soho" type of slide rule is explained in some detail. At the end is a chapter (3½ pages) titled: "Instruction spéciale de la Règle modifiée par Mannheim". It draws attention to a special property of the slide rule: the lower scale on the slide is identical with the bottom scale on the stock. And the slide rule has a glass *curseur* (cursor) with a hairline. It runs along tracks in the top and bottom side edges of the stock.
The booklet possibly indicates that around this time Tavernier-Gravet started making "Mannheim" slide rules.

Barbotheu [2]

This slide rule (25 cm / A = B C = D | 26 cm, back of the slide: = S L T =) is a Mannheim type or *type Mannheim complète* (Improved Mannheim system) with sine and tangent scales. Design wise the plastic veneering on top of a wooden base gives it a "modern" feel. Added on the back are tables and on the left and on the right-hand sides are small open-ended cursor windows with a hairline for reading off values from the scales on the slide.

Barbotheu [2], front face

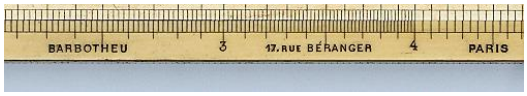
Back of the slide

back of the stock with tables and left and right open-ended cursor windows

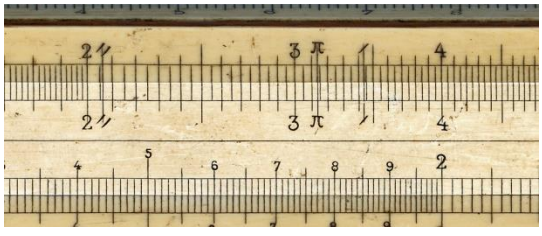
Pair of 20s

← The pair of stamped numbers are clearly visible, as are the plastic veneers

The brand name is centred at the bottom of the front face →



Name and address



Besides π, two other special gauge marks are included on the front face. These are aids for converting from radians to seconds (degrees) and from radians to minutes (degrees)[3].
// mark by ≈ 2.06 for seconds: 1 rad = 180° x 60 x 60 / π ≈ 206265 //
/ mark by ≈ 3.43 for minutes: 1 rad = 180° x 60 / π ≈ 3438 /
Using these aids can be a brainteaser!

[3] See also MIR 29: Collecting ... gauge marks, Panagiotis Venetsianos

Barbotheu [3]

A good quality modern looking Rietz wooden slide rule (25 cm / K A = B CI C = D L | 28 cm, back of the slide: = T S =, *no* ST scale) with plastic veneers. The cursor has two hairlines. The name "Barbotheu – Paris" is modestly stamped into the back of the stock.

Gauge Marks

There are four gauge marks. On the A and B scales there is π at 3.14 and an unlabelled plain stroke at 7.85 for π/4 (= 0.785). On the C and D scales there are gauge marks at 1.128 → C• and at 3.568 → C_1. The meaning of these gauge marks is:

- C• ≈ 1.128 represents √(4/π) ≈ 1.128, a constant that simplifies the calculating of areas. This is also the distance between the two cursor hairlines and makes it possible to calculate the area of a circle for a given diameter (with the D scale and the right-hand hairline or with the A scale and the left-hand hairline).
- C_1 ≈ 3.568 represents √(4x10/π) ≈ 3.568, a constant that is used in the same way as the C• gauge mark but then with the 2nd 10-100 cycle of the A scale.

Barbotheu [3], front face

Back of the slide

Back of the stock with tables and left and right closed cursor windows

Pair of 11s

← On this slide rule the pair of numbers are stamped into the right-hand end of the stock and the slide

Centred at the top in the back is stamped BARBOTHEU • PARIS • →

Stamped name

Barbotheu Dividers

Shown below, to illustrate that the name *Barbotheu* not only appears on slide rules, are two screw-adjusted dividers with ruling pens bearing the same brand name. They are both a special type for drawing tiny circles. Strangely enough the drawing sets they each came out of were retailed under other (brand) names.

It appears that when constructing (older) dividers, makers not only considered the needed functionality but also (and mostly?) the aesthetics of the design. Because the handles of the dividers – here, not unusually, made of ivory – were supplied by specialist turners, they are rarely match ones in other drawing sets. Even when in the same case, the handles of the different drafting instruments could have different designs.

The two dividers shown below have almost identical handles. Because of the ridge of ingrained dirt under the ball of the handle, the left-hand divider is more accentuated than the example on the right! Therefore they may both be from the same era and/or come from the same turner.

This beautiful divider (left) is part of a drawing set with the brand name: *S L - Compas Perfectionnés* (Unis France [the number is illegible]). The lower needle point is eccentrically mounted. The material used is: nickel silver, steel and ivory. The total length is about 112 mm.

Enlarged below is the impressed name.

The equally beautiful divider shown on the right is very similar to the first example. However, there are some differences. The divider comes out of a drawing set with the brand name: CID (Unis France 18 7). The raw materials are the same as the first example. The total length is about 106 mm.

Remarkably, when compared with the first example, the brand name is found on the opposite side.