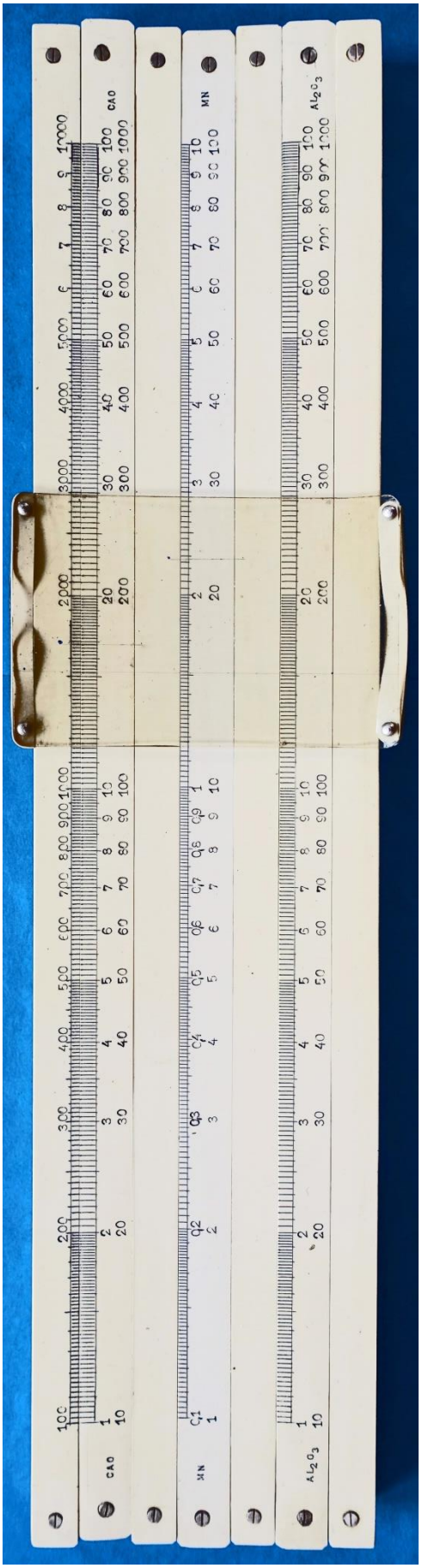
Mystery Chemical Rule??



At first all I had was a cryptic maker's name, "**ALKU**", in gold block lettering on the accompanying mottled green cardboard box. But thanks to an article from 2005 by the late German collector Klaus Przadka I learnt that ALKU was short for **Alfred Kuhmann**. Post WWII Kuhmann set up a modest slide rule business and workshop in **Neueibau**, Germany - a small village in the Löbau-Zittau district of Saxony that borders modern-day Poland and the Czech Republic. In 1949 Neueibau became part of the *Duitse Democratische Republiek* (DDR or East Germany). ALKU only stayed in business for a short time – from 1947 to 1950.

Early ALKU models used printed cardboard strips for the scales. These were glued onto a glass baseplate for the stock and a glass strip for the slide. The uniqueness of this manufacturing process probably came about by a lack of suitable raw materials in Germany after WWII ended. The mystery rule is a late production ALKU made from wood – probably beach. It is an oversized (29.8 x 6.7 x 2.3 cm) **25 cm poly-slide (3)** model with incised celluloid veneers fixed to the stock and the slides by German silver screws. Apart from the scale annotations and labelling, there are no other markings. The back of the stock is varnished but plain. Otherwise the construction and finishing is poor but this is probably a reflection of the centralised socialist control the DDR regime placed on the output of such companies. It clearly irked Kuhmann as another known wooden ALKU Rietz model from April 1950 came with a small paper slip apologising for the poor quality of the finished product.

All the scales on the mystery rule are logarithmic and apart from the top 25 cm 2-cycle **A-like scale** (scale divisions labelled 100-1000-10000) the other **12 scales** are chemical related. There is a pair of special scales on each side of the **3 duplex slides**. But it is only possible to "calculate" with the uppermost/1st slide as only it can accurately interact with the adjacent A-like scale. The **simplex free-view plastic cursor** (5 x 7.5 cm) has one non-central hairline (drawn at 1.5 cm in from the left-hand edge) and two peripheral hairlines (one drawn at 2 cm and the other at 3.5 cm from the left-hand edge).

The scale layout of the three slides (top to bottom – front and back) is:

1. **CAO** (possibly Calcium Oxide/Quicklime – chemical symbol *CaO*)
   (i) 2-cycle B scale
   (ii) 2-cycle B-like scale (scale divisions labelled 10-100-1000)
2. **MN** (possibly Manganese – chemical symbol *Mn*)
   (i) 2-cycle B-like scale (scale divisions labelled 0.1–1-10)
   (ii) 2-cycle B scale
3. **Al_2O_3** (probably Aluminium Oxide/Alumina - chemical symbol Al_2O_3)
   (i) 2-cycle B scale
   (ii) 2-cycle B-like scale (scale divisions labelled 10-100-1000)
4. **FE** (possibly Iron – chemical symbol *Fe*)
   (i) 2-cycle B scale
   (ii) 2-cycle B-like scale (scale divisions labelled 10-100-1000)
5. **SIO_2** (probably Silicon Dioxide/Silica or sand – chemical symbol SiO_2)
   (i) 2-cycle B scale
   (ii) 2-cycle B-like scale (scale divisions labelled 10-100-1000)
6. **P** (possibly Phosphorus – chemical symbol *P*)
   (i) 2-cycle B-like scale (scale divisions labelled 0.01-0.1-1)
   (ii) 2-cycle B-like scale (scale divisions labelled 0.1-1-10)

Is it relevant that *Al*, *Si* and *P* all appear on **row 3** and *Ca*, *Mn* and *Fe* all appear on **row 4** of the periodic table of chemical elements? They are all used in pottery for **ceramic glazes**. But a more likely use is for determining the desired properties of **mixes of concrete** and/or **alloys of aluminium**. For example, there are striking similarities to the 25cm Hemmi duplex model 405 for Portland cement made between 1950 and 1968 - see: osgalleries.org/os/fulldetails.cgi?match=151. However, the 405 has only non-logarithmic scales. But this difference could explain the questionable use of A and B scales on the mystery rule. They could instead be compressed logarithmic versions of linear scales. Perhaps the specific relabelling of the scale divisions or the hairlines on the cursor are extra clues?

So apart from speculating on a possible use for concrete or aluminium and deducing that three pairs of scales are for chemical elements and the other three pairs are for oxides, I am left pondering what business or trade would need such a slide rule or how on earth it was supposed to be used! Can anyone shed any light on this mystery? Answers or ideas on a "postcard" please to: david.rance@xs4all.nl .