

Juggling Slide Rules

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July 2012

INTRODUCTION

I had always felt that juggling was something that I should and could be able to do, but it wasn't until a few years ago that I finally got round to learning to do it. Since then have been mildly hooked enough to keep practicing (on and off), learn some patterns and add some balls; with some degree of success.

Whilst also casually interested in maths and physics (and old stuff), I had only given this aspect of juggling cursory investigation; if you throw things right, it works.

That changed after I decided to investigate an (at the time) unidentified object that had been in the family for many years, which turned out to be an old alcohol slide rule. I just missed slide rules at school because calculators and computers were emerging, and subsequently dismissed them believing them to be complicated, cumbersome and redundant.

I promptly became fascinated by these ingenious, elegant and blinding simple things, which are a very visual way of understanding relationships between variables. They varied in complexity and had a huge range of specification from the purely mathematical, to custom applications in engineering and commerce. They then became more or less obsolete, more or less overnight.

Though admittedly frivolous, it struck me almost immediately that the visual, hands-on art of juggling could, in some way, be a great application for such a visual and hands-on tool.

I first satisfied myself as far as I could that no such thing already existed, then I immersed myself into the realms of geek juggling and slide rules to understand how they both worked (to some depth), so I could design and build a slide rule which would accurately describe simple concepts of the mechanics of juggling.

Here is the result, a simple juggling slide rule, top, and a more complex one below:



Fig 1 Simple Slide Rule, front and back.

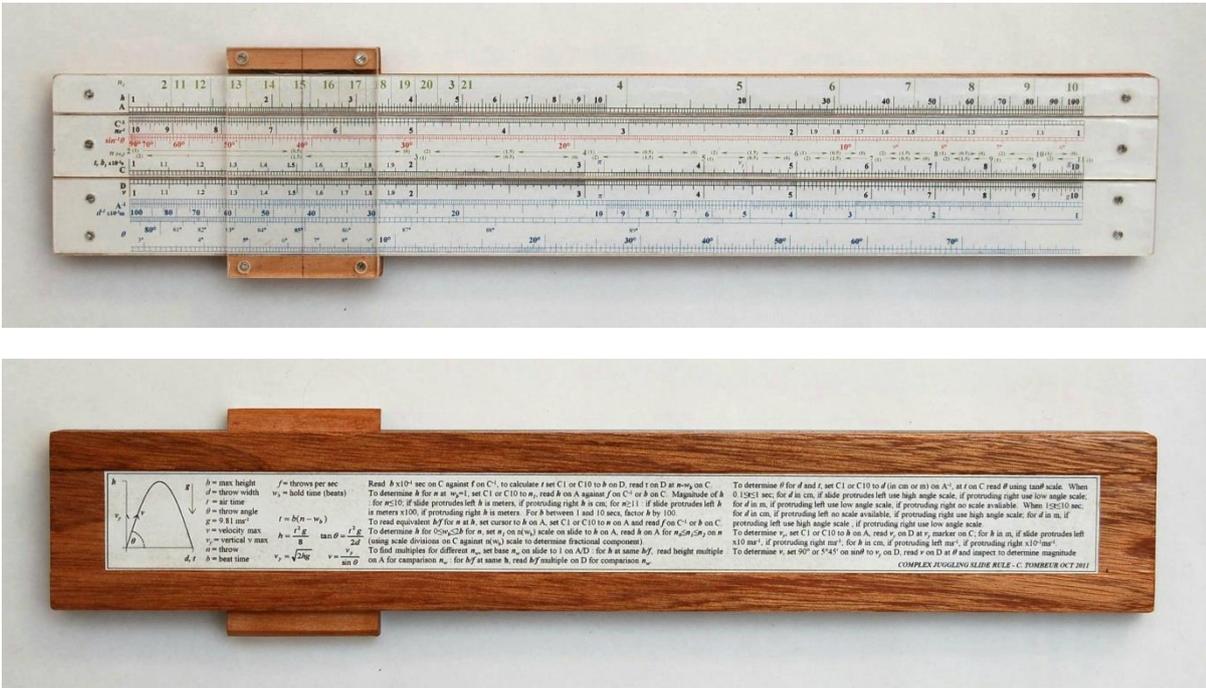


Fig 2 Complex Slide Rule, front and back.

Juggling is the art of keeping more objects in the air than there are throw and catch sites, and weaving those objects into beguiling patterns. It can be simple and concise or complicated and confounding, done well it is mesmerising and beautiful to watch.

There are two fundamentals to most juggling, the pattern and gravity. The pattern is a repeating sequence of throws that lock together and these are driven by gravity.

Gravity is the juggler's greatest foe, against gravity the juggler battles an unwinnable war, yet it is also the juggler's greatest ally. It is gravity that makes juggling work and the juggler can exploit it because it is utterly predictable.

The average practicing juggler may not overly concerned with the mechanics of juggling - they know how to do it (timing, placement etc) and it works though feel, intuition and experience gained by a lot of practice - but the predictability, governed by the laws of physics, means that juggling can be simply described mathematically with equations, and all manner of data and relationships can be calculated and explored.

How to introduce the slide rule?

The juggling slide rule was born out of a collision of interests in juggling mechanics and slide rules, it seemed both obvious and appropriate that one could be applied to the other.