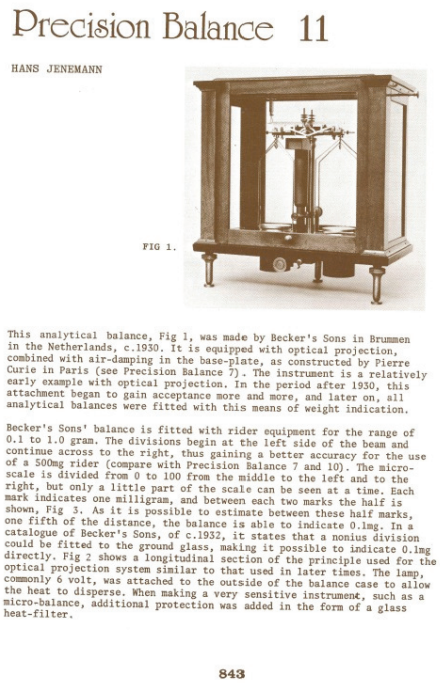

Precision Balance 11

HANS JENEMANN

FIG 1.

This analytical balance, Fig 1, was made by Becker's Sons in Brummen in the Netherlands, c.1930. It is equipped with optical projection, combined with air-damping in the base-plate, as constructed by Pierre Curie in Paris (see Precision Balance 7). The instrument is a relatively early example with optical projection. In the period after 1930, this attachment began to gain acceptance more and more, and later on, all analytical balances were fitted with this means of weight indication.

Becker's Sons' balance is fitted with rider equipment for the range of 0.1 to 1.0 gram. The divisions begin at the left side of the beam and continue across to the right, thus gaining a better accuracy for the use of a 500mg rider (compare with Precision Balance 7 and 10). The micro-scale is divided from 0 to 100 from the middle to the left and to the right, but only a little part of the scale can be seen at a time. Each mark indicates one milligram, and between each two marks the half is shown, Fig 3. As it is possible to estimate between these half marks, one fifth of the distance, the balance is able to indicate 0.1mg. In a catalogue of Becker's Sons, of c.1932, it states that a nonius division could be fitted to the ground glass, making it possible to indicate 0.1mg directly. Fig 2 shows a longitudinal section of the principle used for the optical projection system similar to that used in later times. The lamp, commonly 6 volt, was attached to the outside of the balance case to allow the heat to disperse. When making a very sensitive instrument, such as a micro-balance, additional protection was added in the form of a glass heat-filter.

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Abstract

Remarks