

CORN AND BREAD AND THE FAIR DISTRIBUTION OF THE PRODUCE OF THIS EARTH

Ideas, guidelines, and aspects on the series “The History of Weights and Scales”

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The series of articles “The History of Weights and Scales” published in the OIML Bulletin is characterized by two specific aspects.

Firstly, for thousands of years, time and length measurements and quantity determination have been integral elements of human coexistence; they have even been essential for survival. Measuring has been, so to speak, the most important companion of the human race since it gave up nomadic life and became sedentary. During the entire development of weighing technology, from the beam balance to state-of-the-art weighing systems, rulers (and later governments) have issued laws and regulations to protect weaker trading partners from unfair mass determinations and fraud. Thus, the OIML set itself the goal of harmonizing this discipline.

The editorial team wanted to support this task by contributing the series of articles on the history of scales and work towards the goal that, in the future, every single country will be a member of the OIML.

The team is convinced that as a result the world might become a more balanced, fairer, and more peaceful place. For instance, there is an Association of Friends and Sponsors of the Chronos Scales of 1883 in Hennef/Sieg, in the Cologne/Bonn area. At its next meeting at the beginning of 2015, it will be discussed, among other topics, how and where the Association can support the OIML in a material way beyond the series of articles. It would also be possible to train specialists of future new OIML Member States directly on site or to invite interested parties to Germany for one or two-week training courses, for example to the PTB in Braunschweig or to the automatic scales center in Hennef, where an exhibition shows and explains the history of former measuring instruments. This ensures a good early historical representation of metrology that can be transferred to the current age.

Secondly, as in the past, weights and scales still influence the international flow of money and goods to a large extent. Without scales, a well-regulated economic cycle would not be possible today. This is why, with its series of articles, the editorial team would like to pass on its knowledge of metrology and of weights and scales to young people who are currently in education and who will be taking on responsibility in our society in the future.

For this reason, the authors will also work without remuneration and donate a portion of their fees to the Carl Reuther Vocational School in Hennef/Sieg and the German Milling School in Braunschweig. This way, the authors promote the education of young people in the fields of engineering and foods. As far as the latter is concerned, the basic foodstuffs - corn, flour and bread - have historically played an important role.

A personal greeting with a review of the series on the history of scales

A few years ago, the first reports on the topic were published at www.hennef.de/index.php?id=1298, which a few employees of Bizerba had gratefully prepared with me. The articles were about the “History of Scales – Weighing and Scales Through Changing Times.” The articles appeared simultaneously in four languages: German, English, French and Polish. Following this, it was then by a particular stroke of luck that I got to know the publishers Moritz Schäfer at the Detmold conference for milling technology of the AGF (Corn Research Committee) in September 2011. Still on the same day, both parties agreed to initiate a series with the title “Weights, Scales and Weighing Through Changing Times – from Prehistoric Times to the Present” in the trade journal “Mühle + Mischfutter”. No sooner said than done. Already on December 20, 2011, i.e. almost exactly four years ago, the first report appeared in “Mühle” Number 24/2011. Also the former President of the CIML and Vice-President of the PTB in Braunschweig and Berlin, Prof. Dr. Manfred Kochsiek, enjoyed this series. With much dedication, he succeeded in having the articles that had been published in the trade journal translated into English at the PTB and then, from there, sent to the BIML in Paris for further processing.

The first joint team report on the series “History of Scales” appeared in the OIML Bulletin Number 3, July 2012. With this, our articles embarked on a journey through many countries across the world. The first ten essays were produced and put into circulation in a German-English special edition – without any copyright – on 31 October 2013 in Hennef/Sieg (City of Wolfgang

Euler), in Balingen (Bizerba), in Detmold (“Mühle + Mischfutter”), in Braunschweig as well as in Paris (BIML). Details about this can be found on the Internet:

www.vms-detmold.de/index.php/informationen-vorschauarchiv/2-uncategorised/76-geschichte-der-waage

or

www.hennef.de/uploads/media/Geschichte-der-Waage_M-M.pdf

In the thousands of years of the history of weights and scales, there have been three revolutionary changes so far which have increasingly captured my interest for this subject area – especially for (statutory) metrology – and inspired me over time.

Firstly, manual weighing was carried out – and is still carried out – either using old-fashioned bench scales, with decimal scales or, more recently, fully electronically. Such scales are also called “not self-operated scales” or “NAWI” (“non-automatic weighing instruments”), i.e. weighing requires the active intervention of an operator.

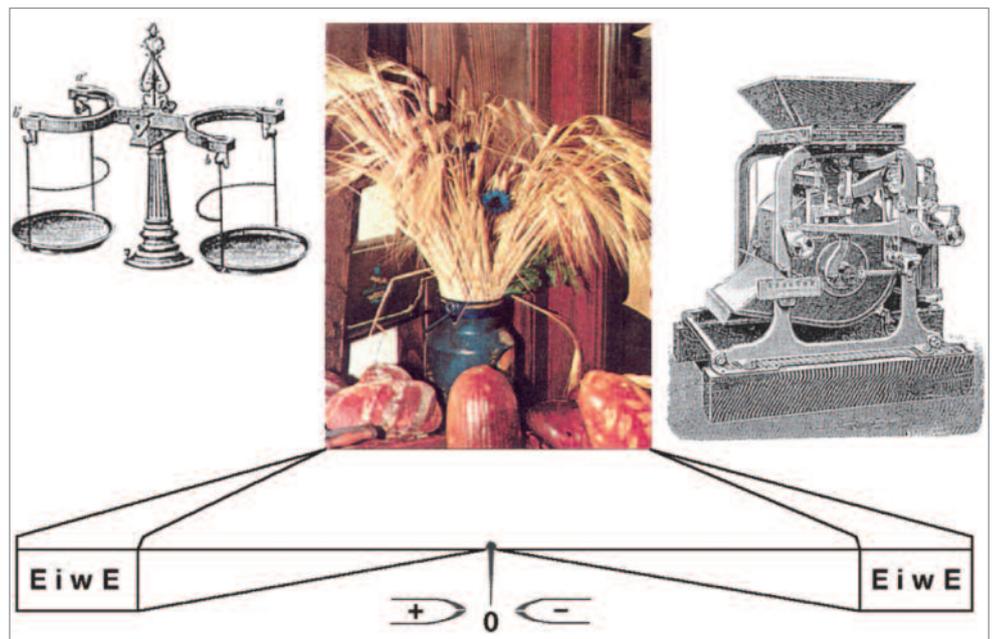
A simple example is that of a vendor who places a piece of meat on the scale which in turn determines the weight and calculates the price and the sales tax. Traditional bench scales are still often used today, particularly in agriculture. They are metrologically very simple, verifiable with high precision, and are still extensively used on trading markets that work on a “mass basis”. Modern fully electronic weighing is by no means any better, but it is faster which is of course particularly advantageous for supermarkets. For the consumer, however, this procedure is often less reliable, because it is not based on mass, but force measurement. Additionally, customers are often distracted by pop-up advertising in large characters; by contrast, weight and price are displayed in relatively small characters.

Secondly, the automatic age started in 1883 in Hennef with the Chronos Scales. An interesting point in this regard is that the many thousand year old equal-arm beam scales also form the core of the Chronos Scales. For automatic weighing, no additional and/or own energy is necessary. Such “self-operated” and/or “automatic scales” execute the weighing process without the intervention of operating staff.

The weighing sequence is continually initiated automatically; thus, it still does not have anything to do with electronics, computer technology or pneumatics.

Thirdly, in 1955, the triumphant advance of electronic scales and digital weighing systems began, whereby force measurement through weighing cells was used instead of mass determination. My own physical knowledge may be good, yet not exceedingly pronounced. However, I have been working for a long time to ensure that metrology is realistic. There is no doubt that we of course also need research. However, in my opinion, statutory measurement guidelines that are plausible, simple and honest, and not increasingly complicated, are more necessary. Transparency is a basic condition for a “balanced” world in the true sense of the word, in which the treasures of our earth are fairly distributed among its inhabitants. This committed goal will also drive me and all other authors of this series of articles in the future.

The whole editorial team, the publishers Moritz Schäfer in Detmold with their trade journal “Mühle + Mischfutter”, and the Editors of the OIML Bulletin, would like to thank all readers for their loyalty in 2014 and wish them a good “balance” of health, happiness and success for 2015. Readers can look forward to new articles on automatic scales for weighing – SWA (bagging in small containers, e.g. 5 kg, 10 kg, 25 kg or 50 kg, up to 1000 kg – big bags), check weighers, and prepackaging regulations in the coming year. ■



A modest man was once asked: “What looks more beautiful – a field of corn swaying in the summer wind or nourishing and healthy bread?” His answer was: “Both are equally very impressive – corn is a great wonder of nature and bread shows the ingenuity of man.”