

## Pulp Balances

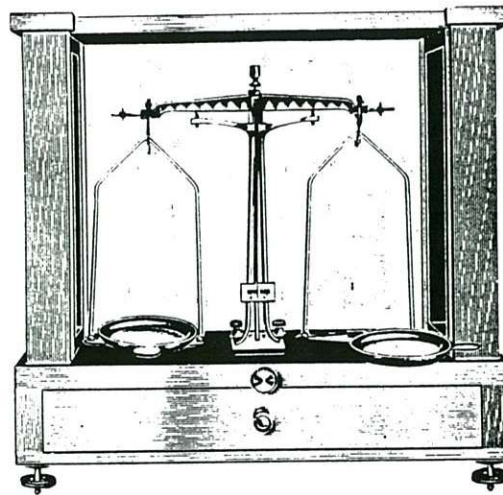
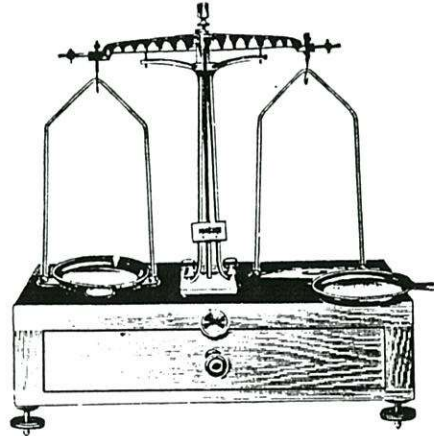
by John Shannon

As has already been mentioned in the article on "Gold Scales" in the MAC issue No. 2, Winter 1989, a number of balances were used in the assay lab. It is the purpose of this article to explain the use of one of those - the pulp balance - in the assaying process.

The pulp balance was made in two general styles, enclosed and open. The case of the enclosed balance was constructed very much like an assay or analytical balance. It was made from the same Honduran mahogany wood with glass on the sides and top, and a sliding front glass panel to allow access. The majority of the pulp balances used seem to have been of the open type. The column was mounted on a wood base measuring approximately 6" x 14" x 3" with a single drawer in the base. It is interesting to note that in many early catalogs of balance manufacturers, the same balance is listed both as a pulp balance and as a prescription balance.

The enclosed pulp balances generally had pan rests to assist in controlling the oscillations while the open pulp balance relied on the pans resting on the top of the base while in the rest position.

The pulp balance was used to weigh the pulp which is the result after crushing, quartering, and screening the ore. It was at this stage that the assay ton weights were used. Since the gold and silver assays were always reported in troy ounces per ton (2,000 pounds avoirdupois), if the ore charge (pulp) were weighed in grams and the button in milligrams, considerable figuring would be necessary to convert the result into troy ounces per ton. The system of assay ton weights greatly simplifies the computation. In short, one assay ton weighs 29,166 milligrams, just as many milligrams as there are troy ounces in an avoirdupois ton. Therefore, if an ore charge of one assay ton is taken, each milligram that the resulting button weighs represents one ounce (troy) of the metal in a ton of ore.



As in the case of the assay balance being made just for the assay of metals, the set of assay ton weights was made just for the assaying process. They generally came in two different sets; ranging from one assay ton to the 1/20 assay ton, and four assay tons to 1/20 assay ton.

It is interesting to note that an 1898 catalog of Eimer & Amend for chemical and physical apparatus and assay goods does not list a pulp balance as such. However, it does picture two balances very much like the later pulp balances and indicates they are balances "for pharmaceutical, bullion, specific gravity, gold, sugar, and other purposes where accuracy is required." The 1905 catalog of the Denver Fire Clay Co. shows four pages of pulp balances from Thompson, Ainsworth, and Troemner. A 1900 (?) catalog of Justinian Caire Co. of San Francisco shows pulp balances from Becker, Troemner, and Ainsworth.