"Charles M. Hall, a Perkin Medalist, had brought out his beautiful and simple process for extracting aluminum from alumina, in 1886, and had given a practically new metal to the world to replace copper, tin and zinc in many arts."

Simple justice demands that such errors should be corrected. For above it is shown that Hall never made an ounce of aluminum before 1889, for in a letter to Leonard Waldo, Esq., dated "Oberlin, O., August 29, 1888," set forth in the exhibits in said litigation, Hall states as follows:

"I am not doing anything at present regarding the production of pure aluminum, but am waiting mainly to get my patent matters in better shape. My patents are not yet issued and are, if I may use the expression 'in the woods.'"

As shown heretofore by Hall's letter to Cole, Hall admitted that the Bradley patent dominated his process, and the U. S. Circuit Court of Appeals also so found and held, as quoted from the Court's opinion above, and it is therefore clear and unanswerable that Dr. Chandler's erroneous and unsupported statement is to be held as naught; and should any further proofs be desired reference is also hereby made to Charles M. Hall's admissions in his cross-examination, between pages 724 and 753 of defendant's testimony in the aforesaid case, and also to all the admissions by Hall in all the letters set forth as exhibited in said case.

FRANCIS C. McMILLIN

General Counsel for the (Cowles) Electric Smelting
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111 BROADWAY, NEW YORK CITY
March, 1916

NOTE ON THE DETECTION OF FAULTY SIZING IN HIGH-GRADE PAPERS*

Editor of the Journal of Industrial and Engineering Chemistry:

Reference is made by Herzberg¹ to the test for the detection of faulty sizing in high-grade papers,² in which he states that the method is not new and is similar to that of Klemm.³

Herzberg has apparently overlooked the actual principle upon which the method is based.

In the proposed method the paper is carefully drawn over the surface of an iron tannate ink and allowed to drain and dry. This procedure differs considerably from that of Klemm, in which the paper is allowed to float for a longer period of time and the excess ink subsequently blotted off. The inked as well as the reverse side of the paper is judged for uniformity of color, the time it takes should the ink strike through, and whether it has come through uniformly. From this appearance it is possible with experience, to judge the sizing quality.

Should it be desired to test a paper for its writing quality only, Klemm claims that ten minutes' floating on the ink, examining both the wire and top side, is sufficient. The appearance of the inked and reverse sides is noted for the characteristics above mentioned, and if the ink does not penetrate the sheet, it is considered properly sized for all practical purposes.

Should it be desired to make further distinctive tests Klemm says it is only necessary to float the paper for intervals of 2, 5, 10, 20, 30 and 60 mins. and examine as before, from which most instructive results can be obtained.

In the proposed method the new and distinctive feature is in the examination of the individual fibers under a magnifying glass to observe the absorbed ink. It is upon the absorption of the ink by the fibers and not upon the appearance of the surface as a whole that the accuracy of this test depends and upon which claim for its originality and superiority is based.

The possible results which Klemm may obtain by his procedure do not approach the refined distinctions in sizing quality between two well-sized papers that the proposed method will

bring out. Uniformity of color is not the best criterion for distinguishing the sizing quality. The depth of color of the inked surface is far more differentiating, as has been mentioned in *Circular 107*. Furthermore, in the procedure of Klemm there are many factors which may influence the results, such as the amount of ink, the evaporation, the formation of the sheet, the moisture in the paper, its weight, loading, and thickness. The proposed method is largely independent of the variations which may be caused by these factors as it deals entirely with the appearance of the fibers on the surface of the paper, and as has been stated, "Upon examining the inked surface with a magnifying glass it will be found that a well-sized paper will show no indication of the fiber having absorbed the ink, * * *"

The experiences of many who have used this method properly have shown it to give distinctions in the quality of sizing where other methods have failed.

LEATHER AND PAPER LABORATORY
BUREAU OF CHEMISTRY, WASHINGTON
March 14, 1916

C. FRANK SAMMET

METHOD FOR DETERMINATION OF HARDNESS

Editor of the Journal of Industrial and Engineering Chemistry:

Referring to the note "Method for Determination of Hardness," THIS JOURNAL, 8 (1916), 281, the writer begs to state that the method described is not a French invention, but is the product of American brains. It is covered by U. S. Patent No. 1,125,912, issued January 19, 1915, to Messrs. Albert Ringland and Frank H. Schoenfuss, of Philadelphia. This patent covers "The method of ascertaining the Brinell hardness of a piece to be tested, which consists in placing a ball between said piece and a standard piece of known Brinell hardness, applying a force to the assemblage to produce a ball depression in each piece and then comparing the depressions and thereby ascertaining the Brinell hardness of the piece to be tested."

It will readily be seen that this method is a very clever scheme to extend the application of the accurate Brinell method to metal pieces which cannot be placed into the Brinell machine; it permits accurate Brinell hardness determinations of metal masses of practically any size or shape, and in any place or structure. The proportion of the two ball indentations used for comparative measurements is an absolutely direct one, independent of the pressure applied. It is varying directly as the spherical areas of the two impressions, consequently varying directly as the squares of the diameters of each impression. On basis of this proportion, a table can be easily worked out, which will give the Brinell hardness for any readings.

HERMAN A. HOLZ

50 CHURCH STREET, NEW YORK
March 15, 1916

COPIES OF JANUARY AND FEBRUARY ISSUES OF OUR JOURNALS WANTED

Editor of the Journal of Industrial and Engineering Chemistry:

Owing to the rapid increase in membership of the American Chemical Society, the early issues of the 1916 journals are already practically exhausted. Two hundred and seventy (270) more members have been elected in the early months of this year than in 1915; accordingly, the plans for publication were underestimated and the Secretary is now advertising for these numbers.

Members not binding their journals will convey a great favor by returning to the Secretary's office any January and February issues of any of the Society's publications that they can spare. The numbers especially wanted are the January and February issues of both the *Journal of the American Chemical Society* and *Journal of Industrial and Engineering Chemistry*, and the January 20, 1916, issue of *Chemical Abstracts*.

CHARLES L. PARSONS, Secretary

Box 505, WASHINGTON, D. C.
March 24, 1916

¹ *Mitt. kgl. Material-prüfungsamts*, 11 (1915), 130.

² *Bureau of Chemistry, Circ. 107*.

³ *Handbuch der Papierkunde*, 1910, 312.