ASSAYING: IN THREE PARTS; PARTS, II AND III

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C. H. AARON

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Trieste

ASSAYING

IN

THREE PARTS

PART 1ST.—GOLD AND SILVER ORES; PART 2D.—GOLD AND SILVER BULLION; PART 3D.—LEAD, COPPER, TIN, MERCURY, ZINC, NICKEL AND COBALT, CHROMIUM, BISMUTH, ARSENIC, ANTIMONY, SULPHUR, SALT.

BY C. H. AARON, METALLURGIST,

AUTHOR OF

"TESTING AND WORKING SILVER ORES," "LEACHING GOLD AND SILVER ORES."

PARTS II. AND III.

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TO

The Mining and Scientific Press,

OF

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THE STEADFAST FRIEND OF TRUTH AND PROGRESS—AN HONEST PAPER—

THIS BOOK IS RESPECTFULLY DEDICATED BY THE AUTHOR.

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PART TWO.

PART THREE.

PART II.

GOLD AND SILVER BULLION.

In the assay of bullion, as in that of ore, the first step is to obtain a correct sample, and for this reason it is desirable that the bars of ingots should be made in the establishment in which they are assayed; it is not often that an assayer will place his stamp on a bar without knowing to a certainty that the bar is what it purports to be. Moreover, the best sample is one that is taken from the molten metal, though this is not practised in the case of gold bullion, and it often happens that a lot of silver lead in bars, which in this country is called "base bullion," must be sampled without melting for the purpose. Silver bullion is sampled when melted, before casting. Silver lead is so sampled when practicable. Gold bullion, or base bullion in bars, is sampled by chipping or boring.*

Gold bullion is assayed by inquartation, involving cupellation, and parting; silver bullion by cupellation or by the *humid method;* silver lead by cupellation, sometimes preceded by scorification.

Bars of bullion are called gold, doré, silver, or base.

*Silver bars are also chipped or bored when the metal has been ladled into the moulds from a refining hearth. Pigs of lead containing precious metal are best sampled by drilling, or by means of a hollow punch, which is driven half through from top and bottom. The samples from a number of pigs are melted together at low heat under borax, and cast into a small bar. This bar is then cut in two, and slices are taken from top to bottom for the assays, of which several are made for an average.