PRACTICAL EXAMPLES IN QUANTITATIVE ANALYSIS, FORMING A CONCISE GUIDE TO THE ANALYSIS OF WATER, ETC

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Practical examples in quantitative analysis, forming a concise guide to the analysis of water, etc
by Ernest Francis

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ERNEST FRANCIS

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Trieste

PRACTICAL EXAMPLES

IN

QUANTITATIVE ANALYSIS

FORMING A CONCISE GUIDE

TO THE

ANALYSIS OF WATER ETC.

BY

ERNEST FRANCIS, F.C.S.
DEMONSTRATOR OF PRACTICAL CHEMISTRY, CHARING CROSS HOSPITAL.

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PREFACE.

The author has endeavoured in this work to select such typical examples of quantitative analysis as may prove most useful to the medical student. Special care has been taken to make each of the processes as simple as possible.

The recent sanitary acts have thrown upon the medical profession the responsibility of examining waters chemically with a view of ascertaining their potability and freedom from various organic impurities. The details of water analysis are fully described in the following pages.

Other examples of analysis are given, which the author hopes will furnish such general instructions as will enable the student with a little variation, to apply the examples here given to other cases which, though differing in detail, are the same in principle.

The Author has to acknowledge his obligation to Dr. Ralfe for many important suggestions, and also for the trouble he has bestowed on the revision of the proof sheets.

LONDON. *May*, 1873.

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INTRODUCTION.

A substance present in a mixture may be estimated in three ways.

1. By precipitating, collecting and weighing the precipitate; this is the GRAVIMETRIC METHOD.

2. By precipitating or otherwise altering it with a *solution* of a reagent of known strength, and ascertaining the quantity of the reagent required to effect the complete change; this is the VOLUMETRIC METHOD.

3. The variation and intensity of colour produced by a reagent often affords a ready means of estimating certain substances; this is the COLORIMETRIC METHOD.

In quantitative analysis the French or Metric system of weights and measures is employed. In this system the *gramme* is taken as the *unit of weight*, which represents a cubic centimeter of distilled water, at its greatest density; viz. 4° C.

The *unit of capacity* is the *litre*, which contains 1000 cubic centimeters; consequently a litre of distilled