

**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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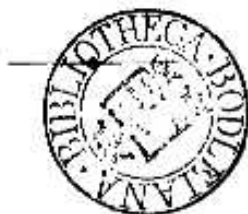
**ERNEST FRANCIS**

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## PREFACE.

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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.*

1. The first part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes that proper record-keeping is essential for transparency and accountability, particularly in the context of public administration and financial management. The text notes that without reliable records, it is difficult to track the flow of funds and ensure that resources are being used effectively and efficiently.

2. The second part of the document addresses the challenges associated with data collection and analysis. It highlights that while modern technology offers powerful tools for data processing, the quality and consistency of the data itself can be a significant barrier. The document suggests that standardizing data collection procedures and ensuring that all relevant parties are trained in proper data handling practices are crucial steps towards overcoming these challenges.

3. The third part of the document focuses on the role of communication in the success of any project or initiative. It argues that clear and consistent communication is not just a supportive function but a core component of the process. The text encourages the use of multiple channels to reach different audiences and stresses the importance of listening to feedback and being open to adjustments based on what is learned from the field.

4. The fourth part of the document discusses the importance of collaboration and partnership. It notes that no single organization or individual has all the resources, expertise, or reach needed to address complex, large-scale issues. The document advocates for building strong relationships with other stakeholders, including government agencies, academic institutions, and the private sector, to leverage their strengths and create a more comprehensive and effective response.

5. The fifth and final part of the document provides a summary of the key points discussed and offers some concluding thoughts. It reiterates that success is achieved through a combination of diligent record-keeping, high-quality data, effective communication, and strong collaborative partnerships. The document ends with a call to action, encouraging all involved parties to continue working together to improve processes and achieve the common goals of the organization.



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## INTRODUCTION.

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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 VOLU-METRIC METHOD.

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