

**GUIDE TO PREPARATION  
WORK IN INORGANIC  
CHEMISTRY FOR STUDENTS OF  
CHEMISTRY AND PHARMACY**

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Guide to Preparation Work in Inorganic Chemistry for Students of Chemistry and Pharmacy by  
Reinhart Blochmann

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**REINHART BLOCHMANN**

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GUIDE  
TO  
PREPARATION WORK  
IN  
INORGANIC CHEMISTRY  
FOR  
STUDENTS OF  
CHEMISTRY AND PHARMACY

BY  
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Professor at the University of Konigsberg

With Numerous Illustrations

*Compliments*  
AUTHORIZED TRANSLATION BY  
JAS. LEWIS HOWE  
Washington and Lee University

DEPARTMENT OF CHEMISTRY  
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LEXINGTON VIRGINIA

## P R E F A C E .

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This little book is intended to serve as a first guide to students of chemistry and pharmacy in inorganic preparation work; it assumes that by practical work the student has already acquired a good knowledge of analytical chemistry.

The rational preparation of chemical compounds must *always* rest upon the stoichiometric proportions of the reacting substances. The course of the reaction is given briefly under each preparation and then a definite exercise is assigned. The quantities of all the materials used are to be determined and weighed by the student himself. Where on practical grounds, or for other reason, a departure from the stoichiometric quantities seems to be demanded, attention is called to it and the reason sought. Hence the student cannot avoid a careful quantitative study of those chemical processes which he carries out.

The amount of substance which can be obtained, or the ratio in which this stands to the theoretical, is given, for comparison with the results obtained by the student. It is here assumed that the process is carried out to completion. Wherever it has seemed necessary, attention has been called to the indications by which the end of the operation may be recognized, and also to the various phenomena during the reaction, which serve as a guide for its proper course.

When it is intended to prepare a certain compound, this can be accomplished, in very few cases, by the direct union of the materials involved (as in case of the action of ferrous sulfate, sulfuric acid, ammonia and nitric acid to form iron alum), without the formation of by-products. In most cases by-products are formed; indeed, certain branches of chemical industry are

industrially possible only on account of the value of these by-products. In all cases where by-products of value are formed, the recovery of these in useful form is carried out, in order that the student may early become accustomed to the consideration of a reaction from every standpoint.

In the selection of preparations three points have been taken into account:

1. As raw materials are used,
  - (a) Natural products such as barite, cryolite, stibnite, etc., or products of the larger chemical industries, as sulfuric acid, hydrochloric acid, soda, saltpeter, etc.;
  - (b) The chief products or the by-products of the previous preparations.

The cost of the raw materials for carrying out this preparation work is, therefore, low,<sup>1</sup> and the preparation of large quantities of worthless material is avoided.

2. The length of time which the single operations require without interruption rarely exceeds an ordinary laboratory period of two or three hours.

The statement of the time in each case renders possible the best disposition of it by the student.

3. The preparations have been so chosen as to give opportunity for the student to become acquainted with the most varied chemical processes, the most frequently used operations, and many easily prepared and approved forms of apparatus.

As regards the presentation of the subject, under each preparation is first given a list of the necessary raw materials, next a short sketch of the course of the chemical reactions involved,

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<sup>1</sup> The cost of the raw materials for carrying out all the preparations given in this book is about \$1.50.

and then the exercise is definitely stated. The description of the method of carrying out the operation and of setting up the apparatus to be used, is given in the earlier preparations with great fulness. In the later exercises, assuming an acquired facility, the descriptions are much briefer. A paragraph as to the amount of the product, its properties and tests, concludes each section.

R. BLOCHMANN.

Königsberg, January, 1895.


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For several years Blochmann's *Anleitung zur Darstellung chemischer anorganischer Präparate* has been used in my classes and has fully demonstrated its value.

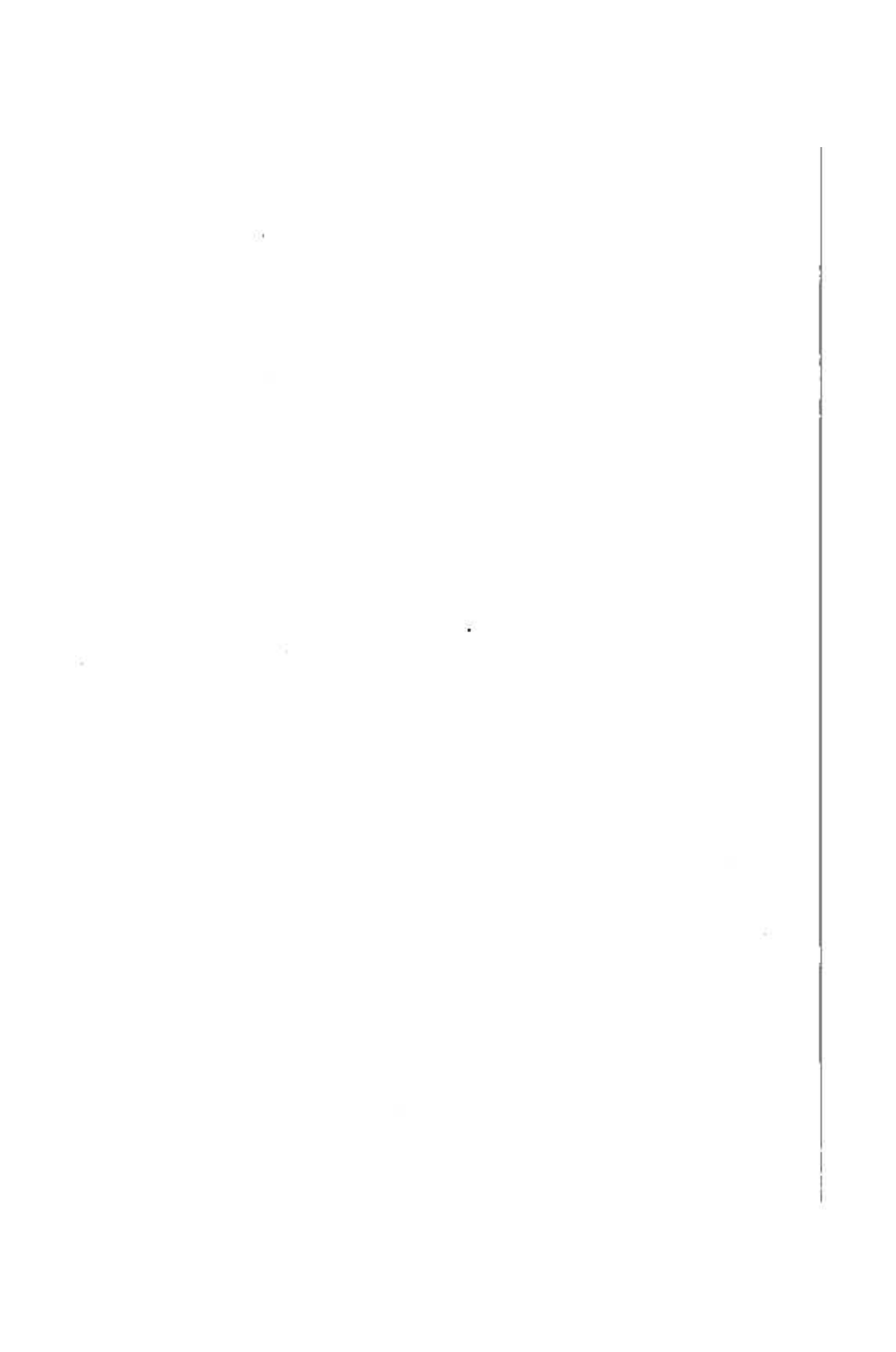
The translation is made from a copy specially corrected and annotated by the author.

J. L. H.

*Washington and Lee University,  
Lexington, Va., August, 1902.*







## CONTENTS.

### PREPARATIONS.

1.	Hydrochloric Acid.....	3
2.	Ammonia.....	7
3.	Sodium Ammonium Sulfate.....	11
4.	Nitric Acid.....	12
5.	Fuming Nitric Acid.....	14
6.	Soda and Alumina from Cryolite.....	16
7.	Alum.....	18
8.	Silver Nitrate from Coin Silver.....	19
9.	Liquid Sulfur Dioxid.....	21
	A. Precipitation of Copper from Copper Sulfate.....	22
	B. Preparation and Condensation of Sulfur Dioxid.....	23
10.	Iron Ammonium Alum.....	27
11.	Potassium Nitrite.....	29
12.	Phosphoric Acid.....	32
13.	Disodium Phosphate, Sodium Ammonium Phosphate, Pyro- phosphoric Acid and Metaphosphoric Acid.....	35
	A. Disodium Phosphate.....	35
	B. Sodium Ammonium Phosphate.....	36
	C. Pyrophosphoric Acid.....	36
	D. Metaphosphoric Acid.....	37
14.	Lead Peroxid.....	38
15.	Antimony Trichlorid.....	40
16.	Fluosilicic Acid.....	43
17.	Crystallized Silicon.....	46
18.	Recovery of Tin from Tinplate.....	47
19.	Carbamid (Urea).....	49
20.	Barium Nitrate.....	51

21. Hydrated Barium Peroxid.....	52
22. Hydroxylamin Hydrochlorid.....	55
23. Phosphorus Pentachlorid.....	57
24. Monochlorosulfuric Acid.....	59
25. Amidosulfonic Acid.....	61
A. From Monochlorosulfuric Acid.....	61
B. From Hydroxylamin.....	64

## TABLES.

Atomic Weights and Multiples.....	69
Specific Gravity of Hydrochloric Acid.....	70
Specific Gravity of Nitric Acid.....	70
Specific Gravity of Concentrated Sulfuric Acid.....	71
Specific Gravity of Aqueous Ammonia.....	71
Solubility of Certain Salts (in 100 parts water).....	72
Solubility of Certain Salts (water required for 1 part).....	73