

**IN PREPARATION. NEW EDITION OF  
ELDERHORST'S BLOW-PIPE ANALYSIS,  
AND DETERMINATIVE  
MINERALOGY. A MANUAL OF BLOW-  
PIPE ANALYSIS, AND DETERMINATIVE  
MINERALOGY, PP. 1-177**

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649503728

In Preparation. New Edition of Elderhorst's Blow-Pipe Analysis, and Determinative Mineralogy. A Manual of Blow-Pipe Analysis, and Determinative Mineralogy, pp. 1-177 by William Elderhorst

Except for use in any review, the reproduction or utilisation of this work in whole or in part in any form by any electronic, mechanical or other means, now known or hereafter invented, including xerography, photocopying and recording, or in any information storage or retrieval system, is forbidden without the permission of the publisher, Trieste Publishing Pty Ltd, PO Box 1576 Collingwood, Victoria 3066 Australia.

All rights reserved.

Edited by Trieste Publishing Pty Ltd.  
Cover @ 2017

This book is sold subject to the condition that it shall not, by way of trade or otherwise, be lent, re-sold, hired out, or otherwise circulated without the publisher's prior consent in any form or binding or cover other than that in which it is published and without a similar condition including this condition being imposed on the subsequent purchaser.

[www.triestepublishing.com](http://www.triestepublishing.com)

**WILLIAM ELDERHORST**

**IN PREPARATION. NEW EDITION OF  
ELDERHORST'S BLOW-PIPE ANALYSIS,  
AND DETERMINATIVE  
MINERALOGY. A MANUAL OF BLOW-  
PIPE ANALYSIS, AND DETERMINATIVE  
MINERALOGY, PP. 1-177**



Your attention is called to the new and revised edition of

**ELDERHORST'S MANUAL**

OF

**BLOW-PIPE ANALYSIS**

AND

**DETERMINATIVE MINERALOGY,**

JUST ISSUED.

PHILADELPHIA, APRIL 4, 1866.

---

The present edition will be found to contain a great deal of additional valuable matter, the result of several years' experience, (since the first edition,) both in the Laboratory and the Lecture Room, which enables us to give a useful Manual for both Teachers and Students.

We will briefly recite some of the additions of special interest to those who may use the blow-pipe as an aid to the study of Mineralogy.

In the Fourth Chapter the Author has given the characteristic physical properties, blow-pipe reactions, and behavior to solvents of all the important Ores of the useful metals, so that a reference to this chapter will at once enable the student or the practical mineralogist and geologist to determine the nature and mineral species of the Ore under examination. But not only the principal species can thus be easily ascertained; by referring to the methods laid down in the Third Chapter for the detection of metallic oxides, &c., in presence of other compounds, incidental constituents, such as silver in galena, nickel in cobaltine, can be discovered without difficulty. The Sixth Chapter contains Prof. von Kobell's method for the discrimination of minerals by means of the blow-pipe, aided by humid analysis. It is unnecessary to dwell on its merits, as it is almost universally acknowledged to be the best guide for the discrimination of minerals that has ever been published.

The appended tables, containing the behavior of the alkaline earths, the earths proper, and the oxides of the heavy metals before the blow-pipe and to the most important reagents, have been taken from Plittner's work on the blow-pipe, the most thorough treatise on the subject.

We are happy to be able to give below, the opinions of some of our scientific men:

From GEORGE J. BRUSH, Professor of Mineralogy and Metallurgy in Yale College. (*Scientific Department.*)

"The second edition of Prof. Elderhorst's *Manual of Blow-pipe Analysis* will be warmly welcomed by all students of Chemistry and Mineralogy. It fills a want very much felt by both teachers and students, and as the present edition contains not only a thorough treatise on *Qualitative Blow-pipe Analysis*, but also an extended chapter on *Determinative Mineralogy*, this last extracted from Von Kobell's excellent *Tabelle zur Bestimmung der Mineralien*. It forms a most invaluable manual for the Laboratory and Cabinet. I have for several years used the first edition as a text-book for my students, and have found it a most useful and accurate work. I shall most willingly adopt this new and enlarged edition, and I take pleasure in cordially recommending it to all teachers and students of Chemistry and Mineralogy."

From CHARLES A. JOY, PH. D., Professor of Chemistry in Columbia College, New York.

"I am greatly pleased with the improved appearance of this edition. It is now the most convenient work on the blow-pipe we have, and I shall recommend it to all of my friends. All of my pupils who have used it, have made remarkable progress in the detection of metals, and in the determination of minerals."

From Professor JAMES C. BOYLE, (Chemist,) Meltor and Refiner, United States Mint.

"After a careful examination of *Elderhorst's Blow-pipe Analysis*, which you have recently published, I am of opinion that it is the best treatise on the subject for the use of beginners and students, and that the experienced chemists will find in it an invaluable vademecum in testing minerals and inorganic bodies generally. I shall therefore recommend it to others and use it myself."

From Dr. WOLCOTT GIBBS, Professor of Chemistry in the Free Academy, New York.

"I most cordially approve of the plan and execution of the treatise, and sincerely hope that its sale may be commensurate with its merits. It is a most welcome and useful addition to our scientific literature."

From Prof. B. HOWARD RAND, M. D., Professor of Chemistry in the Jefferson Medical College, Philadelphia.

Late Professor of Chemistry in the Medical Department, Pennsylvania College;

" " " Franklin Institute;

" " " and Physics in the Philadelphia Central High School.

"I can most cordially commend *Dr. Elderhorst's Manual of Blow-pipe Analysis*. It is clear, concise and accurate, and I shall take pleasure in recommending it to my classes as the best elementary work on the subject."

From Dr. F. A. GENTH.

"CHEMICAL LABORATORY, PHILADELPHIA.

"*Dr. Elderhorst's Manual of Blow-pipe Analysis and Determinative Mineralogy*, just issued by you, is the most convenient work of this kind in the English language, and I shall use it as a text-book for my students, and with great pleasure recommend it most cordially to all my friends who are engaged in chemical and mineralogical pursuits."

From CHARLES P. WILLIAMS, Analytical and Consulting Chemist.

PHILADELPHIA, March 24, 1866.

"I regard *Elderhorst's Manual of Blow-pipe Analysis* as the most convenient elementary text-book in the English language for the student of determinative mineralogy, and as such, for several years have recommended it to students in my laboratory. Though, concise and condensed, no necessary elaboration of detail has been omitted, and it is as useful to the preceptor as to the student. I recommend it with great pleasure."

SCHOOL OF MINES, COLUMBIA COLLEGE, N. Y., March 14, 1866.

THOMAS HOLESTON, JR., A. M., M. D., Professor of Mineralogy and Metallurgy, says—"We have always used *Elderhorst's Manual for the Blow-pipe* in preference to any other."

From CHARLES F. CHANDLER, PH. D., Professor of Analytical and Applied Chemistry, and Dean of Faculty, Columbia College, N. Y.

NEW YORK, March 24, 1866.

"I am very glad to learn that you intend publishing a new edition of *Elderhorst's Blow-pipe Analysis*. As a text-book for students in blow-pipe analysis, and the discrimination of minerals by their chemical reactions, it is far superior to any other book in our language."

From SILAS H. DOUGLASS, Professor of Chemistry and Mineralogy.

UNIVERSITY OF MICHIGAN, DEPARTMENT OF CHEMISTRY, March 28, 1866.

"I am glad to hear that you are about to issue a new edition of *Elderhorst's Blow-pipe*.

"Having used it for several years as a text-book with my classes, I do not hesitate to say that I know of no work capable of taking its place in the Laboratory of Determinative Mineralogy."

From A. B. PRESSCOTT, M. D., Asst. Prof. of Chemistry, and Lecturer on Metallurgy.

CHEMICAL LABORATORY OF THE UNIVERSITY OF MICHIGAN, March 26, 1866.

"I esteem *Elderhorst's Blow-pipe Analysis* as the best Manual extant for the student in Determinative Mineralogy. The systematic tabular methods of Analysis, in the fifth and sixth chapters of the 2d edition, are efficient aids in complete chemical examination. Having been at some inconvenience from its having been recently out of print, I shall gladly welcome a new edition."

From Professor WILLIAM B. BASING, Michigan University.

FEBRUARY 22, 1866.

"Our school of mines is just starting. We shall use *Elderhorst's Manual*. I have yet to find the man who will say that it is not the standard work for a beginner in blow-piping."

*Price of the Manual, sent per mail, prepaid, \$2.50.*

Respectfully,

T. ELLWOOD ZELL, Publisher,

17 & 19 South Sixth Street, Philadelphia.

IN PREPARATION.

NEW EDITION

OF

ELDERHORST'S

BLOW-PIPE ANALYSIS,

AND

DETERMINATIVE MINERALOGY.

---

*Fourth Edition.*

---

REVISED

BY

CHARLES F. CHANDLER, PH. D.,

PROFESSOR OF ANALYTICAL AND APPLIED CHEMISTRY, SCHOOL OF MINES,

COLUMBIA COLLEGE, NEW YORK.

---

*Ready September, 1867.*

A MANUAL  
OF  
BLOW-PIPE ANALYSIS.  
AND  
DETERMINATIVE MINERALOGY.

BY  
WILLIAM ELDERHORST, M.D.,  
PROFESSOR OF CHEMISTRY IN THE PENNSYLVANIA POLYTECHNIC INSTITUTE.

Third Edition,

---

PHILADELPHIA:  
T. ELLWOOD ZELL,  
Nos. 17 AND 19 SOUTH SIXTH STREET.  
NEW YORK:  
D. VAN NOSTRAND.  
1867.



---

Entered according to Act of Congress, in the year 1826, by  
T. ELLWOOD ZELL,  
In the Clerk's Office of the District Court of the United States for the Eastern District  
of Pennsylvania.

---

## P R E F A C E .

---

THE present edition of this "Manual" is, like the preceding, designed to serve as a text-book in the instruction in Blowpipe-Analysis and Determinative Mineralogy, in the Rensselaer Polytechnic Institute.

In the first three chapters, but few alterations and additions have been made, fearful of injuring the practical usefulness of the book by an accumulation of too much material. The fourth chapter, containing the characteristics of the most important ores, has been considerably enlarged by increasing the number of species, and by adding an appendix containing the description and blowpipe-reactions of the various kinds of fossil fuel; additions which, I trust, will be especially acceptable to the Mining-Engineer and Geologist. In the selection of the newly added species I have paid particular regard to those occurring in the American Continent; for this reason, many less important ores have found a place in the list to the exclusion of others, which, though more valuable, have not hitherto been found in America.

The fifth chapter, containing a systematic method for the discrimination of inorganic compounds, is a translation, but slightly altered, of the "*Division dichotomique pour reconnaître les minéraux,*" as given in Laurent's "*Analyse au Chalumeau.*" It is of no great value to the experienced analyst, but very useful for beginners, and it is on their account that I have given it a place in the Manual.

The sixth chapter is not contained in the first edition. It is hardly necessary to allege any reason for its introduction into

this edition. The admirable method of Professor von Kobell for the discrimination of minerals is, almost beyond dispute, the most practical and most reliable that has ever been published. The sixth chapter is nothing but an extract from Prof. v. Kobell's treatise on this subject. It contains all the well-known mineral species, and leads to their determination with almost unerring certainty.

The appended tables, taken from Plattner's work on the Blowpipe, have remained unchanged.

For the material of this compilation, the author is principally indebted to the following works:

C. F. Plattner: *The Use of the Blowpipe in the Examination of Minerals, Ores, &c.* Translated by J. S. Musprath. 3d ed. London.

J. J. Berzelius: *The Use of the Blowpipe in Chemistry and Mineralogy.* Translated by J. D. Whitney. Boston.

F. von Kobell: *Tafeln zur Bestimmung der Mineralien.* 5th ed. München, 1853.

J. D. Dana: *A System of Mineralogy.* 4th ed. New York, 1854.

John Mitchell: *Manual of Practical Assaying.* 2d ed. London, 1854.

The author, finally, begs to tender his thanks to his friend, Professor Chandler, of Union College, for the valuable suggestions he has received at his hands, and which he has acted upon to the best of his ability, being fully convinced that by adding the improvements recommended by his friend, the practical utility of this little Manual will be greatly increased.

WILLIAM ELDERHORST.

Troy, N.Y.,