



Elements Of Optical Mineralogy - An Introduction To Microscopic Petrography

Alexander N. Winchell

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ELEMENTS OF OPTICAL MINERALOGY AN INTRODUCTION TO MICROSCOPIC
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DETERMINATIVE TABLES WITH A COLORED CHART AND Two DIAGRAMS NEW YORK JOHN
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BRAUNWORTH A CO., INC. BUILDERS OF BOOKS BRIDGEPORT. CONN. PREFACE TO THE
SECOND EDITION SECOND PRINTING DURING the ten years since the publication of the second
edition of these tables many new minerals have been described. About fifty of these are included in the third
edition of Part II, which was published in 1933, while nearly seventy are of more recent date. The author has
attempted to include in supplementary tables in this printing all the new minerals which seem to be well
established and adequately described as to their optical properties. Unfortunately it has not been feasible to
incorporate them in the main tables, but this is probably not a very serious difficulty since the minerals in
question are all very rare. It is hoped that the use of colored paper for the table III classifying minerals on
the basis of their color and pleochroism in thin section will make it easy to find the various tables quickly
and conveniently. In the preparation of this printing the author has benefited by the assistance and
encouragement of his wife, Florence S. Winchell. ALEXANDER N. WINCHELL MADISON,
WISCONSIN March, 1939 PREFACE TO THE SECOND EDITION Or course tables prepared for the
determination of minerals by optical methods should be based on the chief optical properties of the minerals.
However, it is not at all obvious just which optical property should be used first in classifying the minerals.
After several attempts to combine the most important properties in one table so that more than one of them
could be used first, it seemed wiser to simplify the arrangement by making separate tables for each important
property. In addition to the tables which are given, tables might be prepared based primarily upon the optic
angle, optic sign, or extinction angles. However, the practical groups based upon optic angle or optic sign are
too few in number to be satisfactory, while extinction angles are almost useless in distinguishing between
tetragonal, hexagonal and orthorhombic minerals. Thus it comes about that the chief tables which are given
are based upon refringence, or birefringence, or color and pleochroism. As the dispersion methods of
determining minerals come into wider use the table based upon dispersion will become more complete and
more useful. It is a pleasure to acknowledge that these tables have been improved as a result of thoughtful
constructive criticism of the first draft by Professor F. F. Grout of the University of Minnesota the writer has
also had the advantage of an opportunity to examine copies of determinative mineral tables prepared by
Professor Grout and others prepared by Professor D. J. Fisher of the University of Chicago. He has also
benefited notably by frequent consultations with Professor R. C. Emmons of the University of Wisconsin.
Plate II, based on refringence and birefringence, has been prepared along lines suggested by Professor C. O.
Swanson of the Michigan College of Mines and Professor R. H. B. Jones of the State College of Washington.
ALEXANDER N. WINCHELL. MADISON, WISCONSIN, January, 1929 vu CONTENTS PAGE
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