NOTES AND NEWS

SPECTROGRAPHIC EXAMINATION OF COLORLESS AND BLUE HALITE

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The blue color sometimes observed in natural halite has been generally attributed to the effects of radiations,[1] although a number of investigators have advanced theories that pigments or impurities in the salt cause its color.[2] This spectrographic examination was made in order to ascertain whether or not any significant difference in chemical composition between the colorless and the blue varieties could be found. Since an examination of samples of smoky and colorless quartz obtained from the same specimen had shown that there was a difference in the lithium content,[3] it was expected that a difference in the composition of the blue and colorless portions of the halite might also be found.

The material examined was a specimen of colorless Stassfurt rock salt[4] containing a distinct zone of blue, which was irregular in outline. Samples of the colorless and of the blue halite were selected from adjacent regions of the interior portion of the specimen, and were found to be free from inclusions visible under a magnification of 35×. Minute, undetermined solid inclusions were found, however, under a magnification of 385×.

The method of preparing samples and determining color, and the spectrographic technique have been described.[5] However, Eastman

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[1] Among others: Przibram, *Sitzb. Akad. Wiss. Wien.*, Abt. IIA, vol. **138,** pp. 781–797; and pp. 483–495, 1929.

Przibram, *Kali*, vol. **17,** pp. 253–255, 1927.

Przibram, *Kali*, vol. **30,** pp. 61–63, 1936.

Przibram and Belar, *Sitzb. Akad. Wiss. Wien.*, Abt. IIA, vol. **132**, pp. 261–277, 1924.

Valentiner, S., *Kali*, vol. **6,** pp. 1–3; *N. Jahrb. Min. Geol.*, I, **1913,** Ref. 195.

Phipps, T. E., and Brode, W. R., *Jour. Phys. Chem.*, vol. **30,** pp. 507–520, 1926.

Lind and Bardwell, *Jour. Franklin Inst.*, vol. **196,** pp. 375–390, 1923.

[2] Among others: Doelter, C., *Sitzb. Akad. Wiss. Wien.*, Abt. I, vol. **138**, pp. 113–124, 1929.

Doelter, C., *Min. Petr. Mitt.*, vol. **38**, pp. 456–463, 1925.

Doelter, C., *Monatsch.*, vol. **52,** pp. 241–252, 1929.

Kreutz, F., *Zeit. Krist.*, vol. **24,** p. 626, 1895.

Focke, F., *Tsch. Min. Mitt.*, vol. **25,** p. 50, 1906.

Prinz, W., *Bull. Soc. Belg. Geol.*, vol. **22,** pp. 63–82, 1908; *N. Jahrb. Min. Geol.*, **1909,** II, Ref. 187–188.

[3] Kennard, T. G., *Am. Mineral.*, vol. **20,** pp. 392–399, 1935.

[4] The halite was obtained from R. M. Wilke, Palo Alto, Calif.

[5] Kennard, T. G., and Howell, David H., *Am. Mineral.*, vol. **21,** pp. 721–726, 1936.

spectroscopic plates, type I–F, were employed for photographing the visible spectrum. Specimens 1 cm. thick were used in determining the color.

TABLE OF RESULTS

Sample Number	Color	Ridgway's Standard[6]	Large	Very Small	Trace	Minute Trace
1.	Colorless	—	Na	Ca	Al Li K Si Ti	Mg Sr Ba
2.	Blue	48 e	Na	Ca	Al Li K Si Ti	Mg Sr Ba

Comparison of the spectra of the colorless and the blue halite shows that no difference in composition, as regards chemical elements, was detected spectrographically. The method used would not, of course, enable one to distinguish between sodium present as the chloride and sodium present as colloidal metallic sodium. No evidence was found to support the theory that the color of blue halite is due to a pigmental impurity.

With the exception of strontium, titanium and barium, the elements found are those which are generally present and have been reported in halite.[7]

The indices of refraction of the blue and colorless portions were identical within the limit of error of measurement, which was ± 0.002. This agrees with the results given by Doelter.[8]

SUMMARY

1. Colorless and blue halite have been examined spectrographically.

2. No difference in chemical composition was observed between the colorless and the blue varieties which had been obtained from the same specimen.

3. The blue color is structural rather than pigmental.

[6] Ridgway, *Color Standards and Color Nomenclature*, Washington, **1912.**

[7] Doelter, C., *Hand. d. Mineralchemie*, vol. IV, Pt. 2, pp. 1028–1032, 1929.

[8] Doelter, C., *ibid.*, p. 1090.

4. The presence of strontium, titanium and barium in halite is reported.

There has been issued recently by the New Mexico School of Mines, Bulletin No. 11, The Geology of the Organ Mountains with an account of the geology and mineral resources of Dona Ana County, New Mexico. The author is Kingsley Charles Dunham, Commonwealth Fund Fellow, Harvard University. The price of this publication is $1.00. Orders should be sent to Dr. E. H. Wells, Director of the State Bureau of Mines and Mineral Resources, Socorro, New Mexico.

BOOK REVIEWS

RUTLEY'S ELEMENTS OF MINERALOGY by H. H. READ. 23rd edition. VIII+490 pages, 128 figures. Thomas Murby & Co., London. 1936. Price 8/– net.

A comparison of the twenty-third edition of this well-known Mineralogy with the preceding edition will reveal numerous marked changes. The size of the book has been increased by approximately 100 pages and 48 new illustrations have been added. The entire book has been reset which has made it possible to incorporate new material throughout the whole text, but the expansion is particularly note-worthy in Chapters III and IV, devoted to "Elements of Crystallography" and "The Optical Properties of Minerals." A new chapter has also been added on "The Occurrence of Minerals," which includes a classification and brief discussion of the main rock-types.

As in the previous edition the book is divided into two main divisions. Part I, "Properties of Minerals," and Part II, "Description of Minerals." In Part II the former classification has been changed and the one now followed stresses the economic phase by making use of groupings in which some important element is common to the entire group.

No attempt has been made to discuss crystal structure as revealed by x-ray analysis, but in other respects the book has been greatly improved and rendered more serviceable.

W. F. H.

PROSPECTING AND OPERATING SMALL GOLD PLACERS, Second edition, by WILLIAM F. BOERICKE. John Wiley & Sons, Inc., New York. 1936. Price $1.50.

This handbook in its first edition was written to assist the man, without technical education, in prospecting small placer deposits intelligently and to suggest means for equipping and operating placers at minimum cost, chiefly by home-made methods. The same objective is retained and is undoubtedly achieved in the new edition. The book is not only very readable for the uninitiated but contains much of value to the more experienced. The change in the price of gold from the old statutory figure of $20.67 per ounce to $35 makes necessary the revision of many statements in the first edition. The chapter on placer mining machines has been entirely rewritten and brought up to date with descriptions of a few new machines that have demonstrated their merit through hard use in the field.

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