

OIL in BASALT

near

Trichera, Colorado

by

W. T. Lee

1909

Las Animas County, Colorado.

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COLORADO SCHOOL OF MINES  
GOLDEN, COLORADO

Report furnished by U. S. G. S.

13908

OIL IN BASALT NEAR TRICHERA, COLO.

These notes are the original from which reference have been made on several occasions, and which are used in the Raton Folio.

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Data Concerning Oil Bearing Basalt from Trinchera, Colo.

In the early part of the summer of 1902 I examined an oil prospect in southern Colorado near Trinchera where petroleum had been found in a dike of porous basalt. The occurrence was announced and a brief description given in 1904, in the discussion of a paper by Prof. H. L. Fairchild. \*At the time of this examination a prospect hole had been made and pieces of the dike rock had been thrown out on the surface. No further observation was made until the fall of 1908, when I again visited the locality. The blocks of basalt 2 to 6 inches in diameter that had been thrown from the hole in 1902 and that had been exposed at the surface since that time, gave no indication of oil on their surface, but were found saturated with oil within. Specimens of this rock were brought to the Washington laboratory and the tests made as reported below.

A slide 383a was made through one of the holes that had held the oil throughout the extraction test and it was found lined with calcite, the same as the other counties.

\* Fairchild, H. L. Geology under the Planitesimal Hypothesis of Earth Origin. Bull. Geological Society of America, Vol. 15, 1904, pp. 263-264.

DTD/z

Department of the Interior  
UNITED STATES GEOLOGICAL SURVEY  
Washington

Division of Mineral Resources

March 6, 1909

Mr. W. T. Lee,

U. S. Geological Survey.

Dear Sir:

I have examined the basalt containing petroleum sent in by you as follows:

A piece was sawed out two inches long by about one inch in diameter in order to fit a certain extraction apparatus. This was then extracted in a Soxhlet extraction apparatus with ether for three days. When the ether extract became colorless, benzol was substituted and the extraction continued for about one week. After this the piece was allowed to stand in the benzol for a month, during which time the benzol extracted some oil, as shown by its discoloration. Upon breaking the piece, cavities were found as full of oil as though no extraction had been attempted, that is, cavities to which the very thin volatile benzol liquid and benzol vapor had not penetrated in all this time.

Examination with a magnifying glass showed that the cavities of the basalt were lined with calcite. Therefore, a piece of the extracted basalt was boiled with diluted hydrochloric acid for about two days. After this considerably more oil was extracted by benzol. On breaking the rock again still other cavities were found still containing oil, but the amount contained was slight compared to the amount of oil contained before dissolving out the calcite.

It seemed evident that the oil was sealed in the cavities by calcite, and that eventually complete solution of the calcite would open all of the cavities for the extraction of the oil by solvents.

Very truly yours,

(Signed) David T. Day

Department of the Interior  
UNITED STATES GEOLOGICAL SURVEY

From Frank Hess

W. R. Whitney, research laboratory, General Electric Co., Schenectady, N. Y., finds that glass of electric light bulbs has water in it. In pumping the bulbs, gets some out. Old bulbs has less than new bulbs. Thinks it comes from breath of the blowers. Don't know whether the water is a film on the glass or included in it.

O. Silvestri (Goss Chem. etal. Vol. 7, p 1 - 77)  
obtained solid paraffin and liquid hydrocarbons from lavas of Etna.

Silver when melted absorbs 22 volumes of oxygen and gives it back in solidifying. Water absorbs air and gives it back on freezing. Charcoal absorbs 172 volumes of  $\text{NH}_4$ , 165 V. of HCl, 97 V.  $\text{CO}_2$  plus 2H. Palladium freshly precipitated absorbs 982 V. of H.; gives up 333 V. of H. when heated  $100^\circ$  (Clark p. 235) Molten ratter metallic or stony dissolves gases.

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