

Soda water springs constitute the central attraction around which this park was built. Originally there were three natural springs located on the north bank of the South Santiam river at the mouth of Soda Creek. These are now burried underneath a rock terrace and piped to spiggots, except for one which is discharged into an open piece of culvert about 10 inches in diameter set vertically in the terrace floor.

The water from these springs has a very strong soda taste. This is reported to vary, becoming stronger at times to the extent of being sometimes almost too strong to drink, according to the caretaker. Gas is emitted in the form of an abundance of small bubbles almost continuously from the surface of the open culvert pool, with the rate of discharge broken only occasionally by short periods of somewhat reduced activity. Water temperature in the pool measured 49 F. Tertiary lavas (basalts) constitute the prevailing bedrock in the area.

Analysis of a gas sample (9669) by the Oregon State Board of Health showed a gas content of 4 percent CO<sub>2</sub>, 16 percent O<sub>2</sub>, 80 percent N<sub>2</sub> and an absence of hydrogen and methane. The CO<sub>2</sub> content is far lower than was anticipated and it is believed this sample became diluted with air during the course of capping as the small diameter of the casing made it necessary to remove the sample bottle from the pool before it could be placed in a machine for proper crimping of the cap. Otherwise gas samples are normally capped underwater without removing the neck of the bottle from the water of the spring from which the sample is taken.

The only available analysis of the Cascadia water originates from an advertising brochure furnished by the State Highway Department, State Park Division. This dates from the period during which the springs were privately owned and operated as a mineral water resort. The brochure is quoted in its entirety, partly because of the analysis it contains, and partly because of the supplementary advertising pitch which is a choice example of the eloquent manner in which the supposed medicinal properties of natural mineral waters were glorified not too many years ago.

"The following analysis of the Cascadia springs mineral water was made by Professor G. W. Shaw, Ph. D., the United States government chemist of the Oregon Agricultural College, and is based on grains per United States gallon:

Potassium sulphate.....	63.16
Potassium chlorid.....	66.66
Sodium chlorid.....	156.88
Magnesium chlorid.....	25.56
Calcium chlorid.....	25.99
Calcium carbonate.....	28.65
Iron and alumina.....	.99
Silicate acid.....	2.61
Combined carbonic acid.....	17.18
Lithia.....	Trace

But even such an analysis is inadequate. Chemistry can name every element in the vegetable, animal and human organism and can reproduce these elements in their proper proportion, but science has not yet produced them in nature's form. A true mineral water is more than a combination of certain chemicals with water, and is artificially non-reproduceable so far as the medical value is concerned. There is about Cascadia mineral water something possessed of qualities whose mode

of production defies the utmost skill of the chemist to solve the secret of its power. Whether this is caused by the peculiar combination of minerals by nature, or whether the water contains some wonderful remedial agent as yet undiscovered, has not yet been determined."

Whereas the chemical attributes of Cascadia water, should certainly not mystify people today, the park is nevertheless visited regularly by a surprising number of people who take away hundreds of gallons of bottled water annually, according to the caretaker. Perhaps it makes a good highball mix. In any event, the spring does not constitute a natural CO<sub>2</sub> leakage of impressive proportions from a prospect standpoint.

Report by: W. S. Wagner

Date of exam: Oct. 19, 1958

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State Department of Geology and Mineral Industries

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ANNA DODGE "OIL SEEP"

LINN COUNTY

Location: The Dodge farm residence is located about  $1\frac{1}{2}$  miles due south of Peterson Butte in the west half of sec. 32, T. 12 S., R. 2 W., in the northwest corner of the uncompleted Brownsville topographic sheet. It is also in Linn County south and a little west of Lebanon. The mail address is Box 81, Route 2, Lebanon.

Description of "seep": There is an iridescent scum on the water that is seeping from the barnyard on at least three sides of the barn. This is naturally a swampy area during the wet season, irrespective of the barn. When the iridescent scum is broken up with a stick, it breaks into angular patches instead of re-forming a film such as oil does. When skimmed off the water and collected in a jar, it fails to rise as oil should.

Geology: The farm house is located upon an alluvial plain approximately three-quarters of a mile from the nearest Tertiary exposures. Peterson Butte rises to the north and there is a gentle alluvial slope that reaches from the bottom of this butte to the farm house. The depth of fill is unknown but may be in the order of 50 feet. Older gravels crop out along the west base of the butte, but the gravels in the vicinity of the "seep" appear to be relatively recent.

Conclusion: The so-called "oil" has practically no characteristics of petroleum. Being in a farmyard, refined oil could have been spilled but there is little to indicate that this product is in any way related to petroleum. The iridescent film has characteristics of an iron oxide film. As the "seep" is located in an area underlain by gravels, no immediate source could be noted. The "oil" would be seeping, presumably, from underlying Tertiary strata into the gravels and then to the surface. Such seeps have not been reported in surrounding Tertiary strata. There seems to be little to indicate that this "seep" is in any way related to petroleum. Chemical tests by L. L. Hoagland confirm this opinion.

Report by: E. M. Baldwin  
Visited: March 27, 1946