

# THE ROGUE RIVER VALLEY COAL FIELD, OREGON.

By J. S. DILLER.

## LOCATION.

Coal occurs at numerous localities in the Rogue River valley of southwestern Oregon, between the Cascade Mountains on the east

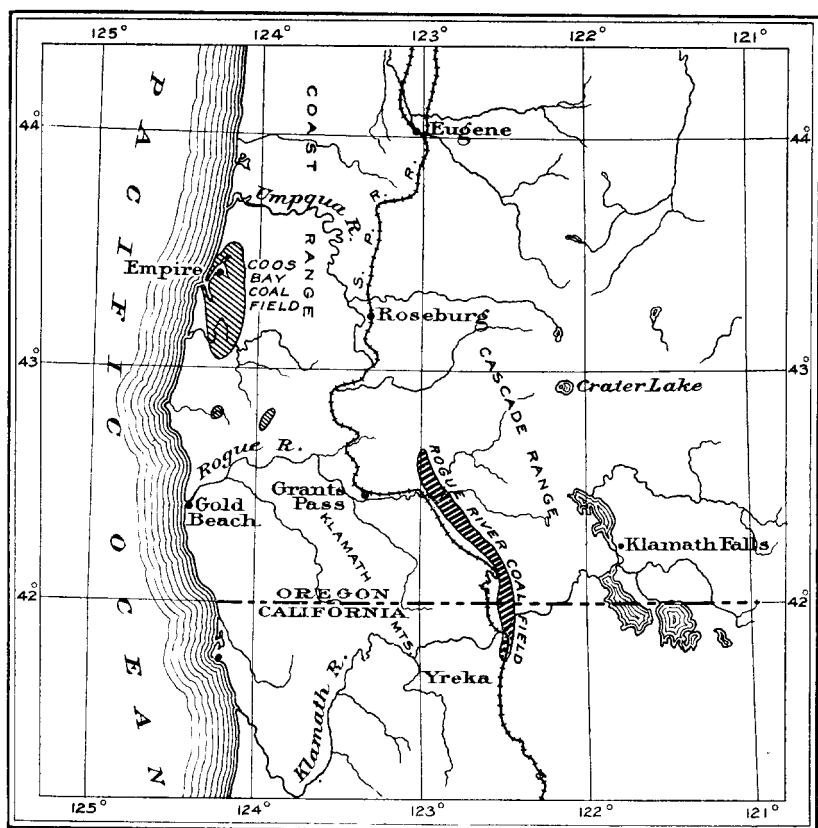


FIG. 6 —Map of Rogue River valley and other coal fields of southwestern Oregon

and the Klamath Mountains, locally called the Siskiyou Mountains, on the west. The long, narrow coal belt, as outlined in fig. 6, begins

at the north on Evans Creek in T. 33 S., R. 2. W. of the Willamette principal meridian, stretches to the south and southeast in the Rogue River Valley east of Medford and Ashland, and continues through the Siskiyou Mountain divide into California, a total distance of nearly 100 miles.

### STRUCTURE OF COAL BELT.

The Cascade Range, east of the coal belt, is made up mainly of Tertiary lavas; the Klamath Mountains, on the west, are composed of granular igneous rocks and a smaller proportion of pre-Cretaceous sediments.

The soft rocks in which the Rogue River valley has been cut are sandstones, shales, and conglomerates. They dip generally eastward, extending beneath the greater portion of the lava fields of the Cascade Range. The older sediments along the western border of the valley, by Bear Creek from the Toll House to Ashland, Phoenix, and Jacksonville, are Cretaceous in age and do not contain coal. The coal-bearing rocks lie east of Bear Creek as far north as Medford, but beyond that point they overlap the Cretaceous rocks and occupy the whole northern portion of the Rogue River valley.

### THE COAL.

The principal prospects have been made near Medford and Ashland, but others occur on Evans Creek, to the north, and near Ager, in California, to the south.

### PROSPECTS ON EVANS CREEK.

On Evans Creek the strata dip locally to the northwest, but at the time of examination the incline by which the coal was prospected was full of water, so that the available exposures were unsatisfactory. However, there appear to be 8 feet, if not more, of coal, some of which is of fair quality, but most of which is impure and shaly. The coal bed has, besides a number of small clay partings, two prominent partings of sandstone, one 12 inches and the other 6 inches thick. The shaly coal has been sheared so that much of it is slickensided and goes to pieces on exposure. The immediate vicinity does not show a large body of coal above drainage level. The coal at this point appears to lie within a few hundred feet of the base of the coal-bearing rocks.

Coal is reported from the meadows on Evans Creek and also from Table Mountain on Rogue River, but as there was no active prospecting at either locality they were not specially examined.

## COAL NEAR MEDFORD.

The coal 6 miles east of Medford lies along the foot of the steeper slope, which rises from the edge of the valley, 600 feet above the town, to the bold front of the Cascade Range. Some years ago the Southern Pacific Company prospected a coal bed at this point, and the size of the dump indicates that the trial drift must have been about 100 feet in length. Since then R. P. Little has discovered a number of other coal beds a short distance farther up on the same hillside and opened two of them by slopes, tunnels, and drifts aggregating nearly 900 feet in length. Drainage is effected by a lateral tunnel into an adjacent ravine. Considerable coal has been hauled to Medford and sold at \$8 per ton.

The principal bed prospected is about 12 feet thick, and the striking feature at the entrance of the gentle slope is the large number of clay and sand partings with very little coal between them. The partings weathering whitish are strongly contrasted with the darker bands. As the slope is descended along the bed there appears a decided increase in the quantity and improvement in the quality of the coal toward the northeast. The bands of black lustrous coal, generally not over 6 to 8 inches thick, locally swell to more than a foot and furnish the source of supply for the local demand. The intermediate shaly coal and coaly shale is abundant and requires much picking to obtain satisfactory results. Several faults striking N. 40° E. and dipping 26° to 42° SE. have been encountered in the tunnels. The direction of movement and the amount of displacement could not be definitely determined. No lavas were seen in the mine, but they appear higher up, overlying the whole succession of coal beds. The decided improvement in the coal down the dip suggested that as the most favorable direction in which to prospect.

Since the examination on which the foregoing statement is based was made the Pacific Coal Company has purchased this mine and has developed the openings to the northeast along the dip of the coal bed for more than 1,000 feet. The prediction that the coal would be found of better quality and in larger quantity has been confirmed. A few small faults have been encountered, but these are all of the normal type and easily overcome. The mine is now producing coal and supplies the local market. The development of this mine has greatly stimulated prospecting in other parts of the field.

J. A. Holmes, of the Geological Survey, collected a sample of coal at this locality last summer and has kindly furnished the following results of an analysis made in the laboratory of the Survey fuel-testing plant:

*Analysis of sample of coal obtained near Medford, Oreg.*

[F. M. Stanton, chemist in charge.]

	As received.	Air dried.
Laboratory No. ....	5346.	5346.
Loss of moisture on air drying.....		2.00
Moisture.....	11.30	9.49
Volatile matter.....	23.39	23.87
Fixed carbon.....	31.89	32.54
Ash.....	33.42	34.10
Sulphur.....	1.16	1.18
Calories.....	4,183	4,268
British thermal units.....	7,529	7,683

The sample taken is a complete section of the coal bed exposed and represents what has to be removed in working the coal. It contains not only the good coal, but all the shaly partings. The high percentage of ash indicates that the bed contains much that would have to be thrown away in mining. The ash is about four times as great as that of the bed mined at Libby, in the Coos Bay region.

In prospecting the region systematically the entire coal-bearing series should be drilled from top to bottom to determine the number, position, and relative value of the beds, and then they should be worked at the top first. If the lower beds are worked out first, those next above may be rendered unworkable by caving and thus lost.

It is not to be expected that the coal beds extend to a very great distance beneath the Cascade Range before being disturbed by the rising lavas of the range, but it may well be that they continue far enough to give a considerable body of coal of various grades that will supply for the present, in some measure, local demands for fuel and that will in the future, when producers and gas engines are perfected, furnish an important source of power.

Several other prospects have been opened to the north and also to the south of those of Mr. Little, but nowhere are the works extensive enough to show continuity of the beds.

**COAL NEAR ASHLAND.**

Four miles north of Ashland several coal beds have been faced up in short slopes by D. P. Greninger. A striking feature of this coal, as of that near Medford, is the decided increase in the amount and improvement in the quality of the coal to the northeast, but the workings are not extensive enough to afford a fair opportunity of estimating their value. Neither lavas nor faults were encountered here. The beds are not so large as those farther north. They have furnished a few tons of coal for the local market.

Greater activity is shown 4 miles east of Ashland, near the "Gillett Lithia Springs," where the Ashland Coal Company has run slopes into two coal beds, the upper 12 feet and the lower 5½ feet thick, sepa-

rated by 50 feet of slippery shale and shaly sandstone. The coal beds are made up of streaks of good coal locally 6 inches thick and separated by coaly shale. The coal breaks out in blocks and contains a considerable percentage of sulphur. The disturbing features at this prospect are irregular masses of old lavas, which appear not only in all the entries, but at various levels on the surface and in bluffs near by along the creek. Where the coal is in contact with the lava the latter appears to be the older. The abundance and irregularity of these lava masses render the extent of the coal beds a matter of doubt.

#### COAL NEAR AGER, CAL.

As already stated, the coal belt extends south through the Siskiyou Mountains into California, where several coal beds have been reported near Ager and one of them prospected to a considerable depth on an incline of 45°.

#### SUMMARY.

Although coal beds have been prospected, as noted above, at six localities between Evans Creek and Ashland, a distance of 40 miles, the evidence thus far available does not indicate the continuity of the same coal beds throughout that distance, but rather the development of small beds a few miles in greatest extent parallel to the coal belt and to the old shore line along which the vegetation accumulated in swamps to form coal. The swamps lay at the base of the Klamath Mountains when the coal-bearing beds were deposited over the low flats and the shallow body of water extending to the northeast.

The most impressive feature at all the localities examined is the improvement in the coal toward the northeast, down the dip of the coal beds into the hill. This is not simply a matter of weathering, but a decided increase in the amount of coal present and a decrease in the amount of fine sediment washed into the original swamp where the vegetal matter was accumulating. The farther northeast in the swamp the deposits lie, the farther from the source of the wash from the slopes of the Klamath Mountains and to a certain extent the thicker and purer the coal.

The age of the coal-bearing rocks of the Rogue River valley is not yet fully determined. They contain numerous fossil leaves which are now regarded by Doctor Knowlton as Eocene, although the latest collections from that region have not yet been studied. It is probable, however, that they are Eocene and of approximately the same age as the coal of Coos Bay.

For the present the coal beds from Ager to Evans Creek are only of local interest as a source of fuel, but detailed examinations in the future may show these coals to be more extensive than they are now supposed. If so, they may become, with the improvement of gas producers, important sources of power.