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GEORGE OTIS SMITH, DIRECTOR

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PROFILE SURVEYS IN 1914
IN
UMPQUA RIVER BASIN, OREGON

PREPARED UNDER THE DIRECTION OF
R. B. MARSHALL, CHIEF GEOGRAPHER

Prepared in cooperation with
THE STATE OF OREGON
John H. Lewis, State Engineer



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INTRODUCTION.

In order to determine the location of undeveloped water powers on the rivers of the United States the United States Geological Survey has from time to time made surveys and profiles of some of those adapted to the development of power by low or medium heads of 20 to 100 feet.

The surveys are made by means of plane table and stadia. Elevations are based on heights derived from primary or precise levels of the United States Geological Survey. The maps are made in the field and show not only the outlines of the river banks, the islands, the positions of rapids, falls, shoals, and existing dams, and the crossings of all ferries and roads, but the contours of banks to an elevation high enough to indicate the possibility of using the stream. The elevations of the bench marks left are noted on the field sheets in their proper positions. All gaging stations are shown on the maps and the elevation of the zero of the gage is given.

GENERAL FEATURES OF UMPQUA RIVER BASIN.

Umpqua River is formed by the junction of its North and South forks near the city of Roseburg, in Douglas County, Oreg. The North Umpqua rises in Diamond Lake, on the summit of the Cascade Mountains, at an elevation of 5,300 feet and flows westward. The South Umpqua is also formed by two forks—the northern rising in Old Bailey Mountain, about 4 miles south of Diamond Lake, and the southern on the northern slope of Abbot Butte—and flows westward and northward. From the junction of its principal forks, Umpqua River takes a tortuous but in general northerly course to Elkton, beyond which its course is more nearly west until it discharges into the Pacific Ocean at Winchester Bay, in the northwestern part of

Douglas County. Its drainage area at Scottsburg, just above tide-water, comprises about 4,000 square miles. The North Umpqua drains 1,080 and the South Umpqua 1,990 square miles.

The important tributaries of the Umpqua are Smiths River, which drains the low mountainous area near the coast; Elk Creek, draining the divide between the Umpqua and Willamette basins; Cow Creek, which drains the divide between Rogue River and the Umpqua basin; and the North and South forks.

The country is rough and mountainous and the streams flow in comparative narrow valleys bordered by narrow stretches of agricultural land. The general elevation of the headwaters is 6,000 feet, but a few snow-capped peaks rise to heights of 8,000 to 10,000 feet. As the elevation at Roseburg is 485 feet above sea level, it is evident that the North Fork falls nearly 4,800 feet in the 75 miles from Diamond Lake to Roseburg by the river channel. The lower part of the Umpqua has comparatively little fall, as is shown by the tortuous winding of the stream.

The region is one of the most densely forested in the United States, and probably 80 per cent of the drainage area can be classed as heavily forested. About one-fourth of the forest area is included in the national forests; the rest is owned by corporations and individuals.

The mean annual rainfall at Roseburg is 30 inches; at Drain, near the divide between the Willamette and Umpqua basins, it is 48 inches. The mouth of the stream probably receives as much as 60 inches per annum; at the headwaters the precipitation is 100 inches or more. Except on the headwaters, all the precipitation is in the form of rain during the nine months of the year from September to May.

Little or no irrigation has been practiced in the Umpqua Valley, although a few small ditches take water from the smaller creeks tributary to the North and South forks. Owing to lack of markets the power plants now being operated are all small.

GAGING STATIONS.

The Survey has maintained in the basin of Umpqua River the gaging stations shown by the following list. The stations are arranged in downstream order, the main stem of the river being determined by measuring or estimating its drainage area—that is, the headwater stream draining the largest area is considered the continuation of the main stream, and all stations from source to mouth are presented first; stations on the tributaries, in regular order from source to mouth, follow. Relations of tributaries are indicated by indentation. The dash following the date indicates that the station was being

maintained June 30, 1915; a period after the date indicates discontinuance.

Umpqua River, North Fork of South Umpqua (head of Umpqua River), near Tiller, Oreg., 1910-11.

South Umpqua River near Brockway, Oreg., 1905-

Umpqua River near Elkton, Oreg., 1905-

Cow Creek at Riddle, Oreg., 1911-

North Umpqua River near Hoaglin, Oreg., 1910-

North Umpqua River near Oak Creek and Winchester, Oreg., 1905-

Mill Creek near Ash, Oreg., 1907-

PUBLICATIONS.

Information concerning stream flow at stations in the Umpqua River basin has been published by the Survey in Water-Supply Papers 177, 214, 252, 272, 292, 312, 332-C, 362-C, and 394.¹

Water-supply papers and other publications of the United States Geological Survey containing data in regard to the water resources of the United States may be obtained or consulted as indicated below.

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Madison, Wis., Capitol Building.

Helena, Mont., Montana National Bank Building.

Denver, Colo., 302 Chamber of Commerce Building.

Salt Lake City, Utah, Federal Building.

Boise, Idaho, 615 Idaho Building.

Portland, Oreg., 416 Couch Building.

Tacoma, Wash., Federal Building.

San Francisco, Cal., 328 Customhouse.

Los Angeles, Cal., Federal Building.

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