

GEOLOGICAL SURVEY.

Bulletin on Topographic Survey of Eastern Oregon.

The topographic survey of the state of Oregon, which was commenced several years ago, is being continued this season by the topographic branch of the United States Geological Survey, under the general direction of Richard U. Goode, geographer. Work is in progress in two localities, one in the eastern part of the state, in the vicinity of Baker City, and the other west of the Cascades, in the vicinity of Riddles.

The party operating in eastern Oregon is in charge of C. F. Urquhart, his principal assistant being R. B. Robertson. The work is an extension of the existing triangulation eastward and northward into Union and Wallowa counties, the object being to provide starting points for future topographic work, which will extend through the forested areas and mining districts. The party commenced work about July 1, and will remain in the field as long as the weather conditions are such that the work can be prosecuted in the mountains.

In western Oregon a party is under the charge of A. B. Searle, and has commenced operations in the vicinity of Glendale. The work is the continuation of that commenced during the last field season, and will result in the completion of the Riddles quadrangle, comprising an area of about 900 square miles. This region is noted for its various mineral deposits, the examination and study of which by J. S. Deller, geologist, will follow the completion of the topographic map.

Another party, under C. H. Semper, will be engaged in carrying a line of primary levels from tidal connection at Benicia, Cal., along the line of the Southern Pacific railroad as far north toward Portland as available funds will permit. Iron bench-mark posts, on which will be stamped the elevation above sea level to the nearest foot, will be established at all prominent points and at intervals not exceeding three miles. These levels will furnish a main trunk line from which other lines of levels will ultimately branch into the territory east and west of the state line, thus furnishing vertical control for future topographic work.

GOVERNMENT INVESTIGATIONS OF POLLUTION IN STREAMS.

At the beginning of the present season the division of hydrography of the United States Geological Survey instituted a branch of research which is expected not only to be of much value to municipalities and numerous industries dependent on the purity of their water supply, but also to exert a beneficial influence upon the health of the general public. The investigation aims to discover the changing conditions of all the important supply streams of the United States by chemical and bacteriological examinations of their waters, and also by measurements of their turbidity and color. The division of hydrography has for a number of years been collecting information regarding the volume of flow of the country's streams, as a basis for municipal supply, water power, irrigation and other uses, but tests for quality and condition have not before been made, except by a few cities which hold an advanced position in matters of public hygiene.

The facts desired, besides turbidity and color, in the present research are, the odor, amount of nitrogen as albuminoid ammonia, free ammonia, nitrites and nitrates, the amount of chlorine, the total residue, the alkalinity, the normal

hardness (or incrusting constituents), the amount of carbon dioxide, and the number of bacteria per cubic centimeter. For some localities and for special work the amount of iron will be determined, and, when conditions appear necessary, examinations will be made for microscopic organisms.

In order to secure results from as many localities as possible, supplemental assistance is being rendered by many individuals and organizations, and details are worked out through examinations made in local laboratories. To secure uniformity in these results and to bring them together for comparison and study, the geological survey has issued a circular outlining in some detail methods of procedure to be followed by all cooperating workers. The methods recommended for the chemical and bacteriological examinations are those adopted by the committee of the Public Health association. For uniformity in the measurement of color and turbidity a second circular has been issued, defining standards of measurements which have been adopted by the geological survey in cooperation with eminent hydrographic engineers, and also describing methods of procedure. The determination of turbidity is to be made by what is known as the United States Geological Survey turbidity rod of 1902, an apparatus combining the best features of the "platinum wire" and the "silica" standards; and for convenience of field work, tests for color will be made by comparing samples of water in platinum tubes fitted with glass ends with colored disks of glass rated to correspond with the usual platinum-cobalt standard.

The work is in the hands of M. O. Leighton, who is at present engaged in an investigation of the rivers of the central western states.

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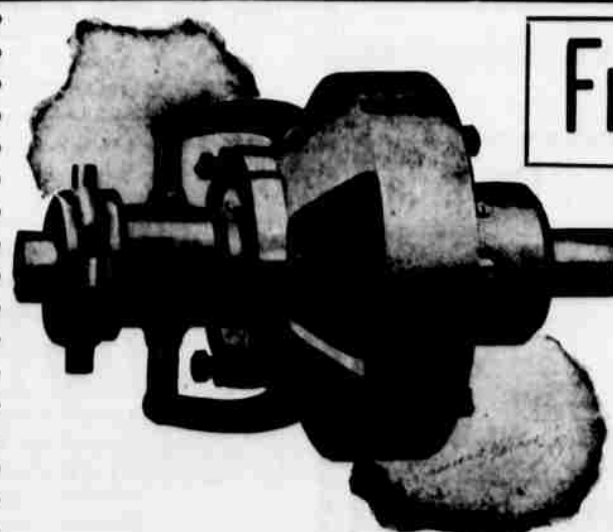
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