

spot will be on Ship Harbor, which is a short distance south of Whatcom. The company estimate that 90 per cent. of their manufactured iron will be shipped to foreign countries; hence a good harbor is one of the principal objects for consideration. Mr. Torkelson thinks that from £500,000 to £600,000 will be invested in the new enterprise.

Professor R. Pumpelly, who had charge of the extensive scientific explorations carried on for some time by the Northern Pacific in the region tributary to its road, read a paper recently at Newport, R. I., at a meeting of the National Academy of Sciences, on the subject of the coal beds of the Northwest. From this it appears that the coals in Washington Territory, Northern Montana, Idaho, Oregon and Dakota are all cretaceous, from the top of the Laramie Formation down. From the Missouri River west to the Rocky Mountains the coal layers are thirteen to sixteen feet thick, but are lignitic and crumble on exposure. West of that the layers are two to six feet thick, but are bituminous coking coals. In Judith Basin, up to or past the British line, are coking coals from eighteen inches to five or six feet thick. The next great coal fields are west of the Cascade Range. Here the thickness of the carboniferous formation is at least 13,000 feet. All the bituminous coal has been studied, but not yet the lignite, which is less valuable. Some of these coals have been converted into natural coke, having the same chemical composition as anthracite. The bituminous coal is confined to strips along the Cascade Range and Vancouver Island. The total amount of carboniferous material is very great. The coal fields of Wyoming Territory have no representative in the north.

In constructing the Oregon Short Line across the lava plains of Idaho, in Snake River Valley, it required almost as many teams to haul food and water for the men and animals as it did to do the grading. To supply these long stretches of road with water after construction required several water trains. The company wisely attempted the experiment of sinking artesian wells. Eight such wells have proved successful, and one other is yet incomplete. The lava is full of crevices and so porous that water cannot rise in it, hence tubing is required all the way down. This lava ranges in thickness from 150 to 250 feet, resting on soil, gravel beds and hard-pan. Water is struck after passing through the hard-pan, and it rises in the tube about eighty feet, leaving the pumps to raise it from that level to the tanks. The depths of the completed wells are as follows: Wapi, 240 feet; Minidaka, 425; Kimami, 325; Owinza, 400; Bliss, 438; Cleft, 450; Bisuka, 380; Nampa, 155. The bore of these wells is four inches in diameter. It would seem that these experiments have demonstrated the practicability of procuring water for irrigating purposes in Southern Idaho, so that land not situated within easy reach of a ditch taken from some natural reservoir or running stream need not be looked upon as utterly uncultivable. A little greater depth would probably reach water which would rise above the surface.

There is a large area of good bituminous coal lying in Whatcom County, W. T., between the Nooksack River and Lake Whatcom, a distance of seven miles. Some 7,000 acres of this land have been filed upon as coal land. It is understood that capital for the development of these mines has already been secured. An extensive vein of semi-bituminous coal has been reported as discovered north of Skagit River and on the proposed line of the Bellingham Bay Railway & Navigation Company. It is now being explored by the company with a view of ascertaining its extent and value. The development of these mines would be of great benefit to Whatcom County.

The Skagit coal mines, which will also find a shipping point at Bellingham Bay, are located on the south side of Skagit River, twenty-four miles from tide-water. Five seams, varying from three to eight feet in width, have shafts and tunnels from ten to one hundred and seventy-five feet. All these seams can be worked from one main tunnel, which has now been driven thirty-five feet, and which will give access to 10,000,000 tons of coal lying above water level. The veins of iron ore, of which there are five in the vicinity of these coal measures, vary in thickness from eight to fifty feet. Three of them are embraced within the limits of the coal mines, and are all susceptible of being worked from the end by tunnel above water level, thus reducing the cost of mining to the minimum. This is all brown hematite, and the amount of it easily accessible is so enormous as to make an estimate valueless. There are, also, in that region large ledges of marble, limestone, red granite and black granite, and large tracts of fire clay.

The region of the Upper Marias, Teton and Sun rivers, in Northern Montana, is destined to become famous as an agricultural country, and to support a farming population of considerable numbers. The soil is adapted to the production of wheat and other cereals in the highest degree, and only requires irrigation, and ample means for this are at hand. Water is abundant and streams ramify the country. Irrigating ditches that will supply thousands upon thousands of acres can be easily constructed. A description of such an enterprise now under way will serve to show what can be done in numerous localities. The Dupuyer Canal takes water from the river of that name, about five miles above its confluence with the Marias. The ditch is nine feet six inches on the bottom and twelve feet six inches at the top, and will carry 5,000 inches of water. Its length, so far as projected, is some seven miles. After winding about the hillside for a little more than two miles, it attains the top of the bench, following a ridge from which the land slopes gently on either side, and which can be readily irrigated to an almost unlimited extent. This land is all of an alluvial nature, the soil being black, soft and deep, and entirely free from gravel. Better land for wheat growing and general agriculture cannot be found, and it cannot fail to become an important factor in adding to the wealth and prosperity of Northern Montana. As now projected (and the work is almost completed) this ditch will irrigate fifty sections of land of the character described, showing it to be an enterprise of no small magnitude. It can be extended either to Schultz's Coulee or the Dry Fork of the Marias, and its value as a "land redeemer" largely increased. It is not by any means a "land grabbing" scheme, as several sections of desirable land remain open to entry, and it is desired that they should be taken up by parties who will settle upon the same and take advantage of the opportunities given. Besides this ditch, there is an important one on Birch Creek completed; a large canal tapping the Teton, which will cover an immense stretch of bench land between that stream and the Muddy; canals under construction from the North and South Forks of Sun River; all of which will have an important bearing on the development and progress of that portion of Montana, rendering it, although furthest north, the most extensive and prominent agricultural section of the Territory.

THE strike that generally results in good to all parties concerned is that made by the mothers on the bosom of the boys' pants. The boy don't like it any more than wealthy corporations; but it does him good in the end.