

speed. This process cuts the beets into what might be likened to macaroni. The pieces are three-cornered instead of round. In this condition the material is transferred to what is called the infusion battery, which consists in the introduction of water at a proper temperature, and of steam, so that the sugar juice contained in the small vegetable cells will become diffused through the water, after which two per cent. of powdered lime is added to take up, chemically, the organic salts which are in the juice. Next carbonic acid gas is added, which, joining the lime, forms the insoluble precipitate of carbonate of lime, and enables the chemist, in the next process, through filter cloths, to remove from the juice all the lime and all of the organic substances which it has absorbed. The juice is next passed through long vertical tanks closely filled with animal charcoal, after which it is passed through what is called the osmotic process, where other foreign substances are abstracted through a parchment which separates the juice from flowing hot water. After this process the juice is taken to the boiling pans, where, in a vacuum, and by the aid of steam, the water is driven off until the juice has attained a proper consistency for the centrifugal machine, which, revolving at a high rate of speed, throws off to the sides all the liquid portions and keeps the sugar crystals in the center. These crystals are then taken and ground, screened and dried, and packed in barrels ready for use. Under the old processes, and under the methods now pursued in Germany, the beet molasses thrown off by the centrifugal machine was carried to settling tanks, and when the sugar crystals had settled to the bottom the molasses was drawn off and retanked, while the crystals were put through the refinery process and shipped. Ordinarily it required from ten to twelve months before this molasses had yielded all the sugar which it contained. By a new method, discovered and patented in 1884, all the sugar can be abstracted from the molasses in thirty-six hours, besides leaving a very small proportion of molasses, which, when made from beets, is only fit for manufacture of vinegar, and alcohol for mechanical purposes.

The Standard Sugar company, which controls this patent, expects to begin construction during the coming summer and to be ready for the beet harvest beginning August 1, 1887. After demonstrating the value of this enterprise it is expected that they will build a factory in the vicinity of Portland, or, perhaps, for the economy of fuel, near Seattle. Based upon the cost of making beet sugar in Germany, and of the experience of the present factory, it is confidently believed that at the new works refined white sugar can be made from beets, equal in every respect to sugar made from cane, at four cents per pound, delivered in San Francisco.

The fifth volume of "California," Bancroft's works, will be issued during the latter part of July, the terrible loss suffered by the author in the fire of April 30 having only temporarily checked the publication of his work. The volume referred to covers the period of gold discovery in 1849, and will be of very great general, as well as local interest.

NOTES OF THE NORTHWEST.

Three thousand head of cattle have been sold by a firm of stockmen in Western Washington, to be taken from ranges in Yakima county and on the opposite side of the Columbia. They were purchased by a Montana buyer, who will turn them out upon ranges in that territory. The price averaged \$40 per head, or a total of \$120,000.

Preparations are being made for the construction of extensive stock yards between the cities of St. Paul and Minneapolis, which will naturally lead to the springing up of large beef packing enterprises. There seems to be no reason why all the stock shipped by the Northern Pacific should not be handled at the twin cities instead of Chicago, and shipped from there in the form of packed or dressed meat.

Work on the northern extension of the California & Oregon railroad is progressing steadily, and it is expected that before the year closes the gap will be reduced from one hundred and twenty miles, the distance last January, to eighty miles. The amount of tunnel and bridge work on the sections now being constructed is very heavy, requiring a large force of men to make progress. Next year, when the line reaches Shasta valley, the work will be lighter and can be pushed ahead faster.

The mica mines, located thirty miles southeast of Moscow, Idaho, have been bonded to English capitalists who have been looking into their merits for some months past. The value of mica depends upon the size of the sheets, varying from fifty cents per pound for small pieces to seven dollars per pound for sheets as large as eight by ten inches. The owners of these mines have demonstrated that large sheets can be produced, and, consequently, that the property is an exceedingly valuable one. The price to be paid has not been made public.

The State Teachers' Association of Oregon will hold a session at Yaquina City, on July 6th, 7th, 8th and 9th. Through trains run daily from Portland and other points in the valley, offering opportunities for teachers and their friends to attend any one or all of the sessions. The railroads will make low excursion rates, granting thirty days' time to those who desire to remain and enjoy themselves at the beach during the warm days of July. Yaquina bay is one of the best seaside resorts on the coast. The leading educators from colleges, universities and public schools of the state will be present and assist in the work. The programme for the four days has been divided into departments, as follows: Theory and Practice, Science and Art, Kindergarten, Chautauqua Literary and Scientific, College and University, Superintendence, Industrial, General and Miscellaneous. Daily programmes will be issued each morning. This will be a splendid opportunity for teachers to improve both mind and body.