Josephine County Limestone Fits Needs of New Chemical Industries

Local Limestone Tested by Fire is Satisfactory —

The test of fire has been applied to Josephine county limestone, and it has proved satisfactory for exacting requirements of industry. Above is shown part of the plant near Williams and Provolt. The quarry is directly behind the structure, while the dumps in front of the plant obscure the entire lower story of operations. The kiln, operated by V. Z. McCrary, pictured at the right with his dog Pat, is the only one operating in the state. On the left, raw limestone is shoved in mine cars from quarry to kiln. About 15 local men are regularly employed. (Courier Photos and Engraving.)

Josephine county limestone, put to the test of a 2,000-degree temperature, has been proved at a kiln near Williams to be just what strategic industries utilizing Bonneville power, 300 miles away, are looking for.

The former Oregon Lime Products company plant, which had an up-and-down existence in the many years of its operation, is now producing high quality lime, of the type necessary for manufacture of calcium carbine, synthetic rubber, paper, and ferro alloys.

Washington Brick, Lime and Sewer Pipe company, the new operators, have put V. Z. McCary on the job. He is an old-timer who has burned limestone into lime since he was eight years old in the Puget Sound district at the most northwestern tip of the country.

And his expert skill, testified to by F. I. Bristol, local silica and limestone quarry operator, has proved that Josephine county has just what the chemical doctors ordered for the industrial development in the Columbia empire. It is the only lime kiln operating in the state, according to Ray Treasher, field geologist of the state department of geology and mineral industries.

A few days ago Bristol, Treasher, and two Courier representatives visited the plant, four miles from Williams, at the base of a mountain. On the way, the Water Gap road was pointed out which when completed will save several miles of trucking the finished product. This will help insure continuation of the plant's operation, but even greater help came some time ago in action of the Southern Pacific company adjusting rates downward so lime can be shipped more cheaply to Portland. That lower rate, and proof that the product is topnotch, convinced at least one new industry that it should locate in Portland instead of Tacoma, we learned on the trip.

Limestone is the ordinary raw rock, Bristol pointed out, and the Williams ledge is especially high in calcium. At the same time, its magnesium content is low. This latter is very important for metallurgical use, because an increase of one per cent in magnesium involves additional cost in use amounting in some cases to several dollars a ton.

But chemical analysis is not the only factor. The Williams limestone has a very crystalline formation—usually a handicap to successful burning.

But put to the test of several days cooking in temperatures between 1,700 and 2,000 degrees Fahrenheit, the beautiful pure white Williams marble turns into quick lime of the highest quality.

It was McCrary, the old-timer, who did it. He was loaned to the local operations by the new Spokane owners for three months trial, and he has made a success of the job where other cooking of the raw stone has had only indifferent results.

A dozen different products come from the plant, which hires 15 local men regularly each 40-hour week, and five or six additional men for week-ends. They have a payroll of from $2,500 to $3,000 per month.

And the financial beauty of the situation is that only the paper bags into which the products go comes from outside the county. Even the wood for the furnaces is cut from the neighboring hillsides, five cords a day, 2,000 cords in a year on contract.

But money has been invested heavily in the plant. Bristol estimated it at approximately $100,000 since 1926 alone. Still, success kept just around the corner until McCrary and his master secrets came onto the job. The kiln was rebuilt —and from then on no more spoiled batches of limes were dumped in front of the ungainly, towering plant.

For stone cooked too long is inert, and stone cooked too short a time is "raw," while it takes a craftsman to determine the exact proportion of water to mix with the quick lime in the hydrator.

But to begin at the quarry, directly on the mountain back of the plant and at an altitude level with the tallest stack. There we heard a blast of dynamite, and saw Ralph Wardrip, quarry foreman, with his crew who drill, blast, and shove the mine cars laden with marble to the plant.

The marble along the edge of the ledge is stained and soiled with earth. This is washed with a pump and hose from a small ditch, and then is dumped into the limestone mill which crushes the raw rock. Screened to size, the product comes out into hoppers far below as four different grits for "hen's teeth," for turkeys and chickens, as agricultural lime, as white marble building sand for the purest white walls of plaster, and even as fine limestone flour for stock feed, breakfast food, and pancake flour.

But the center core of the ledge is the most interesting part. For here is some of the purest, whitest limestone in the veritable millions of tons in the Josephine county mountains.

The quarry workers push this stone out on a tall trestle, which can be seen in the accompanying picture, and dump it into the top of the kiln. Far below, Glenn Hunter keeps the perpetual fires burning. The rock dries and warms in the top of the kiln. The moisture is driven out. And with it goes carbon dioxide, harmless gas which in many such kilns is captured, compressed, and becomes "dry ice." Many sugar refineries which bought lime, says Mr. McCrary, now operate their own kilns because they find the by-product of carbon dioxide as valuable for their purpose as the lime itself.

The Williams fires were started January 25, after Mr. McCrary redesigned the kiln for the particular limestone at hand. It is 52 feet high, with the rock dumped in at the top, the fires just below the middle, and the burned rock taken from a funnel at the very bottom. Nearly a dozen feet across at its widest, the kiln constantly holds over 60 tons of rock in all stages of processing.

The limestone slowly drops down the tall hot cylinder as burned lime is removed from the bottom. It is now burned 46 per cent of the weight gone. It is called calcium oxide, or quick lime, and is a chemical used in wartimes and crime to destroy bodies. It boils and burns when water is added.

It solidifies after addition of water into stone again, and is valuable as mortar. Properly mixed, it is whitewash. And it is no substance to get in the eyes, in the mouth, or in damp wrinkles of tender skin along the neck or under the arms.

The form of these lumps of quick lime is changed by several processes. One is to pass it through the hydrator, a huge cylinder which mixes a right amount of water with the lime so that it becomes calcium hydrate, or slaked lime. Its bite and burn is now gone, but if the proper amount of moisture has been added in the hydrator, it has not solidified into stone again, but is paddled, hammered and ground in other machinery until it is a superfine white powder of several select grades.

But by no means all of the quick lime is hydrated, or slaked. Another mechanical unit stands by which grinds the biting, burning quick lime into similar white powders, but without losing any of its properties.

These products, of varying grades of fineness, are those from which mortar is made such as the Romans used thousands of years ago for their aqueducts and which is still used today. And the purest, best grades are those used by technical chemical industries which are finding their sites in the western public power area.

Here near Williams, and trucked into Grants Pass, come what may eventually become one of the major industries of the county. Already the plant is turning out 20 tons of raw ground limestone each day.

And from the kiln is drawn every three hours lime which aggregates ten tons in a day.

If industry finds the product as good as it is pictured, there may be increasing markets for the best of the marble and limestone ledges in the Grants Pass district.

25 EMPLOYED AT OREGON LIME PLANT, WILLIAMS

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Gold is not the only mineral in Josephine county which contributes to the industrial progress and development of this section of the state. Lime is also found here in abundance and the rapid growth of the Oregon Lime Products company of which James W. Pinniger is vice-president and manager shows the possibilities in this industry.

The company's plant is located at Williams, 20 miles from Grants Pass, where 16 men are employed. A total of 25 men are carried on the company's payroll, including truck drivers.: The plant consists of five buildings, all connected forming a single unit. The various departments include the machine shop and engine rooms, screen room, kiln room, quick lime processing plant, bagging room and quick lime sorting department.

The company specializes in agricultural limestone products, carrying a complete line of poultry grit and calcium minerals for livestock and poultry feeding. Quick lime products manufactured are lump, pebble and processed lime. Limestone for building purposes is also manufactured at the plant.

The quarry is an open-face cut having a face 100 feet in height and 80 feet wide at the present time. The material is shot out of the cut and trammed to the crushing plant and lime kiln. Plans are now under way to install a hydraulic system to remove the dirt and overburden. The plant has a burned lime capacity of 15 tons daily, working three shifts. The eight-hour capacity for crushed stone is about 50 tons a day.

A primary jaw crusher reduces the stone to from two to three-inch size, then it is dropped into the hammer mill and the conveyor takes the "fines" to the screen. The other material is raised in the elevator, reground in the second mill and from there goes to the screen, which screens it into five sizes. The poultry drip, sand and fine material is reground in two other hammer mills. It all leaves the plant in sacks. The product is 99.32 per cent pure calcium and is white in color.

Burned lime for building and chemical purposes is also an importnat product of the company, although for several years during the depression there was little or no market for building stone. With the increase in building construction, which started about two years ago, the market has improved and a considerable quantity was sold in 1936.

The plant was originally constructed to deal mainly in burned lime for building but turned to production of agricultural products, for which there is always a ready market, when the construction industry declined to such low levels that building everywhere practically ceased. Business has shown a

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steady gain each year of the five years the plant has been in operation, despite the depression. The best year, by far was 1936.

The company operates two trucks for delivering its product to the closer markets, shipping large amounts by rail. It serves all of Oregon and Washington and the

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to about 23 miles.

Products planned include ground lime, four sizes of agricultural lime, chicken grit, plaster lime, lump & pebble & pulverized lime, and hydrated lime. It is expected that some 20-25 men will be employed when the plant begins production about Feb. 1st, 1941.

References: 1/ Hodge, Edwin T., Market for Columbia River hydroelectric power using Northwest minerals; Section III, Northwest limestone: War Dept., Corps of Engrs., U. S. Army Office of Division Engr, North Pacific Division, Portland, Oregon, (Get papges from Hodge report)

Informant: V. Z. McCrary, and Ray C. Treasher, 1/7/41
Report by: RCT 1/8/41

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Lime Quarry To Start Soon At Williams

Operation of the lime quarry at Williams is expected to be started about February 1 by the Washington Brick, Lime and Sewer Pipe company of Spokane with V. Z. McCrary in charge. The plant was previously operated by the Oregon Lime Products.

A crew of about 12 men is now employed getting the plant in shape for operation, and about 20 will be employed after the first of the month. At present, the kilns are being relined and the quarry cleaned up. The new concern plans to discontinue the underground mining of limestone and mine from the quarry face. There will be no immediate change in the plant itself, and products will be similar to those of their predecessor, poultry grit, burned lime products and ground limestone.

See also, for 1940
Courier 2/17; 7/15
Journal 7/16
Courier 7/16; 8/19; 8/20; 8/30

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Silent

G.P. Daily Courier 1-9-41

Lime Firm Land Sold

The Horsehead Lime company properties at Williams were sold at sheriff's execution sale Friday to W. H. Leverette, former president, who last month obtained judgment against the company for sums totaling over $230,000. A bid of $95,000 was placed by G. W. Kellington of Medford, attorney for Leverette.

The properties, including some of the best quality limestone and marble in Southern Oregon, were operated by another company until the formation of the Horsehead Lime company by Leverette and his associates, Vernon Vaughn, W. H. Holloway and W. E. Coleman. During the period between 1933 and 1943, the operation employed up to 50 men full time.

Development of the plant by the Horsehead company included a substantial building program which would allow employment of nearly 100 men but the plant never went into operation after the buildings were completed.

Sales of equipment and personal property assets of the company were conducted previously and all bought by Leverette prior to purchase of the real property holdings Friday.

Kellington, of the firm of Roberts, Branchfield and Kellington, said he was unable to state what plans his client had for the operation of the lime plant.