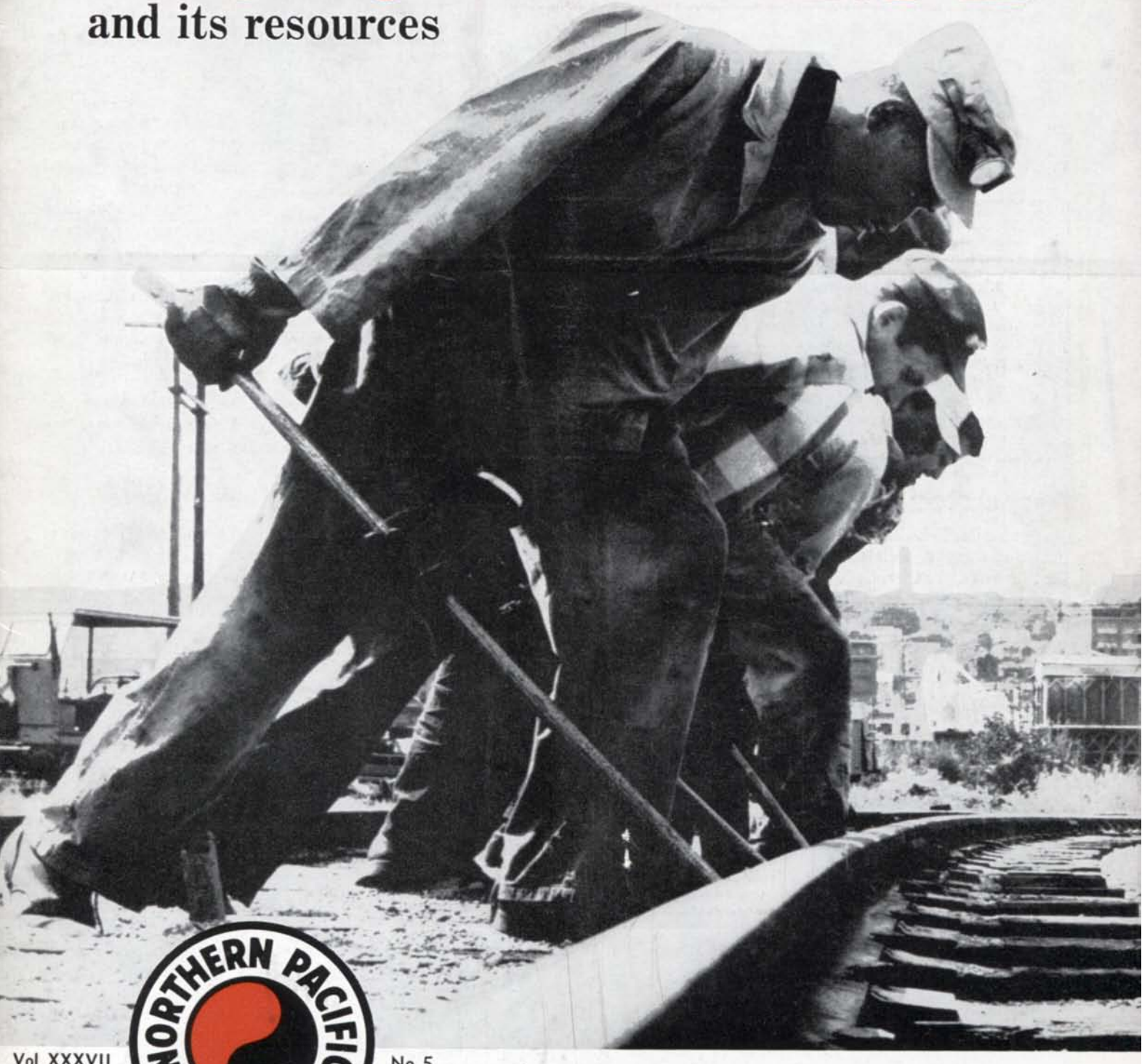
The NORTHWEST

and its resources

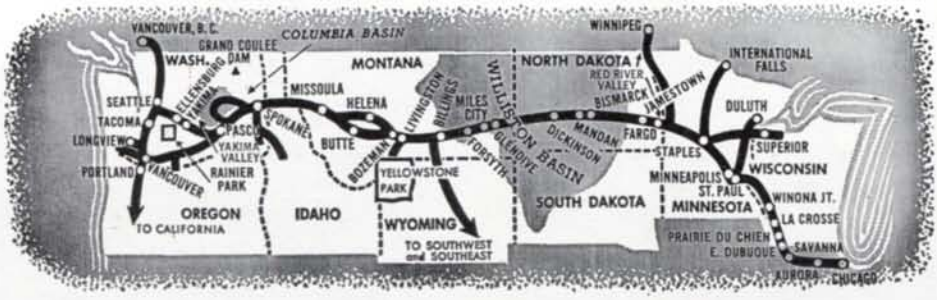


Vol. XXXVII No. 5

NORTHERN PACIFIC RAILWAY

Main Street of the Northwest

SEPTEMBER-OCTOBER, 1963



THE NORTHWEST

Published Bimonthly by the

NORTHERN PACIFIC RAILWAY COMPANY

W. J. HUNT, Editor.....St. Paul, Minn.

IF YOU WISH INFORMATION *regarding The Northern Pacific Railway, or about Industry, agriculture and other resources in the territory which it serves please address one of the following officers (depending on the information desired):*

P. D. EDGELL, General Manager, Properties and Industrial Development.....St. Paul, Minn.
W. J. LUCHSINGER, Vice President—Traffic.....St. Paul, Minn.
GEORGE M. WASHINGTON, Vice President—Oil Development.....Billings, Mont.
F. C. SEMPF, Manager, Industrial Development.....St. Paul, Minn.
J. T. MOORE, Western Manager, Industrial Development.....Seattle, Wash.
S. G. MERRYMAN, Manager, Timber and Western Lands.....Seattle, Wash.
GEORGE R. POWE, Asst. Gen. Mgr., Properties and Industrial Development..St. Paul, Minn.
ERNEST E. THURLOW Chief Mining Geologist.....St. Paul, Minn.
L. S. MACDONALD, Director, Agricultural Development Department.....St. Paul, Minn.

The Cover Picture

While modern track-lining machines are used on the Northern Pacific, occasionally it isn't feasible to move them for small jobs. Then a track gang brings human muscle into play to push rail over, after removing ballast from between the ties, just as the crew shown on the cover was doing on a curve in N. P. track to align it when a photographer with an eye for a meaningful picture released a shutter. This kind of hand labor that goes way back 100 years or more wasn't photographed on the five and two-tenths miles of spur track which N.P. forces built during the past summer from Sherryl, Mont., to a new ore concentrator but perhaps it could have been. The picture was made earlier on one of the company's tracks near Tacoma, Wash. For an interesting account of the recent laying of rails in Montana, turn to pages six and seven.

Associated Food Stores Occupying a $500,000 Warehouse at Helena

On 15 acres leased from the Northern Pacific Railway, Associated Food Stores, Inc., of Salt Lake City, built a new steel and concrete-block warehouse costing over $500,000 and containing 80,668 square feet for its branch at Helena, Mont.

The building, begun in November, 1962, was occupied in May after the Helena branch, located in the city since January 1, 1950, had been quartered in 25,000 square feet on another site.

Handling 2,500 more items than in its old building, the company carries at present 8,000 grocery, frozen-food, drug and sundry items at Helena. Canned hams, turkeys and smoked meats are included. Goods are stacked 24 feet high in storage areas.

One hundred and twenty stores in Montana are serviced from the new warehouse. Fifty-five of them are members of the associated firm.

Thirty employees, four more than at the former location, work for the Helena branch. The company has branches, too, at Boise and at Pocatello, both in Idaho.

WAREHOUSE, WITH AN OFFICE, containing over 80,000 square feet was built at Helena, Mont., by Associated Food Stores, Inc., on 15 acres leased from the Northern Pacific. The building houses 8,000 items, including groceries, drugs and frozen food.

ONE HUNDRED AND TWENTY STORES are served from the new warehouse at Helena of Associated Food Stores, Inc., where 2,500 more items are carried now than at the company's former location in the Montana city. Thirty employees are needed.

Built a Warehouse for Mustard Seed and Wheat

The Farmers Cooperative Marketing association, at East Grand Forks, Minn., managed by J. A. Johnson, built a new metal round-top building 120 x 40 feet near its existing facilities to provide additional room for 50,000 bushels, which will be used for wheat and mustard seed.

SEVENTH BUTTER STATE

With 52,763,000 pounds made in North Dakota during 1962, the state ranked seventh in the nation in the production of creamery butter.

Factory-to-Store Service With Pasco Distribution Plan

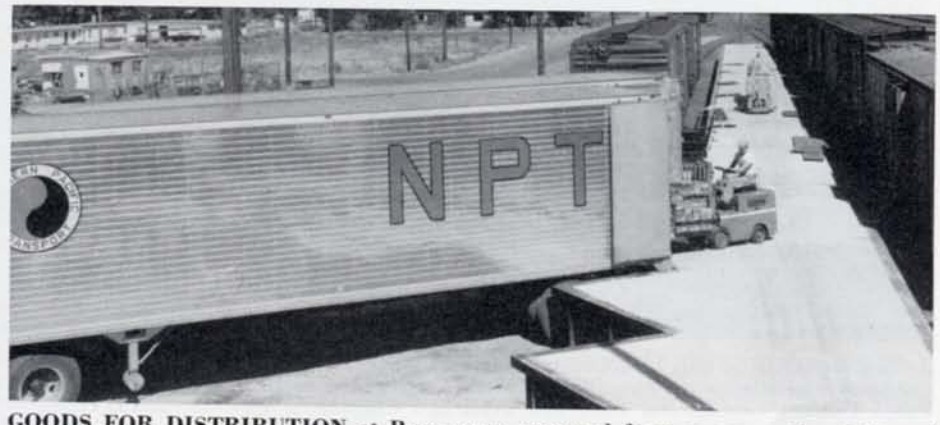
Fast Rail Freight Integrated with Railroad-Owned Motor Transport to Effect Savings on Packaged Materials; New and Flexible Way to Handle Shipments to 160 Cities and Towns Located in 3 States

Three carloads of cotton piece goods shipped from two mills, one in North Carolina and one in South Carolina, arrived one day in July on the Northern Pacific Railway at Pasco, in central Washington, for retail stores of the J. C. Penney company at 29 points in the Pacific Northwest.

A Northern Pacific warehouse crew immediately worked the cars. All of them contained shipments for the same points, with a total of 5,391 packages that were rebilled and then delivered by the railway's own truck line, the Northern Pacific Transport company, at the door of each store within 24 hours at a cost lower than charges for distribution by any other means.

The shipments went to Enumclaw, Longview, Everett, Kirkland, Snohomish, Ellensburg, Kennewick, Pasco, Prosser, Richland, Toppenish, Yakima, Pullman, Aberdeen, Auburn, Chehalis, Bremerton, Olympia, Puyallup, Shelton, Tacoma, Arlington, Bellevue, Bellingham and Walla Walla, in Washington; Coeur d'Alene, Lewiston and Moscow, in Idaho; and Pendleton, Ore.

The paragraphs above describe briefly a real-life example of the varied results that are accomplished under a new and flexible plan for the distribution of freight of all kinds from Pasco to 160 cities and towns on the Northern Pacific, which include practically all of the main cities and towns in the Pacific Northwest.



GOODS FOR DISTRIBUTION at Pasco were removed from a car on the right and Darrell T. Hardy, gang checker, trucked them across resurfaced and remodeled N.P. dock to a trailer of the Northern Pacific Transport company for delivery to stores.

It represents an imaginative step ahead in the practical handling of freight on rails that hasn't been duplicated elsewhere.

One observer said, speaking of the distribution plan, "It integrates fast freight with railroad-owned motor transport to save on packaged materials."

READING PAPERS COVERING shipments of packaged freight for distribution from Pasco is Foreman L. I. Hatfield.

Another explained it as "factory-to-store through service."

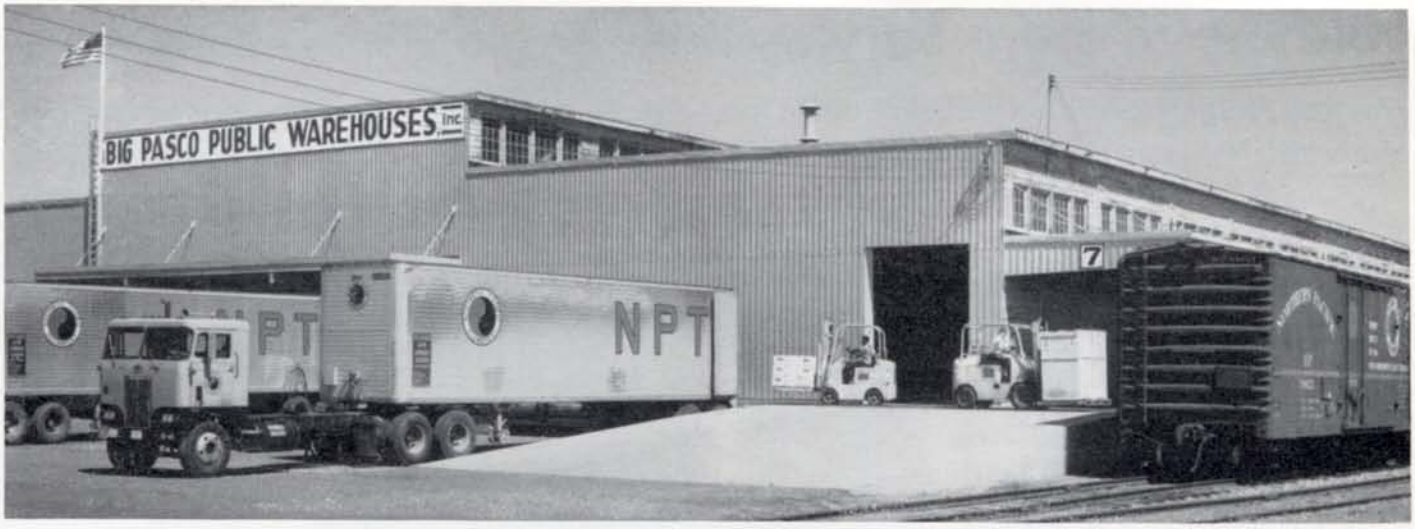
An illustration of handling another product in the same way occurred on May 20 when a carload of new furniture arrived in Pasco from Morristown, Tenn. A third of it, left in the same car, was sent on by rail to Eugene, Ore., but the remainder, removed from the car at Pasco, was distributed to consignees by the Northern Pacific Transport company.

Another carload of furniture arriving in Pasco recently was delivered promptly to 40 different consignees in 16 cities and towns, including Lewiston, Ida., Spokane and others in all parts of Washington.

The versatile nature of the plan is

How the Costs Compare
Example On Class 100 Appliances, Washers and Driers
Big Pasco Cost vs. 3-Stop Warehouse Distribution Cost

From (For example)	For LCL Delivery Distribution from Carload Class 100–Washers & Driers–LCL			
To: Group "C" in Ohio & Michigan	Seattle Dealers In Terminal Area		Dealer Outside Seattle Area (To Bellingham as Example)	
Washers & Driers	Via Big Pasco Plan Cost	Via Seattle Whse.	Via Big Pasco Plan Cost	Via Seattle Whse.
On 30,000 lb. Lot	Per 100#	Per 100#	Per 100#	Per 100#
(1) Railroad Line-Haul (Carload)	$4.16	$4.16	$4.16	$4.16
(2) Prorating 3 Stop-Off Charges at $20. (6/15/63)	None	0.30	None	0.30
(3) Warehouse Unloading & Segregation	None	0.20½	None	0.20½
(4) Average City Drayage Cost (Estimate 400# Order)	None	0.79	None	None
(5) Line-Haul Store-Door Delivery ex Pasco	0.78	None	0.90½	None
(6) Line-Haul Store-Door Delivery ex Seattle	None	None	None	1.96
Total Cost—Per 100#	$4.94	$5.45½	$5.06½	$6.62½
Cost Ratio—Percent	100%	110%	100%	131%



A NEW DISTRIBUTION PLAN on the Northern Pacific provides for layover privileges at Pasco, Wash., where the services of Big Pasco Public Warehouses, Inc., are available. Shipments of freight of all kinds may be stored in transit up to a year and then moved out, in lots of 10,000 pounds or more, and delivered to various consignees at their receiving doors by the N.P. trucks.

evident, too, in what occurred when a carload of candy bars (Hollywood brand) was shipped from Illinois, destined for Portland, Ore., containing merchandise also for Tacoma and Seattle, which was removed at Pasco. A

* * *

TARIFF AUTHORITY

Tariff authority for Pasco distribution is shown in North Pacific Coast Freight Bureau Tariff 90-K, I.C.C. 979. Rates are contained in items 7907, 9196, 9773, 10575 and 10576. Rules governing the distribution rates are found in item 630 and intermediate application rule 85 is applicable. Big Pasco Industrial Park, Pasco, Wash., has issued special guide books 104-C covering canned goods, G-9 covering freight of all kinds, furniture distribution book F-10 and general information book 101-C.

* * *

hundred and fifty cartons of the candy consigned to one receiver in Tacoma and 1,023 cartons for one consignee in Seattle were placed in a piggy-back trailer at Pasco and then were delivered by the railway directly to the consignee's places of business in the Puget Sound cities. The portion of the load for Portland consisting of 27,288 pounds divided between two consignees moved to that city from Pasco in the same car in which it left Illinois.

The unique distribution plan covers straight carloads, mixed loads and partial loads from east of Paradise, Mont., terminated at Pasco, which are broken by the railway into lots of 10,000 pounds or more and reshipped from Pasco by rail, truck or piggy-back and delivered at any number of customers' doors at an additional charge but one that represents a saving in cost. The 10,000-pound requirement is applicable to the aggregate of any number of subconsignments, each of which may be of less weight.

There are layover privileges, too, at Pasco, if they are needed, since the plan includes freight of all kinds stored in transit at that point for one year or less.

As an example, a car of air-conditioning machines subject to the distribution plan moving from the East to Pasco for the Consolidated Supply company, rather than being spotted at the N.P. unloading dock, was switched to the Big Pasco Industrial park, which is owned and operated by the Port of Pasco, where the goods were stored by Big Pasco Public Warehouses, Inc., an independent, bonded company which utilizes facilities in the industrial park leased from the Port of Pasco to do an entire public warehousing job. When the industrial park is used, the phrase, Big Pasco Distribution Plan, is applied.

The air conditioners could have been removed from storage in lots of 10,000 pounds and delivered under the distribution plan to various receivers. As it turned out, only one or two machines were required at a time for dealers with proximity to Pasco.

It is possible to add items stored at Pasco to other inbound loads arriving later from the East for combined delivery to consignees.

In addition to storage which can be supplied by Big Pasco Warehouses, Inc., this firm's president, Carter Meyer, serves as an agent to supervise distribution from Pasco for absentee firms that wish this kind of service.

Shipments of paper boxes, steel lock-

BEET PULP AND OTHER products are stored at Big Pasco warehouses and then later on these are shipped out to buyers.

REFRIGERATING UNITS ARRIVING in Pasco, Wash., from east of Paradise, Mont., for distribution in the Pacific Northwest were stored in transit and later removed, as L. E. Taylor, foreman for Big Pasco Public Warehouses, is demonstrating, above.

ers, television sets, wire fencing, packaged petroleum products and additional loads of furniture were included among other cars which have been received recently at Pasco for distribution by the railway company.

Freight for western Washington can continue in the same equipment in which it arrives at Pasco or in different equipment to the Seattle terminal and then be distributed without intermediate handling and without switching delays before final delivery is made by truck.

Savings of from 10 per cent to 40 per cent in the cost of distribution beyond Pasco can be made by shippers using the new plan. While a minimum charge of $2.75 per shipment applies, few are so small that they come below that figure when computed at the published rate per 100 pounds for the service. One consignee, for example, at Kennewick, Wash., said he "saved $13 on a small shipment." Savings naturally are greater on large consignments.

Cars for immediate distribution by the N.P. are parked at an unloading dock near the company's freight house. If the goods are not to move on in the same equipment, they are transferred by power lift truck to the dock and into trailers or into other railroad cars. The dock has been resurfaced and six new saw-tooth truck-loading spaces have been installed to handle the traffic. Other improvements and additions may be made later for this kind of freight at Pasco.

Big Pasco Industrial park, formerly a marshaling point for military goods, is a $10,000,000 facility covering 450 acres, with 1,636,000 square feet of space in buildings and other covered areas. Del C. Isaacson, general manager, and Howard L. Jenkins, executive vice president, both located at Pasco, have pointed out the importance of the industrial park as a center for manufacturing and assembly of products and for warehousing and distribution. Space is leased in full bays, each containing 43,200 square feet, or in half bays.

The industrial park has 35 tenants at present. Their interests are widely varied, ranging from the manufacturing of kitchen cabinets, by Modern Woodcrafters, Inc., to printing annuals (by the Pishel Publishing company) for high schools scattered from Alaska to Montana and Hawaii. The Green Giant company, the California Chemical corporation and the Portland Wire & Steel company are among those leasing space for storage.

Meyer's public warehousing firm, which was established at Big Pasco a little more than two years ago, is serving several makers of fertilizers. Sugar beet pulp, wire fencing, farm equipment, refrigeration machines and just a lot of other items are being handled, too.

May Buy Land for $20 or $30 an Acre

On the new East Bench Irrigation project, which has been described in earlier issues of The Northwest, 57 tracts of land in various sizes and of irregular shapes, will be sold in November. The location is between Twin Bridges and Dillon, in western Montana.

Each tract or unit consists both of irrigable land, none of which has been watered before, and nonirrigated grazing land.

Forty-eight of the units, consisting of 9,117 irrigable acres and 11,138 acres that are "dry," are owned by the state of Montana. While they have been appraised, they will be sold at auction on November 20, next, at Dillon, and at Virginia City on November 21. Nine units owned by the Northern Pacific Railway, totaling 225 irrigable acres and 180 acres of "dry" land, all in Madison county, will be auctioned at Virginia City November 21.

Most of the appraisals vary between $20 and $30 per acre. Long-term payments will be permitted.

Construction of irrigation works for the project is progressing under supervision of the U. S. Bureau of Reclamation and the first water will be delivered to some of the land in 1965. A full supply will be available in 1966 or 1967.

Safflower Will Be Exported at Portland

Safflower raised on 2,000 acres of irrigated land this year in Washington and Oregon under contract for Pacific Vegetable Oils, Inc., yielded 2,500 tons of seed for which growers received $75 a ton. The crop will be shipped to the Kerr Grain company, at Portland, Ore., where it will be exported.

MACHINE IS A PAYLOADER

Walter E. Clark, equipment manager at the Modern Machinery company, Spokane, Wash., states that a machine in a picture at the top of the first column on page 13 of The Northwest for July-August, 1963, is a Payloader tractor-shovel instead of a "scoopmobile," as it was designated in a caption under the picture.

Millions Invested in Mine, Mill and

Douglas Concentrator, Being Built by the Montana Phosphate P

Reached by a Long Spur Track Put in During the Sum

The newest station on the Northern Pacific Railway is Elephant, Mont.

It is located in the Rocky mountains at an elevation of 4,358 feet, in Granite county, at the junction point of a new five-and-two-tenths-mile spur track and the railroad's Philipsburg branch, in western Montana. This spur was recently built to the site of a $6,000,000 mining and milling project called the Douglas mine and concentrator, being developed by the Montana Phosphate Products company.

Officers of the phosphate firm have said that their new mill, 230 x 132 feet and 85 feet high, will be in operation by March 1, 1964, and will produce about 300,000 tons annually of concentrated phosphatic ore to be shipped in covered-hopper cars to the Consolidated Mining and Smelting Company of Canada, Ltd., to be used in manufacturing Elephant Brand chemical fertilizers; thus, the name of the new station on the N.P.—Elephant, Mont.

A PANORAMIC VIEW WAS MADE of the Douglas concentrator mill of the Montana Phosphate Products company in early stages of construction during the past summer showing at the extreme left, excavation of a tailings thickener tank and, at the right,

"In building the new half-a-million-dollar spur, the turnout of which is about a mile and three-fourths south of Sherryl, Mont., an N.P. crew did a track-laying job that a few years ago would have been thought to be impossible," D. H. Shoemaker, chief engineer for the railway company, said.

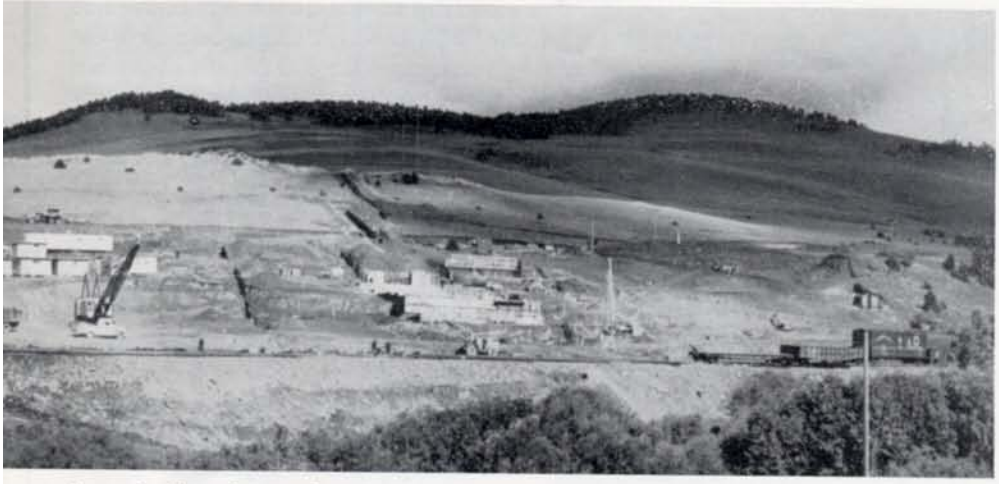
"After Peter Kiewit Sons' company, a contractor, put in a grade, a 24-man section force built more than five miles of railroad in May, June and July, using 131-pound rail. It was done not only with track machines but, too, by the trucking of rail, ties and fastenings to staging areas for later distribution. Two flatbed semi-trailers leased from the Northern Pacific Transport company carried rail and ties from the main track to locations along both sides of the grade. Rail was loaded with a Quickway crane and unloaded with a P-M Speed-Swing machine.

"Track construction on the 18-foot grade was accomplished by bolting the rails together and placing them near the center of the roadbed with the Quickway. A Speed-Swing machine equipped with a short boom and a specially designed yoke with rail tongs placed at gage distance, which straddled the rails, lifted them into position and, with rail held in suspension, cross ties were placed on the grade. This operation allowed approximately one panel construction at a time. Bolt and spike machines followed closely, which were followed in turn by men placing rail anchors. A power jack and ballasting machine was used for surfacing the track."

Shoemaker called attention to the fact that the country is rough and that the valley of Douglas creek, location of the line, rises abruptly, presenting problems in construction. It was necessary to meet the elevation of the new concentrator, keep above the creek and avoid ponding dams built in the stream by the mining company to contain wastes from the

THIS PICTURE OVERLOOKS the site of the Douglas mill and the railroad yard tracks in the first stages of construction during July, 1963. In the background are a load track, a fill over Douglas creek and a view of the track leading down grade to Elephant.

TIES AND 131-POUND RAIL WERE distributed along the grade of new spur for a mining and milling project with trucks and then were assembled in nearly record time with Quickway and Speed-Swing cranes and a section crew with 24 men.



the main foundations for the mill being formed. The Northern Pacific yard tracks, in the foreground, also were under construction and materials, right, for the mill contractor already had arrived by rail. Temporary buildings are located in the center.

ailroad to Remove Phosphate Rock

ducts Company, to Process Ore from the Firm's Douglas Mine, Is r by the Northern Pacific from Its Philipsburg Branch

concentrating process. The grade of the spur is one and a half per cent from the turnout for one mile, and two per cent from there to the concentrator. This is equivalent to the grade of the steep Bozeman hill on the N.P. main line.

Uniquely and conveniently, too, the terrain slopes abruptly just before the spur reaches the plant. By following this slope with the construction a natural hump was created in the track, which made what engineers have called a ski slide, leading into yards around the mill. Because of this, it isn't necessary to throw a derail to prevent cars from running away, down the hill to the Philipsburg line.

Yards at the mill contain three tracks to be used as a run-around track, a receiving track and a load-storage track, the latter long enough for 89 cars. Two tracks for storing empties have a total capacity of 30 cars. In addition, a loading track and a service track have been built.

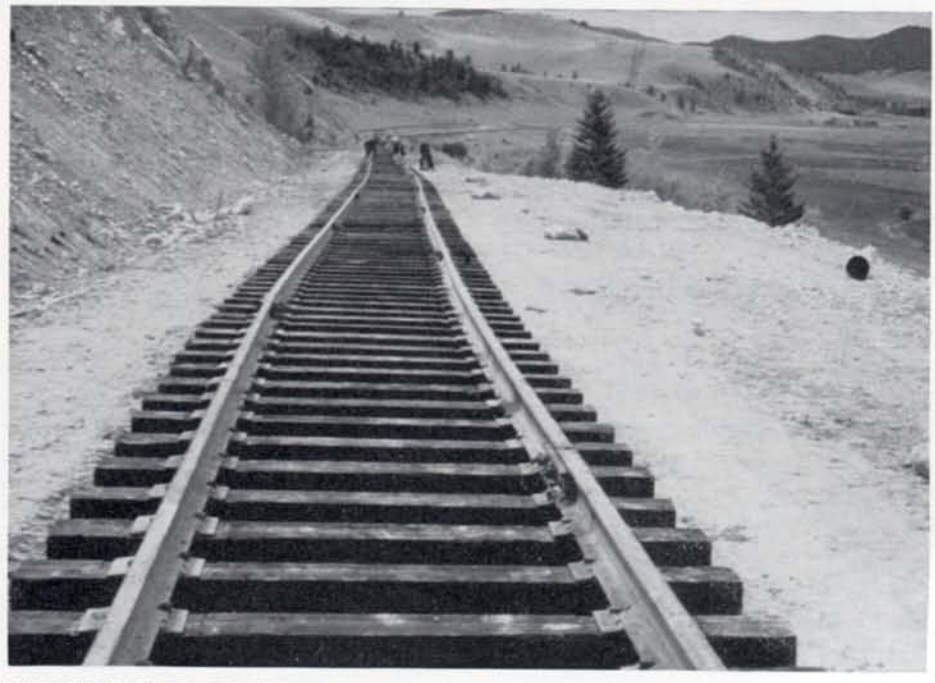
The Douglas spur isn't the first major track built by the Northern Pacific to serve the Montana Phosphate Products company. In 1955 a spur four and seven-tenths miles long was put in from the N. P. main line at Phosphate Siding, west of Garrison, up Brock creek to haul raw phosphate rock taken from the company's Brock creek mine and its Anderson mine. This mining operation is being continued and the company also is continuing shipments at Avon, Mont., of raw ore originating in mines east of the Anderson and Brock creek properties.

Expansion was inevitable in view of great pressure from users of agricultural chemicals both in Canada and in the United States for more and more fertilizers to apply on land. Officials of the Montana Phosphate Products company for several years sought additional likely locations.

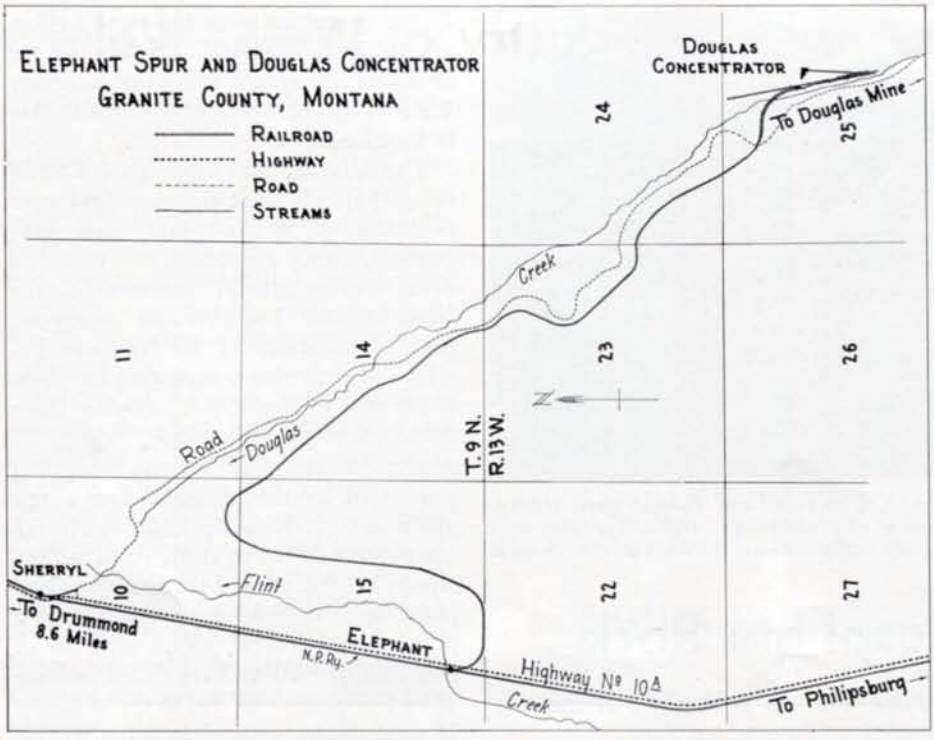
The International Minerals & Chemical corporation built and operated a concentrator on a pilot-plant basis near Sherryl, using phosphate ore from the same source where, incidentally, the Northwestern Improvement company, then a subsidiary of the Northern Pacific, did extensive prospecting for phosphate ore in the 1930's, driving three tunnels into the mountains.

The property of International was purchased by the Montana firm a few years ago. Exhaustive tests which followed were ended in 1961, when milling trials on 3,000 tons of the Douglas phosphate were completed successfully in a pilot plant. Hitherto, commercial use of this rock is said to have failed because of its low grade and due to the high cost of work under ground to mine it. Employing improved processes to mine the rock, the Montana Phosphate Products company then will use flotation in its new mill to raise the grade of the ore to the level acceptable for the manufacture of fertilizers.

Last fall the company began developing the Douglas mine. Since that time, four adits have been driven into the ore body, located two miles above



MEN LINE NEW TRACK near a two per cent ascending grade on a spur built last summer to the Douglas concentrator of the Montana Phosphate Products company. The track required considerable lining prior to ballasting on account of the grade.



CONSTRUCTION WAS BEGUN in the spring in western Montana on a concentrator for the Montana Phosphate Products company at a location shown on this sketch and at the same time building of a new Northern Pacific spur was started in the area.

the new flotation mill. A compressor house for two large air compressors, a machine shop, blacksmith shop, warehouse and office have been built at the mine. Ore will not be hoisted but will be hauled directly to the outside in Diesel-powered ore trains loaded mechanically.

At the surface the ore will be dumped into a bin, from which it will be dropped into 35-ton motor trucks operated by a contractor who will haul it to the concentrator, where the rock will be stored and, as it is needed, it will be fed into a jaw crusher. Scrap iron, if any is present, will be removed and then a cone crusher will reduce the rock to minus three-fourths of an inch before it goes into a surge bin that holds 2,500 tons. From there on it will be a question of grinding the rock in rod mills, removing the fine material and regrinding, conditioning the ore by adding reagents, flotation (separating ore of minus 200 mesh and of high phosphatic content), filtering, drying and storing prior to shipment. In the flotation process there will be various stages of rougher and cleaner cells in which clays will be removed from the ore and where cleaning and recleaning will occur. The concentrate will be enriched by reworking tailings from the different stages.

Maximum use will be made of pumps within the mill to move the material, which will allow for a saving of space compared with the room needed if this were done by gravity.

To haul the dry concentrated ore from the mill 120 covered-hopper cars of 100-ton capacity, with roller bearings, have been ordered by the Northern Pacific Railway from the Pullman-Standard division of Pullman, Inc., at a cost approximating $1,540,000. The cars will be Barber-stabilized, with two-and-a-half-inch travel springs. There will be eight 30-inch loading hatches in the roof of each and each will be unloaded through two discharge gates that will be made especially so that no seepage of the fine ore will occur. Pullman-Standard engineers asked for 300 pounds of the ore with which they made tests while designing these gates. The cars are scheduled for delivery during January and February of 1964.

Switching to the concentrator will be done three times weekly, winter and summer. It has been estimated that the average daily production at the concentrator will be from eight to nine cars of ore.

The phosphate company's car loader will be equipped with four flexible spouts whose height will be adjustable.

The concentrator was designed by engineers of the Western Knapp Engineering company, San Francisco, and the construction is being done by Kaiser Engineers, Oakland, Calif.

Work at the mine and in the Douglas concentrator will create steady employment for 125 men, officers of the Montana Phosphate Products company have estimated. No change is expected in the number on the firm's payrolls in the Avon and Garrison areas.

Will Make Lime for Manufacturers of Paper

A $3,500,000 factory is being built for the Ash Grove Lime & Portland Cement company, of Kansas City, at Portland, Ore., on 30 acres purchased in the Rivergate industrial district of the Port of Portland. While the company produces lime for chemical and industrial processes and for the construction industry, pebble lime for manufacturers of paper will be made at Portland. The capacity of the plant will be 250 tons daily.

Californians Need Beef from Northwest States

Northwest stockmen cocked an ear at current reports of a need in California for finished beef. Reuben Albaugh, of the University of California, speaking to cattlemen at a meeting in Oregon, said that while Californians are importing into their state annually almost 2,000,000 head of stocker and feeder cattle which are finished in local feed lots, and are importing also 450,000 head of finished cattle in addition to dressed carcasses from other states, the ultimate has not yet been reached. Albaugh predicted, therefore, that markets for beef from the Northwest in California will expand.

"We may have reached our peak in finishing cattle," he explained. "It is necessary to bring into my state half the feeds we use for fattening beef animals. Importing both unfinished animals and feeds has serious limitations. On the other hand, California's present population of more than 16,000,000 persons may exceed 21,000,000 by 1970. And we are heavy eaters of beef in my state—130 pounds per capita annually compared to 87 pounds in the U. S.

A Step Ahead for Fertilizer Industry at Walla Walla

California Chemical Company Constructed a Warehouse with Seven 100-Ton Bins for Dry Material

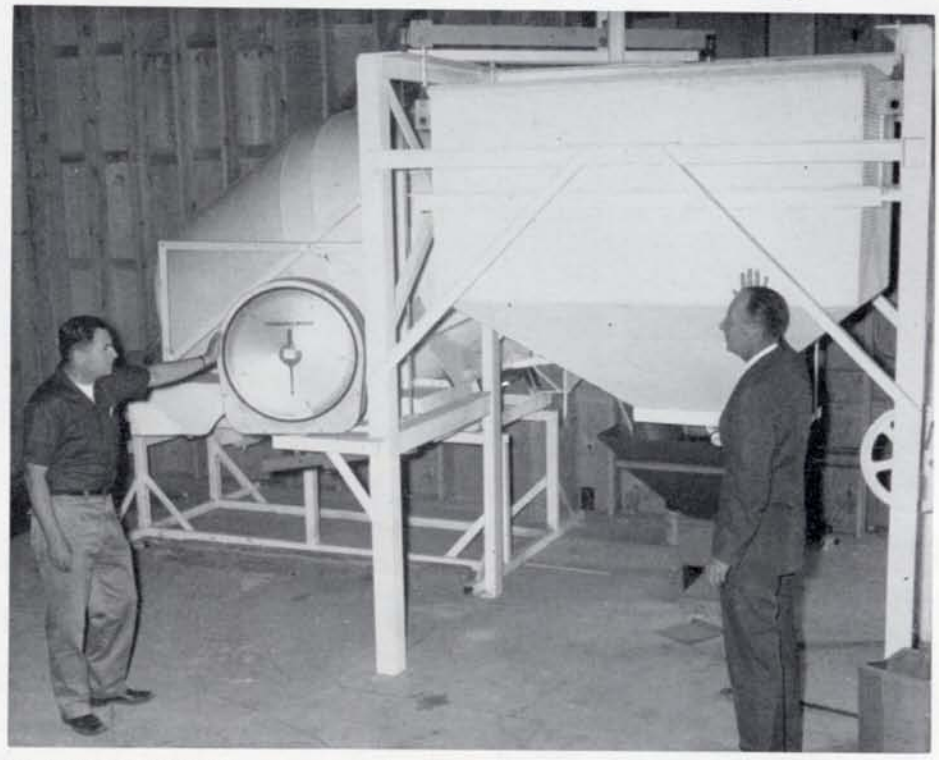
A newly constructed warehouse at Walla Walla, Wash., with seven 100-ton bins has enabled the Ortho division of the California Chemical company to supply dealers in that vicinity with various combinations of chemical fertilizers in dry bulk form.

The new building, measuring 40 x 80 feet, has a tongue-and-groove timber frame, plywood sub-siding and an outer shell of corrugated aluminum. The building has a poured concrete floor and, on the outside, it has an asphalt apron.

Machinery and equipment include an underground endless belt, which extends from a Northern Pacific spur to the building, making it possible to receive bulk chemical fertilizers from the point of manufacture in railroad covered-hopper cars. An elevator and another belt-type conveyor inside the building lift the material and move it to any one of the seven storage bins. A power scoop is used for handling from bulk bins to delivery trucks.

William H. Crumpacker, local branch manager for the California Chemical company, stated recently that all of the widely used combinations of nitrogen, phosphate and potash will be available in dry bulk form. A number of the minor elements also will be available.

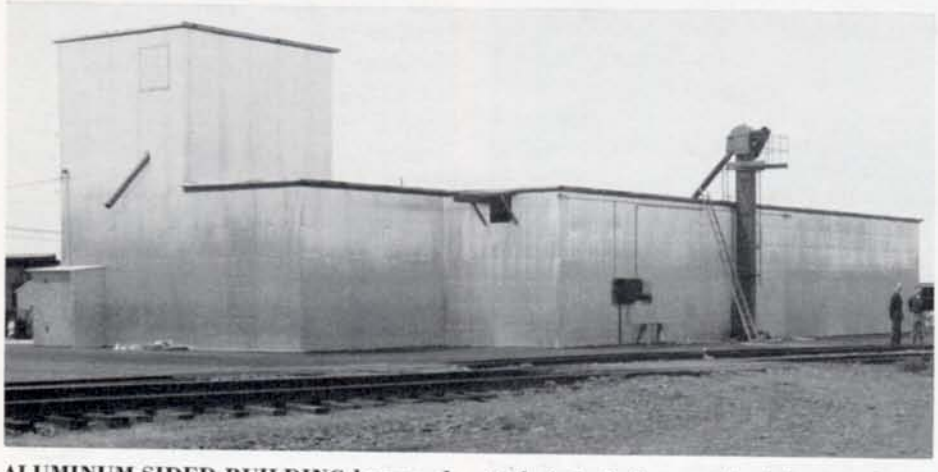
"Deficiencies of zinc, boron, manganese and other minor elements sometimes show up when a farmer 'samples' his land," stated Crumpacker. "Where a shortage is evidenced by soil sampling, a dealer may arrange for us to mix these elements on a prescription basis with the primary fertilizer elements for his farm customer."



IT MAY RESEMBLE a cement mixer, but this machine blends minor elements into fertilizers at Ortho plant built recently in Walla Walla, Wash. W. H. Crumpacker, left, local manager, demonstrated the process to George B. Nelson, N.P. general agent.

A machine closely resembling a concrete-mixer is used at the plant in Walla Walla for blending primary and minor elements, which are weighed first separately, then dumped into the three-cubic yard mixer. After blending, the material is elevated from the mixer to a two-and-a-half-ton hopper mounted on a scale-frame and it is weighed again, then released from the bottom of the hopper to an elevator which lifts it, drops it into a tube, and from there it flows outside the building into a delivery truck.

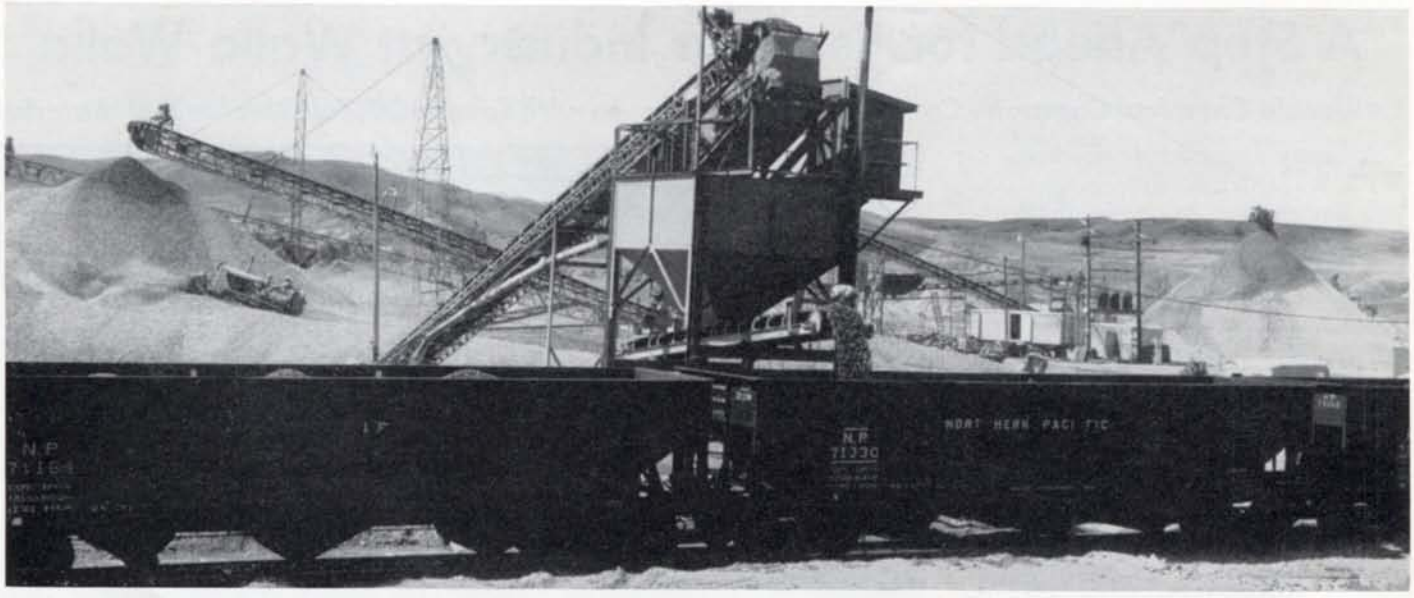
The new facility will make it possible to serve dealers located within 30 miles of Walla Walla. Important areas of agricultural production, such as parts of Umatilla county, Oregon, and Walla Walla and Columbia counties, in Washington, are included within this radius.



ALUMINUM-SIDED BUILDING houses chemicals in bulk form and mixing machines. Fertilizer arrives in hopper cars on rails and is dumped onto a conveyor located below the track. An elevator and another conveyor inside move it to bins where it is stored.

Flume Handy Gadget for a Potato Grower

Norman Russum built a 27-inch concrete flume 600 feet long from his potato storage house at Grafton, N.D., going under a street, to the washing and shipping plant of Associated Potato Growers, Inc. A recent change by Russum from growing chipping potatoes to table stock brought about a need for a washing plant. The flume to carry his potatoes to the Associated plant solved his problem.



FROM 30 to 80 CARLOADS of gravel were loaded daily all summer on the Redwater branch of the Northern Pacific Railway at the washing and screening plant of the Western Gravel Supply company, located near Glendive, Mont., for movement to western North Dakota. A switching crew spotted open-top cars and from eight to 10 of them were filled every hour from the gravel piles.

7,000 Cars of Washed Gravel Went into 39 Miles of Road

Material from Glendive Passed Rigid Tests Required by Highway Engineers for Interstate Construction; Eight 70-Ton Cars Per Hour Were Loaded on the Northern Pacific's Redwater Branch

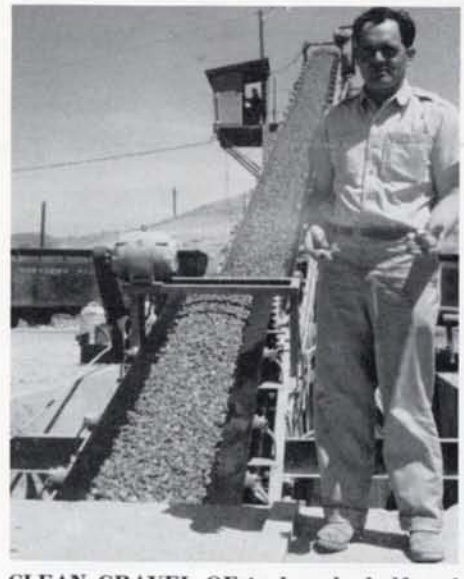
Four hundred thousand tons of gravel were gouged out of a hill this past summer not far from Glendive, Mont., and, washed as clean as clean could be, from 30 to 80 carloads a day were shipped to Hebron, N.D., where most of the total went into 39 miles of spanking new four-lane interstate highway. This was equal to 78 miles of a two-lane road.

Someone thought the amount of gravel was big enough to make a pile as large as one of the great pyramids of Giza.

It wasn't that huge, but it did fill close to 7,000 open-top hopper cars, which were loaded every weekday five miles from Glendive on the railway's Redwater branch.

The gravel went to Schultz & Lindsay, contractors of Fargo, N.D., who built a new stretch of road between Dickinson and Eagle Nest. N.D. It was furnished by the Western Gravel Supply company, of Glendive, a firm, incorporated last year, which had 26 men on the site all summer, working on two 12-hour shifts. In addition, trucking half a mile, a contracted job, from a mine to the company's processing and stock-piling area, took from eight to 10 men.

Geologists have said that the location is in the only region between eastern Montana and western Minnesota capable of yielding large supplies of this kind of stone suitable for heavy construction. It has been reported that a number of field crews representing different companies explored for gravel in the area during the past three years. The Western Gravel Supply company leased three sections which contain deep veins—one of them opened this year has a 38-foot depth. Removed from the ground and loaded with a drag line onto trucks, 5,000 tons of the gravel every day, dumped into a trap, go to a 45-foot surge pile, from which the material is carried through a tunnel to a primary screen, where the first of four washings occurs. The material then moves to a secondary screen and another washing. Next, a series of screens separates the gravel into sizes and still another washing occurs before it is carried to radial stackers which drop it onto stock piles. Through a 380-foot concrete tunnel, conveyors carry the gravel to still more screens, where the last washing takes place, and then it is stopped momentarily in a surge bin, from which it is conveyed into railroad cars.



CLEAN GRAVEL OF inch-and-a-half and three-quarter-inch sizes was used on road work, B. R. Dreher, superintendent, said.

As a result of the procedure described above, the gravel is divided into five sizes. One-and-a-half-inch and three-fourths-inch sizes were shipped to North Dakota for the road work. Then there are masonry sand, concrete sand and chips, or three-eighths-inch gravel, some of which is used in bridges.

Since highway engineers are adamant about materials meeting specifications, frequent inspections are made to keep

"MOVE HER UP five feet," Switchman F. H. Nord, left, tells engineer on radio, for which A. F. Geiger holds spare battery.

NO HAND SIGNALS were needed as Engineer O. H. Ramberg responded to walkie-talkie in service on gravel-loading work.

close tabs on sizes, strength and freedom from soil or other foreign material. The gravel from Glendive resisted 5,300 pounds per square inch in a seven-day compression test, which exceeded the requirements.

Water for washing the gravel, as one can easily imagine, is a large item. Just how large is apparent from the fact that the Western Gravel Supply company requires 2,000 gallons per minute. This water, however, is recirculated and a total of 90 per cent is recovered for reuse. An earth fill was put in across Seven-Mile creek, which flows near the firm's gravel plant, and water is pumped from the pool created by this dam.

Loading onto railroad cars and switching of the cars to Glendive made daily work for a five-man crew all summer. A train of up to 40 cars was loaded each forenoon and each afternoon. Cars of two sizes were used—50 tons and 70 tons. A switch engine spotted them below the gravel company's loading equipment and a belt-type conveyor carried the gravel in an almost continuous stream to one car at a time. Fifty-ton cars were spotted twice—70 tonners three times. Eight of the larger ones were loaded per hour but 10 of the smaller ones could be filled in the same time. By means of a walkie-talkie, Switchmen A. F. Geiger and F. H. Nord, stationed at the car, told Engineer O. H. Ramberg in the cab of his locomotive, "Move her up five feet," or "Okay, take her back to the next car." No hand signals were required.

Officers of the Western Gravel Supply company are Eugene Fisher, Dickinson, N.D., president; Jack Schultz, Fargo, vice president; John H. Lindsay, Fargo, secretary. B. R. Dreher, from Beach, N.D., is superintendent.

A side line that has created some interest, according to Superintendent Dreher, is the recovery of agates in the gravel pit. These stones, found frequently in this part of Montana, are sought in rough form by rock fanciers who wish to do their own cutting and polishing. Dreher and his helpers have collected some 15 tons of agates. Any not sold at the site (they bring from $1.50 to $2.50 a pound) will be advertised in newspapers in St. Paul and Minneapolis this fall. They vary from small sizes up to large ones weighing eight pounds apiece.

Changes Made at Polson Plywood Factory

Press releases contained an announcement that the plant at Polson, Mont., of the United States Plywood corporation has been made a division of the company. Formerly its administration was under the Oregon division of the firm. Attention was called also to an expansion program at Polson, including installation of an additional veneer clipper, two more trays and a shift from oil to gas in the firing unit of a dryer.

★ ★ ★

A metal warehouse 72 x 102 feet to hold 75,000 bushels of certified seed potatoes recently was completed by Burke farms, at Johnstown, N. D. on land leased from the Northern Pacific Railway. A potato house on an adjacent site owned by the Johnstown Potato Warehouse association and leased by Burke farms burned on July 26, 1963.

Pinto Beans Made $60 an Acre Return

Pinto beans, maybe on 6,000 acres or more, were raised this year in the northern part of the Red River valley, in North Dakota and Minnesota. Some estimates indicate the acreage was 8,000.

Harris Peterson, grower and buyer near Drayton, N.D., raised pintos three years and for the past two seasons he contracted with other farmers to grow them, too. The crop is sold in Florida, Tennessee, Colorado and other states.

In a normal year in the valley these beans will average about 20 bushels an acre, Peterson said. The price last year, five cents a pound, meant a gross income of approximately $60 an acre, he indicated. Sugar beet equipment is used to plant the crop and cultivate it.

A few growers have planted navy beans in the area. Peterson and others have tried different kinds of peas which are used for varied purposes—with some being split to make soup, some sold as bird seed and others as seed for cover crops.

TAKING A SAMPLE from a sack of pinto beans with a tubular probe is Harris Peterson at his farm near Drayton, N.D.

521,000 Pounds of Fish Landed in One Day

In one day during August 521,256 pounds of fish were landed at Pacific Northwest points. Alaskan catches were included. The sea food consisted of salmon, halibut, ling cod, rockfish, silver smelt, albacore tuna, petrale sole, Manila clams, Dungeness crab, Olympia oysters, Pacific oysters and salmon eggs.

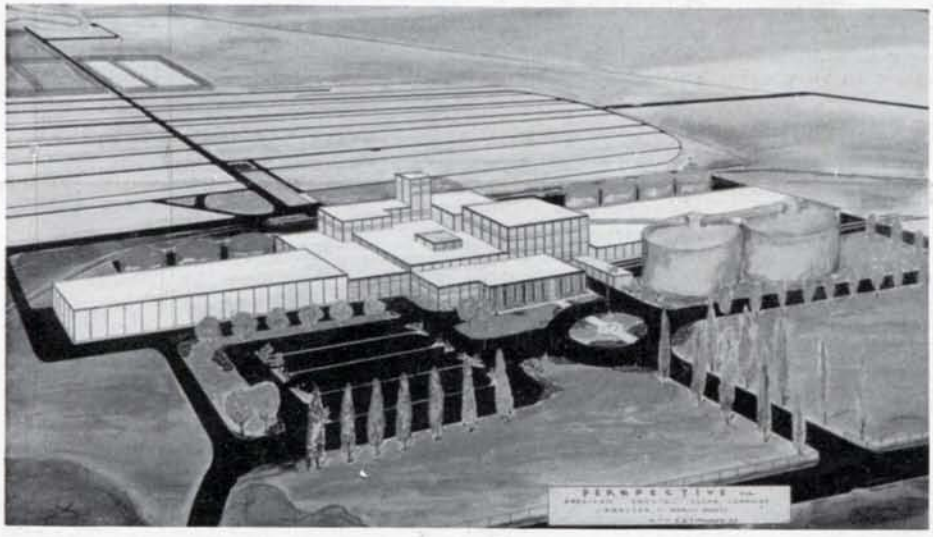
Construction Going According to Schedule at Drayton Sugar Plant

Construction of an $18,000,000 sugar factory begun earlier this year at Drayton, N.D., in the Red River valley, proceeded on schedule during the summer and early fall, according to late reports.

The plant is being built by the H. K. Ferguson company, of San Francisco, for the Northern Sugar corporation, of Colorado, a wholly owned subsidiary of the American Crystal Sugar company.

To consist of one building, part of it three floors high, it will be larger than any other American Crystal factory in capacity, officers of the firm have said, and one-half again as large as other plants owned and operated by the company in this valley, comparing in size with the factory of the Utah-Idaho Sugar company, at Wheeler, Wash., in the Columbia basin.

The plant at Drayton, on an 836-acre site a mile north of the town, to be completed in 1965, will require from 5,500 to 6,000 tons daily of sugar beets during its annual campaign to keep it running at full capacity. It will be capable of processing 600,000 tons of beets a year, making 1,500,000 bags of sugar weighing 100 pounds each (75,000 tons). It will be equipped, also, to turn out 30,000 tons of molasses and 38,000 tons of beet pulp, with much of the pulp to be pelleted.



A SUGAR FACTORY at Drayton, N.D., in the Red River valley, will appear this way from the air when it is finished and ready for operation in 1965. Construction of the plant, which will be the largest sugar refinery in the area, was begun during last spring.

A spur track 2,650 feet long from the Northern Pacific's Red River branch was built to transport construction materials. Another spur 400 feet long was added and later a 400-foot extension of the first track was completed. These will become a part of the company's permanent yard complex, which will have room for 650 railroad cars.

A permit has been issued to the sugar company by state authorities in North Dakota for 4,250 acre feet of water annually from the Red River for use at the factory.

Plans call for two round metal bins with room for 880,000 hundredweight of sugar in bulk form. In addition, it is expected that warehousing space will be provided for 200,000 hundredweight of sacked sugar.

It recently was reported that orders have been placed for most of the large machines for sugar processing that will be required. It is expected that once it is ready for slicing beets, 90,000 tons of coal, 30,000 tons of limerock, 2,400 tons of coke and 150 tons of filter aid will be consumed in the plant every year.

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