

Address by Goodrich W. Lineweaver, Assistant to the Commissioner, Bureau of Reclamation, Washington, D. C., before the Washington State Reclamation Association at Yakima, Washington, at 2:45 p.m., Thursday, November 9, 1944.

WASHINGTON'S PLACE IN RECLAMATION--WAR AND POST-WAR

Washington stands at the head of the list of western states in which the United States Bureau of Reclamation is making a great contribution in enabling Americans to produce food and power to win the war.

The Yakima project is outstanding as an irrigation development producing food for our fighting men and hard-working civilian population.

From Grand Coulee Dam on the Columbia River, containing the second largest power plant in the world, is flowing electric energy for the manufacture of one-third of the war planes that are carrying victory in the air.

In the post-war program of the Bureau of Reclamation, the State of Washington has an even more vital place.

Our immediate goal is to be ready to complete irrigation and multiple-purpose water projects that will provide employment for many thousands of returning servicemen and demobilized war industrial workers. Work for as many as 25,000 men annually for five years can be forecast.

The irrigated area of the State would be tripled. Settlement opportunities will follow on irrigated land on projects that can be gotten under way quickly. These projects will provide homes for 20,000 to 25,000 farm families and will aid in stabilizing population and the economic life of the entire State.

The power developments made possible will insure the industrial future of the Pacific Northwest.

To bring this subject right home to the Yakima Valley--speedy completion of the Roza division and construction of the Kennewick division are listed. Additional storage for the Yakima project will insure permanently adequate irrigation supplies for the entire Yakima Valley.

And development of the great Columbia Basin project, including the Burbank area, will give Washington a new and flourishing area--an empire to which the State's eyes have been turned for many years. Outlined in western Washington is the Auburn unit of the Green-Puyallup project near Puget Sound. In all of these areas many of the sons and daughters of the State now in the armed services will be establishing new homes, and you may expect to see your grandchildren flourishing on prosperous irrigated farms.

Through further harnessing of the Columbia River, huge volumes of power will be wrested from this mighty stream--the State's greatest single resource. Power output from the Foster Creek development ultimately will rival that of Grand Coulee Dam.

Developments like the Columbia Basin and the Roza division of the Yakima project already are authorized under the Reclamation Law. Their completion awaits appropriations by the Congress which will permit rapid, orderly construction as soon as there is relaxation of material and manpower restrictions. The construction of additional projects will require authorization as well as funds.

The irrigation and hydroelectric power possibilities of Washington are by no means exhausted by the few projects I have mentioned. Nearly two score potential developments are listed by the Bureau for thorough study as quickly as project planning funds are provided so that we can extend Reclamation under a long-term program to assure full utilization of the water resources in every section of the State. Perhaps there are more. Ultimately Washington may look to an irrigated area of at least $2\frac{1}{2}$ million acres--four times the present area served by Federal and private systems.

Eight to twelve million horsepower of undeveloped water power, which is equivalent to six to nine million kilowatts of low cost hydroelectric installations, is further insurance for your State's industrial expansion. The ultimate capacity possible would be at least four times the present installations, including Grand Coulee Dam.

The Federal Reclamation program dovetails with objectives of the Washington State Reclamation Association, well stated by Yakima's distinguished editor, Mr. Thomas D. Potwin. He said:

"Our program is two-fold--first, to make the State articulate in speaking for water development; second, to correlate developments into a pattern so all sections will get equal benefits."

My chief, Mr. Harry W. Bashore, Commissioner of Reclamation, has asked me to say he truly regrets that he was unable to join you at this time. He has requested me to congratulate you for reviving the interest of the people of Washington in Reclamation and related developments, and to give you real assurance that the Bureau will cooperate with all of its facilities in helping you achieve your goals.

It is through State reclamation associations such as you are forming here today that the West voices its concern for the conservation and wise use of its water resources. These organizations in the 17 western states, by channeling their views through the National Reclamation Association, present a solid front in the National Capital 3,000 miles away.

The Washington Irrigation Institute through 32 years has served effectively in bringing the benefits of irrigation and reclamation to the attention of the people of the entire State. The Washington State Reclamation Association, accepting its responsibility, has a background of solid results on which to build.

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Although alphabetically Washington is next to the last of the 17 western states of the arid and semiarid West, the economic position of the State in the current and post-war programs of the Bureau of Reclamation is of especial significance. It will always remain in the forefront of our plans to secure the maximum use of the water resources.

This year Reclamation systems in 15 states are serving more than 4,000,000 irrigated acres which produced millions of tons of food and other agricultural products that have enabled the West to give far greater aid to the armed forces and provide more for the civilian population than if those acres had remained in sagebrush.

As the largest operator of power systems in the world, the Bureau of Reclamation this year is producing 15 billion kilowatt hours of energy from a total installed capacity of more than 2,300,000 kilowatts. The output, the major part of which energizes war industries, is as great as the output of the entire country thirty years ago at the beginning of World War I.

The development of multiple-purpose projects has been an engineering achievement in which the Bureau of Reclamation is proud to have played a leading part. The construction of projects which will insure the maximum utilization of the limited water resources of the West has laid the foundation for a post-war program through which the Bureau will make it possible for the West to serve the Nation in peace as it has by providing essential food and power for war. The three major steps in the program, which awaits the green light from the Congress, speaking for the people are:

First, new employment at the sites of project construction and in factories, mines and forests which furnish materials and supplies for construction.

Second, settlement opportunities on irrigated land for those of the younger generation who have fought their country's battles and are entitled to follow agricultural pursuits, if such is their choice. Inseparably linked with irrigation expansion is adequate power for manufacturing and extractive industries to balance the agricultural growth of the West.

Third, stabilization of the West to maintain an expanding home market for the products of all American factories and farms.

The Bureau of Reclamation believes that the West as a whole--and that includes the great State of Washington--is on the threshold of an even greater era than has brought this region its present prosperity. The immediate problem of the entire Nation is to win the war, and in so doing we are building for a new era of sound and rapid expansion in the region west of the 97th meridian.

In the 17 western states nearly 3,000,000 men will be demobilized from the armed services and war industries. The quota of the State of Washington in this number is about 300,000.

Commissioner Bashore in June of this year outlined to the Senate Committee on Post-War Economic Policy and Planning an inventory of authorized and potential Reclamation projects which could be welded into a public works program to combat unemployment and provide settlement on irrigated land for qualified returning servicemen and war industrial workers. Under this program more than 6,500,000 acres of new land would be served and about 9,700,000 acres, now inadequately irrigated, would be provided supplemental water. The place of the State of Washington in this inventory is as important as has been the contribution of Reclamation projects here to the prosecution of the war.

In the war activities the great Yakima reclamation project is a major contributor of food supplies to the armed forces and civilian population of the Pacific Northwest. The extension as a war measure of the irrigation service on the Roza division, on which we expect to be serving 32,000 acres next year, has been made possible by the vision, foresight, and perseverance of the people of this valley where sagebrush land has been transformed into productive acreage outranked by no other area in the world.

The Yakima Valley reflects the results of Reclamation in the highest degree. At the turn of the century, just before the Reclamation Law of 1902 was enacted, the population of four counties in which the irrigated area of the valley lies was less than 40,000. Today, with the Reclamation systems serving nearly 400,000 acres in this area, the population is more than 140,000, a gain of some 300 percent in less than half a century, compared with a gain of only 60 percent for the country as a whole in that period.

Although this valley has less than 10 percent of the cropped acreage of the entire State of Washington, the value of the agricultural crops it produced on its irrigated land is nearly 25 percent of the State's total. The crop values of nearly \$60,000,000 in 1943 from the Yakima areas served by the Reclamation system alone are about equal to the total value of the crop production on non-irrigated land in Washington in 1939, although less than one-tenth as much farm land was irrigated as was not under irrigation. The records of the agricultural census show that the value of crops harvested from irrigated land in Washington averages three times the value of those produced on non-irrigated land.

Economists tell us that for each dollar of agricultural income produced seven dollars is eventually added to the national income. This varies from year to year considerably, but may be taken as a rough measure. If one appraises the contribution of the Yakima reclamation project on this basis, one comes up with a figure of a quarter of a billion dollars annually added to national income by this project alone—an index of the widespread results through national purchasing power that flow from western irrigation. These figures are even more impressive when you consider that the total Federal investment in the Yakima project to June 30, 1944, was only \$36,394,000.

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In the 17 western states nearly 3,000,000 men will be demobilized from the armed services and war industries. The quota of the State of Washington in this number is about 300,000.

The completion of the Roza division to serve as quickly as possible the entire 70,000 acres in that area is our next goal. It is noteworthy that the construction of the gravity system of the Roza division under war conditions has moved forward despite the difficulties in obtaining materials and manpower. The crops produced under irrigation on what was recently raw land have come up to the highest expectations of the Bureau and the men who have insisted that it would make a substantial contribution to the prosecution of the war. As soon as there is a relaxation of materials and manpower, we will press for funds to construct the pumping system which will serve the remaining acreage of the Roza division.

The Kennewick division of some 30,000 acres has long offered a promising field for irrigation expansion in the Yakima Valley. The construction of the works necessary to serve this area is included in the Bureau's postwar program, but, of course, must await authorization and funds as does also the additional storage necessary to assure adequate water for existing and future irrigation in this valley.

Yakima's place as an outstanding irrigation development of national significance is secure.

The Columbia Basin project, through its key structure--Grand Coulee Dam--has in three years justified the confidence of the people of the Pacific Northwest in a multiple-purpose development of a magnitude that a few years ago might have staggered the imagination of a less far-seeing citizenship.

Grand Coulee Dam alone last year produced nearly three times as much power as was generated by all plants in Washington State in 1920. The output of nearly 6 billion kilowatt hours of hydroelectric energy made possible the tremendous expansion of war industries in the Pacific Northwest.

And this great structure will serve in peace as in war. It will store water for the greatest irrigation development yet undertaken in this country, and returns from the power development make financing of the irrigation system feasible.

With the example of the Yakima Valley before us, it is easy to envisage the great progress that will follow the delivery of irrigation water to a million acres of productive land within the Columbia Basin project in Adams, Franklin, and Grant counties. When fully developed the Columbia Basin project will provide farms for from 15,000 to 20,000 families who will be seeking opportunities to make a living from the fertile soil within the Columbia River Basin. These families will form the nucleus of a great development in the Pacific Northwest which will result in the establishment of new cities, towns, and villages, and contribute to the growth and expansion of the now thriving established communities like Yakima and Seattle.

Experience has shown--and I again point to the Yakima Valley as an example--that the productive effort of each family on an irrigated farm makes possible the activities of two additional families in nearby cities and towns. The merchants, the wholesalers, the processing plants, the service stations, and many other commercial and industrial enterprises far and near will benefit from the development of newly irrigated areas.

The Bureau of Reclamation plans to begin construction of the initial irrigation features as quickly as funds, material, and manpower are available. Work on the huge pumping plant and the balancing reservoirs can begin as soon as appropriations are made and war conditions permit huge construction undertakings of this character to start.

Contrary to the assumption in some quarters that there is some sort of a magic wand that can be waved in Washington to activate Reclamation construction, the people of the West have a part in every job. First, they must make their wishes known. In this instance, repayment contracts with the three irrigation districts of the Columbia Basin area are required before work can begin on the main canals and laterals which are necessary before water can be delivered for irrigation to start. Drafts of these contracts are now before the districts and, to place the Columbia Basin project in its proper place in a postwar program, negotiations must be expedited and the agreements voted on by the people and executed by the district.

Simultaneously with the contract procedure, the Bureau's program calls for a land purchase program to be financed by appropriations by the Congress which will permit the Secretary of the Interior to purchase land within the project area at the appraised price and re-sell it in family-size farms to settlers without profit. This land purchase program is directed particularly to the acquisition by the Government of land in excess of 160 acres which is the limit of single holdings under the Columbia Basin Project Act of 1943, which reauthorized the Columbia Basin project and outlined the legislative requirements which must be met before the irrigation development can become a reality.

High priority is given to the preparation of plans and specifications for the Columbia Basin project so that work can begin promptly when funds are available and restrictions removed. With adequate funds, materials and manpower, Regional Director Frank A. Banks, the man who built Grand Coulee Dam, estimates that the first irrigation water could be delivered through the canals and laterals in two years. Then settlement could begin.

The Bureau of Reclamation offers the Columbia Basin irrigation system, the completion of the Roza division of the Yakima project and other authorized developments as ready cushions for the transition from a war to a peace-time economy. Full speed ahead will be necessary to provide maximum employment for returning servicemen and demobilized industrial workers. A construction period of six to eight years for these projects would absorb 25,000 men annually at the peak of the program or an average of 15,000 to 20,000 a year. An equal number

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of workers, perhaps more, would be given employment in factories and other industries supplying materials and equipment to carry on these jobs, thus spreading the beneficial results of the construction to industrial centers in the East as well as the West.

Settlement on the newly watered land could proceed as rapidly as the irrigation systems were extended, for the job of Reclamation does not end with construction. The major objectives are the creation of family-size farms on which many self-reliant Americans will become self-sustaining, forming permanent communities which will continue to build up the West and contribute to national welfare through the development of low-cost power in multiple-purpose projects.

On this point, I quote Commissioner Bashore:

"It's a fine thing for the Bureau of Reclamation to build great dams, and canals and fine power plants, but we must see that they serve the people."

While preparing for construction work to meet early postwar requirements, the Bureau is constantly looking to additional irrigation, hydroelectric power, and other multiple-purpose projects in Washington to serve the people of the West. Feasible projects are being welded into a comprehensive long-term program. Many possibilities in Washington will be dealt with in the forthcoming basin-wide report the Bureau of Reclamation is preparing for the Columbia River. More detailed presentations on projects east and west of the Cascades depend on additional funds for project planning and manpower to carry on the field investigations and economic studies.

Now listed are nearly two score potential projects in your state, ranging from small developments that would stabilize local communities to more extensive undertakings which would revolutionize the agricultural economy of larger areas. Among the possibilities are the following:

Dayton Project (Walla Walla River): 2,500 acres of new lands and supplemental water supply for 6,000 acres in Columbia County and Walla Walla County.

Glenwood Project (Klickitat River): 13,000 acres of new lands and 7,000 acres to receive supplemental water in Klickitat County.

Jackson Prairie Project (Cowlitz River): 30,000 acres in Vancouver. The irrigable lands in Cowlitz County in southwestern part of the State.

Puyallup River: 16,000 acres in the Puget Sound area.

Chehalis River: 40,000 acres in the Grays Harbor area.

Nisqually River: Undetermined acreage in the Puget Sound area.

Nooksak River: 65,000 acres in Whatcom County.

Skagit River: 30,000 acres in Skagit County.

Stiliguamish River: 13,000 acres in Snohomish County.

Deer Creek: 21,000 acres in the Stilaguamish River basin in Skagit County.

Newaukum River: 14,000 acres in the Chehalis River basin in or near Lewis County.

Chelan River Basin: Harvard Flat, Knappa Coulee, Chelan Lake Pumping projects, in Chelan County, north central Washington.

Wenatchee River: Greater Wenatchee Irrigation District of 29,035 acres to be served by diversion from Wenatchee Lake in Central Washington, about 90 miles west of Coulee Dam.

Yakima River Basin: Through a transbasin diversion from Klickitat River, 30,000 acres in the Toppenish - Simcoe Unit -(Klickitat Division) would be served and also 4,000 acres along Atanum Creek would be given supplemental water supply. The proposed Moxee Division of the Yakima project is also a possibility.

Entiat River: Limited area in Chelan County in the area approximately midway between Lake Chelan and Wenatchee River.

Columbia River Reservoir Shore Lands: 15,000 acres that might be served by pumping from the Grand Coulee Dam reservoirs.

Foster Creek: 15,000 acres in or near Douglas County.

Horse Heaven Unit of the Umatilla Rapids Project: from 100,000 to 150,000 acres in south central Washington.

Curlew Lake and other areas on the Sanpoil River, Kettle River and Hall Creek in Ferry County.

Areas on the Okanogan and Methow Rivers and Nespelem Creek in Okanogan County.

Other irrigation potentialities are in the Skookumchuck, Satsop, and Wynoochee areas of the Chehalis Basin in western Washington.

Also in Washington are about 2,000 acres of the ultimate Rathdrum Prairie project, the first unit of which the Bureau will soon have under construction in Idaho.

Many of the irrigation developments on the main stem of the Columbia are dependent on the construction of great multiple-purpose projects involving power developments that have been the subject of studies by the Corps of Engineers in connection with its navigation and flood control investigations.

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Chelan River Basin: Harvard Flat, Knappa Coulee, Chelan Lake Pumping projects, in Chelan County, north central Washington.

Wenatchee River: Greater Wenatchee Irrigation District of 29,035 acres to be served by diversion from Wenatchee Lake in Central Washington, about 90 miles west of Coulee Dam.

Yakima River Basin: Through a transbasin diversion from Klickitat River, 30,000 acres in the Toppenish + Simcoe Unit -(Klickitat Division) would be served and also 4,000 acres along Atanum Creek would be given supplemental water supply. The proposed Moxee Division of the Yakima project is also a possibility.

Entiat River: Limited area in Chelan County in the area approximately midway between Lake Chelan and Wenatchee River.

Columbia River Reservoir Shore Lands: 15,000 acres that might be served by pumping from the Grand Coulee Dam reservoirs.

Foster Creek: 15,000 acres in or near Douglas County.

Horse Heaven Unit of the Umatilla Rapids Project: from 100,000 to 150,000 acres in south central Washington.

Curlew Lake and other areas on the Sanpoil River, Kettle River and Hall Creek in Ferry County.

Areas on the Okanogan and Methow Rivers and Nespelem Creek in Okanogan County.

Other irrigation potentialities are in the Skookumchuck, Satsop, and Wynoochee areas of the Chehalis Basin in western Washington.

Also in Washington are about 2,000 acres of the ultimate Rathdrum Prairie project, the first unit of which the Bureau will soon have under construction in Idaho.

Many of the irrigation developments on the main stem of the Columbia are dependent on the construction of great multiple-purpose projects involving power developments that have been the subject of studies by the Corps of Engineers in connection with its navigation and flood control investigations.

of workers, perhaps more, would be given employment in factories and other industries supplying materials and equipment to carry on these jobs, thus spreading the beneficial results of the construction to industrial centers in the East as well as the West.

Settlement on the newly watered land could proceed as rapidly as the irrigation systems were extended, for the job of Reclamation does not end with construction. The major objectives are the creation of family-size farms on which many self-reliant Americans will become self-sustaining, forming permanent communities which will continue to build up the West and contribute to national welfare through the development of low-cost power in multiple-purpose projects.

On this point, I quote Commissioner Bashore:

"It's a fine thing for the Bureau of Reclamation to build great dams, and canals and fine power plants, but we must see that they serve the people."

While preparing for construction work to meet early postwar requirements, the Bureau is constantly looking to additional irrigation, hydroelectric power, and other multiple-purpose projects in Washington to serve the people of the West. Feasible projects are being welded into a comprehensive long-term program. Many possibilities in Washington will be dealt with in the forthcoming basin-wide report the Bureau of Reclamation is preparing for the Columbia River. More detailed presentations on projects east and west of the Cascades depend on additional funds for project planning and manpower to carry on the field investigations and economic studies.

Now listed are nearly two score potential projects in your state, ranging from small developments that would stabilize local communities to more extensive undertakings which would revolutionize the agricultural economy of larger areas. Among the possibilities are the following:

Dayton Project (Walla Walla River): 2,500 acres of new lands and supplemental water supply for 6,000 acres in Columbia County and Walla Walla County.

Glenwood Project (Klickitat River): 13,000 acres of new lands and 7,000 acres to receive supplemental water in Klickitat County.

Jackson Prairie Project (Cowlitz River): 30,000 acres in Vancouver. The irrigable lands in Cowlitz County in southwestern part of the State.

Puyallup River: 16,000 acres in the Puget Sound area.

Chehalis River: 40,000 acres in the Grays Harbor area.

Nisqually River: Undetermined acreage in the Puget Sound area.

Nooksak River: 65,000 acres in Whatcom County.

The completion of the systems in the Bureau's postwar inventory will increase the irrigated acreage in Washington from about 600,000 to more than 1,800,000 acres. Potential projects, including those I have just listed, would make possible an ultimate irrigated area of nearly $2\frac{1}{2}$ million acres on both sides of the Cascades.

Linked with the future of irrigation in Washington is hydroelectric power development. The state has more undeveloped hydroelectric power than any other state in the union. About 12 million horsepower - about 9 million kilowatts - could be made available 50 percent of the time and more than $8\frac{1}{2}$ million horsepower - more than 6 million kilowatts - would be available 90 percent of the time. By taking advantage of the latent power in the streams of this state the present installed power capacity could be increased five to seven times.

Since 98 percent of Washington's power comes from your water resources, you have an incomparable asset that assures the industrial future of the Pacific Northwest. As in the case of the Columbia Basin Project where power will pay a substantial part of the irrigation costs, many of the potential irrigation developments in Washington depend on multiple-purpose projects where the costs could be allocated to irrigation, power, navigation, and flood control.

At Grand Coulee Dam is space for the eventual installation of more than a million additional kilowatts. Power, is also included in the plans for the Roza division of the Yakima Project. Other potential multiple-purpose projects, including Foster Creek, are Umatilla Rapids, Priest Rapids, Klickitat, and Z-Canyon, and The Dalles in the Columbia Basin, and developments on the St. Lagumish and Snoqualmie west of the Cascades. Including Grand Coulee, the additional power capacity outlined in these projects would absorb about half of the 6 million kilowatts that could be made available 90 percent of the time.

Irrigation expansion in Washington is essential to the immediate postwar needs of Washington. It is equally important to a permanent balance for the new industrial economy of Washington and the Pacific Northwest that has been given great impetus by power from Grand Coulee and Bonneville Dams. The recession from the wartime peak of employment in the industrial centers calls for sound measures to maintain the expanded population of this region.

The answer is in irrigation and related public works that will provide prompt employment during the reconversion period, permanent settlement opportunities on irrigated farms on their completion, and work in industries that are made possible by low-cost power from multiple-purpose projects.

The Bureau of Reclamation stands ready to cooperate with the Washington State Reclamation Association in achieving the maximum results that will come from full development of your State's water resources.