

The report estimates that there are about 3,000,000 acres of

The greatest region in the state in wh ch irrigation is at present

The lower levels of land in this section have, however, all been

A system to cover about 215,000 acres of the higher lands of this

reconnaissance has also been made during the past three months

west of North Yakima but as yet no definite plans have been adopted and no section of land made.

A very economical plan to irrigate 8,470 acres land north of the Columbia river in Douglas county by a gravity canal from Priest rapids thirty one miles in length, is now about to be accomplished. This, if successful, will be accomplished under the provisions of the act of 1897. The total estimated cost of this system is \$33,200 or \$4.15 per acre. Of this cost the sum of about \$3,000 cash will be necessary to expend for materials, supplies and engineering and the remaining \$30,000 being estimated for labor. If the present plans are successfully consummated the latter would require no cash outlay but be paid for entirely by land reclaimed. There is every reason to believe that this system will be completed and in successful operation within another year.

Another very promising immigration field comprises the land in the vicinity of Pasco. Surveys have been made to ascertain the possibility of watering certain of these lands by gravity from Snake river, and others by gravity from Yakima river by means of crossing the Columbia with submerged pipes...Yakima Herald, Dec. 22, 1898.

Irrigation:

Irrigation, as applied to the arid lands of Washington, was the subject of a paper prepared by C.R. Smith, engineer in charge of the Yakima Irrigating and Improvement company's works at Kiona and read at the monthly meeting of the Engineers and Architects recently at the society's rooms in the Northern Pacific headquarters building at Tacoma.

The paper deals with bunch grass plains or table lands which form the wheat belts known as the Big Bend, Palouse and Walla Walla district which Mr. Smith says have an elevation of 2,000 feet above sea and produce from 30 to 60 bushels of wheat and 75 bushels of oats to the acre and corresponding amounts of flax and barley.

The low lying sage brush regions contiguous to the streams and which in the state of nature become barren wastes of arid deserts each year during the summer, are treated to great length.

The Columbia and Snake rivers in Washington, he says, have no alluvial bottom lands such as are found along the Mississippi, Missouri and other rivers.

These latter, at their junction with the larger streams, have formed little deltas of made lands composed of a light sandy loam, having a disintegrated volcanic ash base, overlying bars of washed gravel. Such bars being sometimes cemented with clay or hard pan. These are the only irrigating tracts along the smaller streams and larger rivers proper, but each of these has its own tributary, valleys and feeders....Of this class of lands Kittitas county has probably some 400,000 acres, over three fourths of which lie in one body in the valley of the same name.

Yakima valley has 700,000 acres though at least half of it is yet unavailable being within the boundaries of the Simcoe Indian reservation. Walla Walla county, along the river of the same name, has 3000 acres that it is necessary to irrigate while along the Snake river in Walla Walla, Columbia, Asotin and Garfield counties there is

an aggregate of about 4000 acres strung out along on detached bars and plats ranging from 100 to 400 acres each.

There is also a small irrigation district at Columbus in Klickitat county, of say 1000 to 1500 acres. Franklin county, although possessing no land low enough to profitably irrigate from gravity ditches has recently formed, under our new state law known as the Cleman bill, an irrigation district of 19,000 acres, surrounding Pasco and lying between the Columbia and Snake rivers, at their junction which it is proposed to cover with water pumped from the Snake river to an elevation of 110 feet. Also, there is along the bank of the Columbia river, between the Snake and the Walla Walla rivers, an additional strip of some 8,000 acres which can readily be redeemed in the same way.

Of the 1,250,000 irrigable acres referred to by Mr. Smith, he says not to exceed 150,000 have been redeemed at present. Probably there is an actual cultivation of not more than 75,000 acres now under water and susceptible to cultivation. Mr. Smith divides thus:

Kittitas valley, 50,000 acres, with an average elevation of 1500 to 1800 feet above sea level. Products mostly grain, vegetables, and hay and possessing a few fine apple orchards.

Wenatchie valley, 5,000 acres altitude 600 to 800 feet. Products mostly grapes, peaches, corn.

Yakima valley proper together with its various prolongations, the Cowlitz, Natchez, Moxee, etc. 90,000 acres at from 900 to 1200 feet where are raised hops, grapes, peaches, sweet potatoes, Indian corn, broom corn, sorghum, tobacco, all the various grains, grasses and vegetables.

Walla Walla valley, 3000 acres with about the same elevation and variety of products as Yakima.

Along the Snake river, 1000 acres, altitude 500 feet, devoted to peaches.

Reclamation

In his report to the governor filed last week, Arid Land Commissioner Howlett says:

The most inviting field for the work for which my office was created I found to be in that part of Yakima county lying between the Yakima and Columbia rivers and above the great Sunnyside canal.

In June, 1895, was commenced the work of running a line for a canal 150 miles in length and land lying thereunder susceptible of irrigation was examined and out of the vacant even sections there were selected 85,566.97 acres of excellent lands which has been withdrawn from the public domain.

Lying in the townships containing these sections are other lands selected by the state for the benefit of the various institutions granted by the enabling act; also the regular school sections. These lands will ever remain valueless until reclaimed by irrigation and they add an acreage of about 30,000 to the ones given above.

Abundant water for this immense acreage can be had from the Natchez river reinforced by a series of reservoirs.

The faults in the federal statutes became more and more apparent as one attempt after another failed to secure contracts for construction of irrigation works.

The monetary depression was largely responsible, but not wholly. By the term of the federal and state laws the land itself may be made the basis of security for the cost of building canals, reservoirs, flumes etc.

The security was faulty in the matter of obtaining title. After correspondence with commissioners in other states where the conditions were identical a combined effort was made and the matter laid before congress.

Washington, Idaho, Montana and Wyoming were before the arid land committee by their commissioners and a modification was secured. A comparison of the former act with the amendment shows the advantage gained in the matter of making the land available as security without waiting for the

building of lateral canals, or the actual reclamation and sale of the lands in detail before patent can issue to the state.

There is a strong sentiment in favor of giving the de ert lands outright to the state in which they lie and such a measure will be urged upon congress at the coming session.

The cost of selecting the lands withdrawn up to this time is \$7,035; value of land at 75 cents per acre, the lowest price at which it can be sold is \$64,175.23; value of the land with cost of irrigation added, \$641,752.30. The expenses of the commission, to date, are as follows:

Salary of commissioner, \$2,716.53; office rent \$200; clerk hire \$1,165; salary of engineer, \$717; expenses of United States land office filings \$1,115; expenses of furnishing office, \$117.75; stationery and supplies \$135; traveling expenses \$317; total \$7, 035.29.

So far too only the lands most easily and cheaply irrigated have been withdrawn. Yet this acreage will, when watered, support 8,500 families. Surveys, estimates and maps preliminary to a withdrawal, of about 3,000 acres of land on Crab creek have been made and are now pending before the United States general land office.

Other lands in the state may be added to the withdrawals sufficient to bring the total acreage to the possible million conditionally granted, though at a greater cost for surveys and reclamation; These are notably lands lying in Franklin and Adams counties in Lincoln and southern Douglas counties and in Okanogan. Possible means of reclaiming these lands and rendering them profitably habitable have been considered.

It is the opinion of the commissioner that in the interest of economy it is to the state's interests to first contract for reclaiming the lands already selected, and steps looking to this and the colonization of these lands have already been taken with reasonable hope for success within the coming year-Herald, Dec. 3, 1896.

Washington, August 13--Chief Statistician I.G. Powes has transmitted to the director of the census a report of irrigation in the state of Washington for 1902.

Irrigation in Washington is confined practically to the territory east of the Cascade mountains which ranging north and south divide the state into two parts.

Beside the ditches actually operated in 1902 there are a number of ditches some of them covering extensive areas, which did not carry water until 1903.

In 1899 the number of irrigators in Washington was 3,513; and the number of acres irrigated 135,470. The figures for 1902 are respectively 4,585 and 154,962. The cost of irrigation systems in operation was in 1898 \$1,679,319 and in 1902 \$2,330,758. The total length of the main ditches in 1902 was 1,095 miles--The Yakima Herald, August 19, 1903.

...Nearly four-fifths of the irrigated acreage of Washington and nearly one half of the irrigated farms are found in the Yakima valley. The Yakima river has its source in Keechelus lake on the eastern slope of the Cascade mountains in Kittitas county, and flows through Kittitas and Yakima counties joining the Columbia near Kiona.

There has been since 1899 important development in irrigation systems in the Yakima valley.

Two large canals have been constructed and the older systems have been extended.

The total number of farms irrigated in 1902 from the Yakima river and its tributaries and from springs and wells in the Yakima valley was 2,505 and the area irrigated 121,705 acres. There were operated 255 irrigation systems which cost

\$1,968,555, or a cost of \$16.17 per acre irrigated. The total length of main ditches was 618 miles. More than half of the irrigated area in the valley is water from the Yakima river direct. The principal tributary of the Yakima river is the Natches river which in 1902 supplied water to 575 farms having an irrigated area of 20,232 acres. Irrigation between the mouth of the Okanogan river and the mouth of the Yakima river is practiced chiefly for fruit growing.

In 1902 there were 500 irrigated farms having an irrigated area of 14,378 acres. The irrigation systems numbered 189 in number, cost \$169,364 or an average initial cost of construction of \$11.71 per acre irrigated. There were 200 miles of main ditches. About half the irrigated farms in this division are watered from the Wenatchee river and its tributaries. In 1902 253 farms having an irrigated area of 3,285 acres were watered from this stream. There were in operation 34 irrigation systems which cost \$95,755.

While the percentage of increase of irrigation from the Okanogan river and tributaries since 1902 has been small. There were in 1902 62 irrigated farms and a watered area of 2,237 acres. The 45 irrigation systems in operation cost \$12,374 or an average first cost of \$5.48 per acre. Total length of main ditches was 34 miles. Most of the land is watered from the Similkameen river and Conconnully creek and their tributaries.

There is very little irrigation in Washington from the Columbia river and its tributaries above the mouth of the Okanogan. In 1902 there were 126 irrigated farms with an average area of 18.9 acres and 78 irrigation systems representing a construction cost of \$14,369 or an average of \$6.05 an acre. In 1902 there were 92 irrigated farms in Western Washington with an area of 1,025, 16 systems, cost of \$11,245, average of \$10.97 per acre, 17 miles ditches.

Aug. 26, 1903.

Washington, March 2-A conclusion that the proposed Columbia Basin project in Washington and Oregon physically is feasible and that attention should be focused upon the factors which will determine the financial feasibility was contained in a report of the special board of engineers made public by the interior department yesterday.

The total cost of the favored plan is estimated at \$193,359,595 or \$158 per acre and the initial expenditure to irrigate the first lands at ~~\$4~~ \$54,000,000.

Listing five basic irrigation schemes under consideration the engineers declared the most desirable ~~one~~ involved 1,224,000 acres, 80 per cent of which is Class A land and utilized both the Spokane river and the Pend O'Reille (copy) river for the water supply.

The engineers' findings are being studied by the Columbia Basin project commission composed of Elwood Mead and Francis M. Goodwin. The latter's final report will be submitted to Secretary Work who will forward it to congress if ~~he~~ meets with his approval.

Settlement: the possibility of growing diversified crops ; climate, transportation to eastern and foreign markets ; farm credits and the elimination of land speculation are discussed in the report of the examining board consisting of Louis C. Hill , Joseph Jacobs, Charles H. Locher, Richard R. Lyman, Arthur J. Turner and C.L. Walker.

A summary of the board's conclusions follows:

That there is included in the maximum project which can be served from the Spokane and Pend O'Reille rivers or from Pend O'Reille alone 1,650,000 acres of gravity and 233,000 acres within a 100-foot pumping life making a total reclamation area available of 1,883,000 acres.

"That while the construction cost per acre is high there is no engineering feature out of the ordinary ~~concerned~~ except the size of the canals.

"That the high cost per acre of the Columbia river pumping projects, the fact that they involve a permanent loss to agriculture of about 350,000 acres of the best lands and the greater initial expenditure required makes them less attractive than the gravity projects.

"That the state should assume its proper share of the responsibility for collecting payments from the settlers and also should bear its proper share of losses, if any, incident to the development of the project.

"The 1,224,000 acre project, 80 per cent is classed as land and utilizing both the Spokane and the Pen o'Reille river as its water supply source, is the most desirable of the projects."

It was estimated by the ~~g~~000 engineers that the net capital required of a settler on the proposed project will range from \$2,500 to \$4,500 to commence operations. A study of various factors connected with the settlement led the board to fix five years as the maximum time in which the entire irrigable area would be settled by farmers and the land under cultivation.

"A carefully worked out schedule of farm operations" the board states," indicates that an 80-acre farm in the more favorably situated lands of the project will at the end of the fifth year return a gross annual revenue of \$4,100 of which \$1,000 would be available for debt reduction."

The board pointed out that the price per acre cost of the pumping plants which provide for pumping water directly out of the Columbia river in addition to the fact that 350,000 acres of the best land cannot be reached by canals, makes them less attractive than ~~gravity~~ the gravity plan.

reclamation
Among the important dams with which he has been connected at the
F.T. Crowe, who has been engineer in charge of construction
of the great earth-fill dam at Rimrock will on July 1 move to
Denver and become general superintendent of construction for the reclama-
tion service. Mr. Crowe is receiving a substantial promotion in recognition
of his successful construction work for the service
with which he has been connected since April, 1905 1904. During this
time he has been engineer in charge of the construction of six dams and
has been connected in a supervisory capacity with the work on two
others.

Mr. Crowe succeeds to the position now held by James Munn who has
resigned to become connected with A.P. Davis, former chief of the reclama-
tion service at Oakland, it is understood. Mr. Davis has been
engaged in engineering work at the California city since he
left the service and recently asked Mr. Munn to
become associated with him.

When F.E. Weymouth, chief engineer of the service asked Mr. Crowe
to become general superintendent of construction which is considered
next to the highest engineering position in the reclamation service
the Yakima man wanted permission to finish the dirt work at
Rimrock first. That will be done in June according to the schedule
worked out.

When R.K. Tiffany and Guy Finley and the rest of the reclamation
engineers bragged about Yakima I used to laugh at them, Crowe confesses.
I told them they were foolish to get so anchored to a place. Now I feel
just as they do. I tell you after having lived in construction
camps and little towns for some years, Yakima certainly does look
mighty good and I would like to make my home here.

In his new position Crowe will spend about half of his time at the
Denver headquarters and for the rest will be on the road examining
the various construction jobs being done for Uncle Sam.

Among the important dams with which he has been connected at the Arrowrock and Jackson Lake dams--The Yakima Daily Republic, May 10, 1924.

of his successful construction work for the service with which he has been connected since April, 1909. During this time he has been an engineer in charge of the construction of six dams and has been connected in a supervisory capacity with the work on two others.

Mr. Grove succeeds to the position now held by James H. Hahn who has resigned to become connected with A. P. Davis, former chief of the reclamation service at Oakland. It is understood that Davis has been engaged in engineering work at the California city since he left the service and recently asked Mr. Hahn to come associated with him.

When E. W. Weymouth, chief engineer of the service asked Mr. Grove to become general superintendent of construction which is considered next to the highest engineering position in the reclamation service the Yakima man wanted permission to finish the dirt work at Arrowrock first. That will be done in June according to the schedule worked out.

When H. K. Tiffany and Guy Finley and the rest of the reclamation engineers bragged about Yakima I used to laugh at them, Grove confesses. I told them they were foolish to get so anchored to a place. Now I feel just as they do. I tell you after having lived in construction camps and little towns for some years, Yakima certainly does look mighty good and I would like to make my home here.

I his new position Grove will spend about half of his time at the Denver headquarters and for the rest will be on the road examining the various construction jobs being done for Uncle Sam.

Indians

[Box 41 Yakima Indian - Reservat.]

Irrigation

Agent Jay Lynch was over from the Yakima Reservatin Monday and when approached by a Herald representative regarding the attitude in the controversy between Indians and the N.P. Yakima and K. Irrigation Co. as to the taking of water from the Yakima river for irrigation purposes said in effect that he had simply stated the fact to the department at the request of the Commissioner of Indian affairs, and had made no recommendation except in one particular.

He thought that the matter of appropriation of water from streams that bounded the reservation would become a serious question in time and one which would effect this entire country.

According to the treaty of 1855 the Indians were ceded the exclusive right to the fishing in the reservation boundary streams which included the Ahtanum and the Yakima, but nothing was said about irrigation nor was the subject of irrigation considered at that time. Since then it has grown to be of vital importance and the water has come to be considered the life of the country.

In the opinion of Mr. Lynch the settlers along the Ahtanum have no rights to the waters of that stream and he says he has instructions to prosecute all who violate the treaty obligations; but while the appropriation of the water for irrigation purposes have practically left the main stream of the Ahtanum dry during the irrigation season, Mr. Lynch recognizes that to enforce the strict letter of the treaty in this respect would practically ruin the farmers along the creek, and he has in consequence taken no action.

In his opinion the proper solution of the question would be the making of another treaty and the purchase by the government of the water franchise from the Indians .

Indians

On Friday afternoon of last week in response to the request of Paul Schulze, a meeting of citizens was called in the rooms of the Yakima club for the purpose of taking some action regarding the objections

which had arisen in the Indian department in respect to the dam which the N.P.Y. and K Irrigation Co; has constructed across the Yakima river.

Fred R. Reed occupied the chair.

Mr. Schulze outlined plans of the company he represents. He stated that many difficulties had been encountered and obstacles placed in their way, one of which was the attitude of Indian Agent Lynch regarding the company's dam and the appropriation of water from Yakima river. He said he had copies of the agent's letter in which the official had taken a position against their projects and endeavored to cause them trouble at Washington.

Speeches were also made by A.N. Fitch of Tacoma and R.K. Nichols of this city. Following is a copy of Agent Lynch's letter which Schulze referred to:

Yakima agency, Fort Simcoe, Wash, Oct. 31, 1891:

Hon Commissioner of Indian affairs.

Sir: IN reply to yours land 37084 1891 36566,
I mail you in separate package a plan of the dam now in the course of construction across the Yakima river which was made at my request by the engineer in charge of the work; also this letter in regard to the matter. After examination perhaps it would be well to return the same or a copy, to this office.

I have examined the work being done and proposed. I don't think the dam, if built on the plan submitted and described in letter of chief engineer, will seriously interfere with the rights of the Indians

Indians-Irrigation

One of the articles of agreement, purchasing the Wenatchee fishery provides that the Indians shall decide in council how the money shall be expended.

When the sale had been ratified by congress I was instructed by the commissioner to call the Indians together in council to decide how the money should be expended. This I did and it brought forth one of the largest councils I ever saw; so many were present they could not be accommodated in the council chamber and it was necessary to use the school building.

In the presence of Inspector McCormick who was here at the time the Indians decided after mature deliberation that the money should be expended in irrigation. This decision was reached and reported to Washington more than 14 months ago and not a word of dissatisfaction was heard so far as I know for 13 months after and not until the matter had passed both the Indian and interior departments and I was instructed to proceed with the work.

It is claimed that I purposed to bring the water out of the river opposite or near Toppenish. This is untrue. I propose to take the water out 12 or 13 miles above Toppenish in township 28 above the dam of the Sunnyside Ditch company and only two miles from the gap. It is also claimed that dissatisfaction exists because I did not propose bringing the water out at the gap. This is impossible for congress has passed a bill granting the Columbia irrigating company the right to build an irrigating canal a half mile below the gap. They have filed their map of definite location and it has been approved by the interior department, therefore it was impossible for me to conform to the wishes in locating at this particular point. I did the next best thing I could. I went 11-2 miles ^{within} of this location, just as near as I dared to go.

at so much per acre which if accepted would have amounted to about \$35,000. On Dec. 23, 1893 the honorable commission wired:

"Impress upon the Indians that congress will pay no unreasonable sum for the extinguishment of their title to lands in question. Make the best terms you can in reason and justice to the Indians and the government and agree upon a lump sum instead of a certain price per acre. If agreement is not satisfactory, of course congress will not ratify same. The price the Indians name is out of the question and would not be recommended by this office."

We then submitted a proposition of \$20,000, double the amount suggested by the honorable commissioner.

Any fair minded man can see that instead of swindling the Indians I was endeavoring to make the very best trade I could for them.

In discussing the injustice of not paying this money to the Indians in cash, it should be remembered that double this amount is expended upon the reservation every year. It costs the government more than \$3,000 a month to run this reservation and to pay the 42 white and Indian employes. It must also be remembered that this is gratuitous on the part of the government for they have fulfilled their treaty obligations with those Indians 15 years ago.

The treaty provided that schools, shops and certain annuities would be allowed for a period of twenty years. This twenty years expired long ago, but through the recommendation of agents the government has continued to maintain the schools and help these Indians in many ways. Their children from the ages of 6 to 13 are clothed and fed and educated free of charge. Their horses are shod, their wagons, plows and harness repaired by the blacksmith, carpenter and harness maker free of charge, their grain is ground, lumber sawed and dozens of articles too numerous to mention are given them free of charge.

Yakima Reservation

Reservation--Irrigation

Work is progressing rapidly on the reservation ditch. There are now about thirty teams and seventh men employed and there have been many more applications for employment both by Indians and whites.

Among the former are several who were at first opposed to construction of the ditch under the incitement of the attorneys interested but who now realize that Agent Erwin while acting under the instructions of the department was also looking to their future welfare.

Business men and citizens now recognize that the recent attacks on the agent were utterly without foundation and uncalled for. The attorneys who have been working on the contest applied last week to Judge Hanford for an injunction but evidently failed as no such order has been made by the federal court--Yakima Herald, June 2, 1896.

Judge Hanford has issued an order temporarily restraining Agent Irwin from building the reservation ditch. The order was a surprise to Mr. Irwin and to local attorneys who believe it was secured through misrepresentation and misapprehension on the part of Judge Hanford. The hearing has been set for June 15 at Seattle where Agent Irwin has gone with the necessary documents showing his authority for the work from the Indian department--Yakima Herald, June 6, 1896.

Reservation-Irrigation

Judge Erwin returned on Wednesday from Seattle where he was called to make answer in the injunction case to restrain him from continuing the work of constructing the reservation irrigation ditch. The commissioner of the general land office and the secretary of the interior had previously decided in his favor and now the federal court has told the obstructionists that they have no standing. This. c
Yakima Herald, June 18, 1896.

Five dissatisfied Indians yesterday figured in the United States court as applicants for an injunction to prevent the Indian agent of the Yakima reservation from expending \$20,000 for the construction of an irrigation canal, but Judge Hanford denied the applications.

Several years ago the government purchased a fishery from the tribes comprising the Yakima nation, paying therefor \$20,000. The terms of the purchase were such that the money was to be expended in such manner as the general council of the nation should deem best.

A general council was held in March, 1895, and it was there determined that the money be expended in cutting an irrigation canal some 25 miles long. The various tribes were well represented in the council and it was generally considered that a wise conclusion had been reached, inasmuch as the Indian holdings would be much enhanced in value by the construction of such a canal while at the same time the terms of the work were such that every cent of the money was to be paid to the Indians themselves for work and the entire amount would thus ultimately find its way back into their hands. It was estimated that the canal would render cultivable between 20,000 and 30,000 acres of land.

The petitioners however, urged on it would seem by their attorneys, determined for some reason to oppose the canal.

Reservation-Canal

The act passed by the house of representatives and amended by the senate authorizes the president to appoint a commission of three, not more than two of whom shall be of the same political party and not more than one of whom shall be a resident of any one state, to negotiate with the Yakima Indians for a surrender of a portion of their reservation lands, and for such modification of existing treaties as may be deemed desirable, such agreement being subject to subsequent ratification by congress. For this purpose \$6,000 is appropriated.

The act also provides for an extension of two years from July 24th, 1896 for the completion of the irrigation canal authorized under the act granting to the Columbia Irrigation company a right of way through the Yakima Indian reservation--Yakima Herald, June 25, 1896.

Reservation--Irrigation

Three miles of the reservation ditch have been completed and this week the main camp will be moved to a point five miles beyond the present camp.

A well-boring machine has been taken there to sink for water--
Yakima Herald , August 6, 1896.

Agent Erwin, Clerk Banks and Engineer Kingsbury were in Sunday from the reservation ditch where the payment of \$2,800 on the July roll had just been made.

The main ditch is now completed for a distance of eight miles and lumber is on the ground for the building of the headgates, when water will be turned in.

Another ditch , the intake of which is a few miles west of Toppenish, has also been started. This was decided upon in lieu of one of the main laterals. It will be four miles long and will water 4,000 acres of choice land--Yakima Herald, September 10, 1896.