

ROUTE OF THE CELILO CANAL TO OPEN THE UPPER COLUMBIA

The problem of overcoming the obstacles to the navigation of the Columbia river at and immediately below Celilo falls, has been under consideration by the national government for 30 years. As early as 1874 Major Michler of the government engineers made an investigation and reported upon the subject, though no specific plans or recommendations were submitted by him. A more complete survey was made by Major Powell in 1879, who recommended that the Columbia be improved and made navigable up to the Celilo falls and that a canal be constructed around the falls on the Washington side of the river. This was the first definite project that was submitted for the consideration of the government, but the estimated cost was \$10,000,000, and this was regarded as prohibitive.

For several years nothing more was done, but in 1888 the government engineers began to investigate the feasibility of a boat railway around the falls, on the southern side of the river. A favorably report was submitted two years later, the cost of the undertaking being estimated at \$3,000,000. Congress appropriated \$100,000 in 1894 to commence work on the railway, and in 1896 a second appropriation of \$150,000 was made. The task of obtaining a right of way for the boat railway was attended with considerable difficulty. No particular trouble was experienced with the O. R. & N. railroad, but a number of private individuals who owned property which would be required by the government refused to sell except at exorbitant figures. Contention suits were accordingly instituted and they were tried before Judge Bellinger in this city. The first trial of these suits resulted in very heavy verdicts for the property-owners, which were set aside by the court as excessive. On the second trial the awards were much more reasonable. These proceedings came to nothing, however, for the plan of building a boat railway was superseded. In 1890, by the Harts' project, which was a return to the idea of making the river navigable for a considerable portion of the distance from the foot of Celilo falls. The Harts' plan contemplated the construction of two short canals, one about

to make an entirely new investigation of the subject, and a board of skilled engineers was appointed July 5, 1902, to make new and complete surveys and to make plans for a canal. This board consisted of Lieut.-Col. William H. Heuer of San Francisco, Maj. W. L. Marshall of New York, Maj. Edward Burr of Washington, D. C., Capt. C. E. Gillette of Newport, R. I., and Capt. Charles McKinstry of Washington, D. C. All of the members of the board are men who have won distinction in the engineering profession. It was under the direction of this board that the plans were prepared for the canal which the government is now expected to build.

It was at first supposed that a continuous canal could not be built for less than \$20,000,000, but careful study of the situation convinced the board that by taking advantage of natural channels and depressions in the rocks a canal could be built on the south side of the river for approximately one-half of the cost originally anticipated. Under the direction of Maj. W. C. Langfitt new surveys were made and plans were prepared for a continuous canal about 5 1/2 miles in length, extending from a point immediately above Celilo falls to the big eddy, Major Langfitt also prepared an estimate of the cost of the canal, which he placed at \$4,121,331.

The plans, surveys and estimates prepared by Major Langfitt and his engineers were submitted to the special board of engineers, and after careful consideration were approved. The board presented a report recommending the construction of the canal and setting forth plans and estimates. This report, after receiving the indorsement of the chief engineer, was approved by the secretary of war November 6, 1902.

The board recommended that the construction of the canal should not be commenced until the right of way and release from damages had been conveyed to the government free of cost.

The plans thus prepared and approved for a canal 5 1/2 miles long and having a depth of eight feet except in the locks, where the depth over the miter sills will be



THE DALLES OF THE COLUMBIA. 150 FEET IN WIDTH AT PRESENT STAGE OF WATER AND 180 FEET IN DEPTH. Copyright, 1903, by Kiser Bros.

The number of owners with whom the state must deal in obtaining the right of way is small. In three places the main opposition for the canal encroaches upon the right of way of the O. R. & N., but nowhere does it cross the company's tracks. The other owners through whose property the canal must pass are Seefert brothers of The Dalles, four miles; William Mitchell and Joseph Smith of The Dalles, one-half mile; J. H. Taffs of Celilo, one-half mile, and Everding & Farrell of Portland, three and one-half miles.

Most of the land owned by these individuals would be of little value were it not for the salmon fishing. Fish-wards and canneries have been erected at several points and these now have easy communication with the O. R. & N., over which they make their shipments. The government proposes, however, to erect movable bridges over the canal wherever necessary, so there would be no serious interruption to business of this character. There may be some difficulty in reaching an adjustment with these owners, who are inclined to place a high value upon their holdings. The state may be obliged to resort to condemnation suits in order to secure the desired right of way.

Governor Chamberlain has expressed the belief that the cost of the right of way should not exceed \$50,000, at most, or one-half the sum appropriated by the legislature. The governor and his associates will do their utmost to make the expenditure as small as possible.

The commencement of work on the canal of course awaits the procuring of the right of way by the state and the conveyance to the national government. When this shall have been accomplished, the government engineers will at once begin the preparation of detailed plans and specifications. These will be prepared under the direction of Major Langfitt. It will then be necessary to advertise for bids. When the contracts have been approved and awarded, everything will be in readiness for active work. These preliminaries would probably occupy at least three or four months.

There is now \$200,000 in the United



VIEW OF RIVER SHOWING MOUTH OF THE DALLES OF THE COLUMBIA AND FISH WHEEL WHICH IS OPERATED ONLY DURING HIGH WATER. Photograph by Kiser Bros.

three-quarters of a mile in length, with two locks, on the Washington side of the river, starting from a point just above Celilo falls and striking the river just below them. The second canal was to be about one mile in length, on the Oregon side, and was to run from just above Five-mile rapids to the big eddy. Between these two canals the river was to be made navigable, and in order to raise the water and lessen the current it was proposed that a dam should be constructed across the river at Five-mile rapids. This was one of the great difficulties of the project, for the river at this point pours through a narrow gorge with almost incredible force and swiftness. So rapid is the current that it was impossible to determine the depth of the river in the usual way—by a plumb line—and special apparatus had to be constructed for the purpose. This showed a depth of about 180 feet. It was expected that the proposed dam would raise the water about 20 feet immediately above the dam, and would render navigation practicable up to Celilo falls. The plan also included the improvement of the river below the outlet of the lower canal and through Three-mile rapids.

But the Harts' project was not regarded as entirely satisfactory. The engineering difficulties of constructing a dam at Five-mile rapids were very great, and in the opinion of many engineers the plan of utilizing a part of the river for the proposed waterway would be less satisfactory than a canal, where the water surface would be level and the current slight. The estimated cost of the Harts' project was somewhat less than \$4,000,000, and the unexpended balance of the boat railway appropriations was made available for the commencement of the work.

The objections urged against the Harts' project finally induced the government

seven feet. This depth of water will be ample and is more than the draft of any boat now running up the river as far as the Dalles.

The upper terminus of the canal is to be just above Celilo falls, where the first of the four locks will be placed. This lock will have a lift of 17 feet, which will be sufficient to pass boats between the river and the canal until the limit of navigation is reached. From its upper terminus the canal will run westward toward the river and the O. R. & N. railroad, without interruption to the flow of water until the second lock is reached just below the head of Five-mile rapids. This lock will have a lift of 11 feet. The lower terminus of the canal will be just below the big eddy and will be equipped with a tandem or double lock, which is really two locks in one. Their combined lift, at times of extreme low water, will be 69 feet, or 34 1/2 feet for each lock. Below the terminus of the canal the river will be improved and rendered navigable as contemplated in the Harts' project. This will of course include the improvement of Three-mile rapids.

Each of the four locks will be 40 feet wide and of sufficient length to accommodate boats 250 feet long. In order to permit the passage through the canal of vessels going in opposite directions, a series of basins will be constructed at intervals of one mile, each from 100 to 120 feet in width.

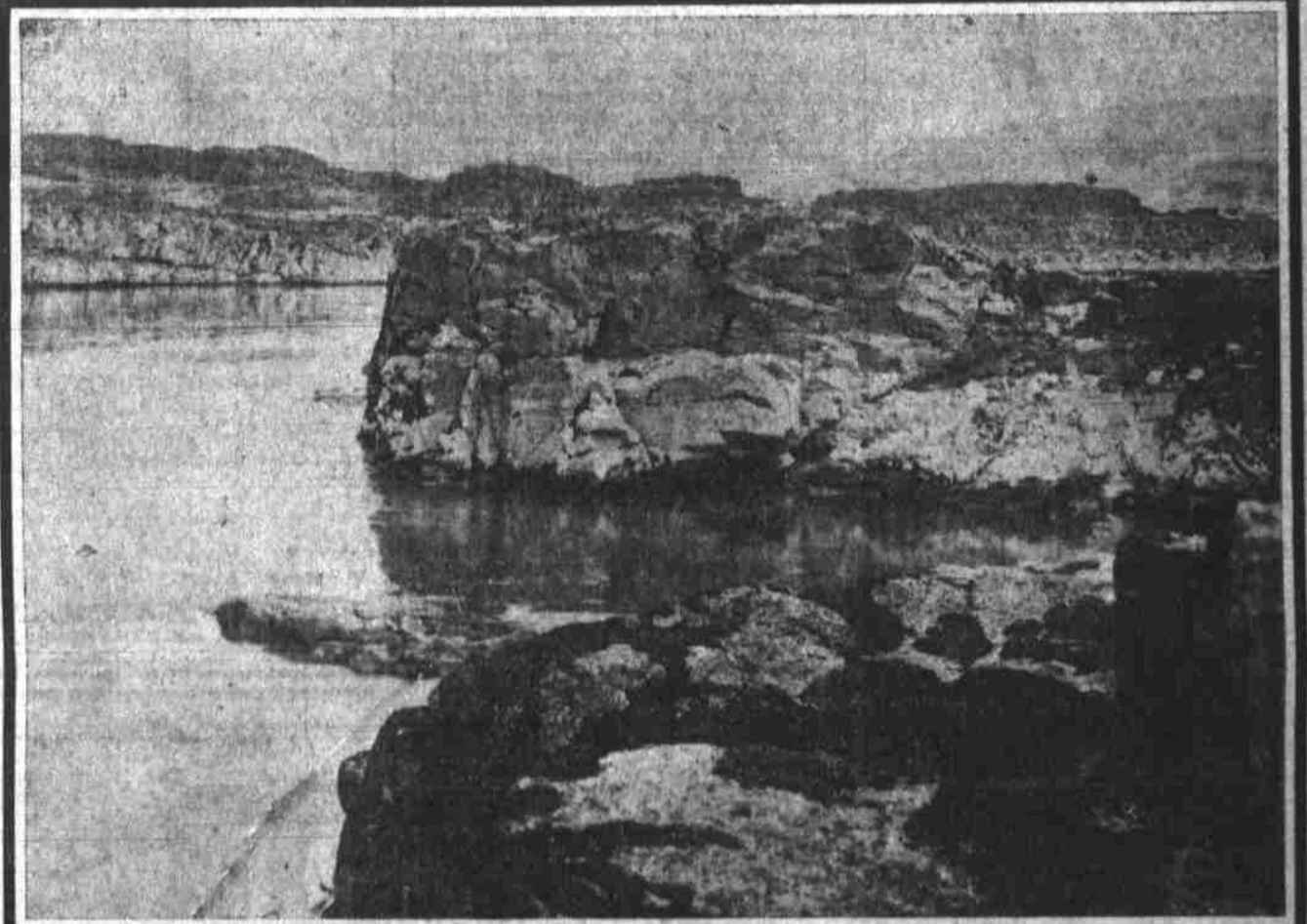
For about five and one-half miles the canal will be cut through solid rock. For three miles it will pass through sand and gravel, and this portion of the canal will be lined with walls of heavy masonry and the bottom will be covered with concrete.

One of the problems to be solved is how to keep the canal free from deposits of sand and sediment. For a consider-

able distance the canal will run through a waste of shifting sands, which, if uncontrolled, would rapidly fill the waterway. It has been suggested that by constant irrigation vegetation might be induced to grow upon this tract, and the drifting of the sand might be effectually stopped. This plan will probably be tried. For the purpose of sluicing the canal two large openings, closed with steel gates, are to be provided on the side toward the river. It may be necessary, in addition, to provide a small dredging apparatus, but this will be decided later.

It is admitted by the government engineers that there may be periods of extreme high water when the canal will be flooded and when travel will be impossible. But it is expected that whenever it is possible for boats to get through Cascade locks they will be able to pass through the canal. The canal will therefore meet all the requirements of river navigation, and will suffer less from floods than any other form of improvement yet suggested.

When the secretary of war approved the plans submitted by the board of engineers, he ordered that the work should proceed "subject to the condition that no work shall be begun until the right of way and release from damages shall have been conveyed to the United States free of cost." It became incumbent upon the state of Oregon to see that this condition was performed, in order that the canal might be built. Fortunately the legislature was to meet in special session in December, and steps were at once taken to insure proper action. The result was the passage of a bill by the Oregon legislature, appropriating the sum of \$100,000 for the purchase of the right of way for the canal and for the settlement of all claims of damages. The governor, the secretary of state and the state treasurer were constituted a commission to carry out the provisions of the act. They are already actively engaged in this work.



THREE-MILE POINT LOOKING UP STREAM. Photograph by Kiser Bros.



VIEW FROM PICTURE CLIFF SHOWING WEST END OF CANAL AND PORTAGE RAILROAD (IN THE BEND OF RIVER). Photograph by Kiser Bros.

States treasury, available for expenditure upon the canal, and the government engineer is authorized to make contracts for \$100,000 more, making a total of \$300,000. Before any large contracts are let a further appropriation by congress will be necessary.

Probably the first work to be undertaken would be the improvement of Three-mile rapids, just below the lower outlet of the canal. Obstructions must be removed and the channel must be straightened and deepened. When work is finally commenced upon the canal proper, operations will probably be carried on at several points simultaneously. It is estimated that the canal can be completed in five years, provided adequate appropriations are promptly made by congress.

The benefits that will result from the

construction of the canal can scarcely be overestimated. Oregon's dream of an open river will at last be realized. The great Inland Empire will have a free waterway to the sea and will have a perpetual guaranty of transportation of its products at reasonable rates.

Nor will Oregon be the sole beneficiary of the canal. Washington and Idaho will share in the advantages which it will confer. The limit of navigation, which is now at Celilo falls, will be moved hundreds of miles inland. Vessels will be able to penetrate as far as Priest's rapids on the upper Columbia and as far as Lewiston and Astoria on the Snake. The completion of the Celilo canal will be the open sesame, which shall make accessible all the wealth of the upper Columbia watershed, hitherto almost unknown and unexplored.

FASHIONS FROM NEW YORK

(Journal Special Service.)
New York, Jan. 9.—The first signs of spring are here in the new shirt waists. These will be followed within a week or two by other models, but the stores must make room for new things by disposing of the present stocks in the regular January sales.

But back to shirt waists! White will continue to reign unchallenged. That much is assured. The new designs, whether of silk or organdy, satin or the cheapest lawn, are in white. Trimmed? Most elaborately. Lace is used with lavish hand, and mingled in every imaginable way with other delicate and artistic trimmings.

Many of the designs button in the back, a style which is really left over from last year. For stout and elderly women, however, the fastenings are concealed, for despite its smartness the waist, fastened at the back has age limitations which must be observed by

women who wish to follow the dictates of common sense in their dressing.

Yokes will be a modish trimming for pretty waists of the first named material. These are made in tailor fashion. This gives a splendid opportunity to use the dainty insertions with fancy stitchings.

Several delicate designs in organdy, muslin and mouseline de soie have been noted. One that was particularly pretty was of the first named material with a yoke formed of Valenciennes insertion joined with feather stitching with white and gold silk. The yoke was finished in points bordered with a ruffie composed of Valenciennes insertion alternated with chiffon embroidery then bound along the edge with organdy.

The sleeves were close fitting at the top and below the elbow were formed of the insertion gathered into a simple cuff of organdy.

Another fetching model was shown in dead white liberty voile, a new ma-

terial of diaphanous weave and high lustre. There was no yoke, but bands of irregular lengthened insertions were stitched in the front to the bust line in horizontal effect. Below these bands the blouse was tucked around and around the figure. The sleeves were trimmed in the same way and caught into cuffs of lace insertion.

The latter is very becoming, especially to slender figures, but the round and round necks are fatal to the outline of robust forms.

Some beautiful belts and stocks accompany the new waists. The former are of white kid combined with dull silver, gun metal and gold. Stocks do not show much that is new, but the lack of novelty is amply supplied in the artistic arrangements of the latest neck finishings.

The go-between styles that will be seen between now and the regular spring openings leave nothing to be desired. Smart women are inclined to change off from cleavages and zibelites to hop sacking, canvases and the diagonal serge. These are made in tailor fashion and trimmed smartly. Jackets are getting shorter and many show the outer little facings of embroidered felt and silk. Hop-sacking with a hairy nap is very "well," to use a vulgar expres-

sion. A chic model is trimmed with black and the jacket has four overlapping cape collars, while the skirt is gored and stitched until it almost stands alone.

Nothing has held its own among fashionable trimmings like Mexican drawn work. This fact is no doubt due to the difficulty of imitating the decorating and its well-sustained price. It is shown on frocks of all descriptions and appears to especial advantage on a tailored design in coarse, wiry canvases. The Mexican drawn work is executed on the fabric itself, combined with crescent embroidery. The canvases is a queer shade of light brown suggesting hite or putty, it is uncertain which, and the embroidery is pale rose. A rose-colored suede belt confines the bodies and is clasped with a big coral buckle. Matching the gown is an elegant moleskin coat lined with rose-colored panne velvet, over which falls a low cape of moleskin.

The daintiest features of dresses made in diaphanous materials for afternoon and evening wear are their girdles, sashes and other waist trimmings. These have never been so varied and delightfully chic as this season. Dresden and Watteau ribbons are mostly used. Stout figures look well in the corsage bands that support the figure

while curving into lines that often lend grace and comeliness where there is none. Stylized forms requiring perfect freedom with a certain air of abandon for their greatest effect are held in slightly with soft belts. It is no longer the smart thing to tie a belt in a bow at the back, neither are long streamers worn. The quaintest of these dress-creations and very pretty. It consists of a band of Dresden or Watteau ribbon brought around the waist and tied in a four-in-hand knot at the back. Instead of hanging straight and stiff, the ends of the ribbon are pinched up and finished with silk tassels or looped through embroidered silk rings.

There is no diminution of the shawl craze and peleries made of camelshair or embroidered silk shawls are considered very desirable to include in one's wardrobe. The quaintest of these draperies are finished with netted fringes. Often times two shawls are used to trim one décolletage, one on each shoulder, the painted ends crossing back and front and tucking into a primly plaited high girde.

The levelled dingle-dangles that the fashionable woman wears nowadays are wonderful to behold. The holiday season only increased the fad. After all it is not unlovely if not spoiled by an incongruous collection of cheap baubles.

The long neck chains of fine gold and silver set with small jewels are pretty. If imitation stones are worn, they should be duplicates of turquoises or corals, because counterfeit brilliants are considered abominable taste. Even pearls are not advisable unless they are real, for they soon lose their lustre and give one's jewelry an "all but" appearance.

Earrings and bracelets are worn to greater extent this winter than in many years past. That is, one sees them decorating the ears and arms of really fashionably gowned women on the street. If the morning costume includes an elaborate tailored design a considerable amount of jewelry is permissible, as long as the flashy effects are eschewed.

Feweled insects have almost entirely disappeared from the fashion. The possible exception is the butterfly and this is retained because it affords a chance for a really artistic matching of precious stones with brilliant effect. But wild roses with diamond and pearl centers, turquoise forget-me-nots, coral gemstones, sapphire gentians and pearl wild roses are much to be desired.

In the matter of hat pins the shops are showing extra long pins with handsomely jewelled heads that are stabbed in at the back and run all the way through the coil of hair then pinned through the hat at the front. In cases where the hair is worn low, an elastic band is used to keep the hat on the head and the hat pins are used merely as ornaments.

Some of the new fur toques are prettily trimmed with bands of chiffon and mohair braid. Spreading flat crowns that bend into shaped brims narrowing toward the face continue to be a favorite design. Where they flatten at the back to fit over the coiffure two feathers of contrasting colors can be added as the sole but effective decoration.

ernity, delivered a bitter curse upon him, wishing that no successful earl should have children. A startling comment on this malediction is that the second, third, fourth, sixth, seventh and eighth earls of Stair all died without issue—a circumstance probably unique in the annals of the peerage. The family of the first earl became entirely extinct in 1840, and the succession passed to the descendants of his next brother, Sir James Dalrymple, from whom came the peer just deceased. Evidently the curse did not pass with the title, for the two earls of the present family had sons.

In Westminster abbey, the Pyx chapel, which has hitherto been jealously guarded from the public gaze, is shortly to be lighted by electricity and thrown open for general inspection. Here was formerly the royal strongroom, where the regalia and the king's money were kept. From this treasury, in 1302, while Edward I was warring in Scotland, was stolen \$500,000, which was to pay the expenses of the campaign. The stone door, with seven locks, had formerly a covering of human skins, and tradition says that they were those of the daring robbers of Plantagenet times. The pyx, which contained the standard pieces of gold and silver used at the trial of the pyx, first ordered in the reign of Henry II, has been transferred to the mint, and the regalia have been kept at London tower since Charles II's reign. The only object of interest now to be seen in the chapel, except a few ancient chests, is an old stone altar.

For some years past there has been a proposal to link the island of Ceylon to the mainland of India by a railway carried across a coral reef and the island of Rameswaram. The project has now been brought within view of completion by the report of a railway commission, which has just been issued in India, recommending the construction of a broad-gauge line. Geological evidence shows that Ceylon was originally joined to India by a continuous isthmus, which, according to the temple records of Rameswaram, was breached by a great storm of 1480.

A man kinks a girl like all her friends until after he has become well enough acquainted with her to be honored with her honest opinion.

STORIES OF PEACES.

A famous Gaelic curse put upon the family of Dalrymple at the time of the massacre of Glencoe, in the 18th century, is recalled by the death of the earl of Stair, head of the Dalrymple family. The first earl of the line took part in the massacre, and Jean Macdonald, the sole survivor of a large family that perished through the earl's