Thomas A. Edison Ill After Return From His Vacation

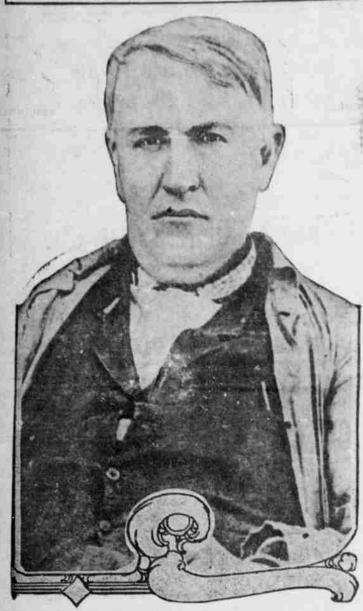


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HOMAS A. EDISON, who might be called the "human grindstone" were it not for the fact that he is known as the "wizard of electricity," recently became ill. His doctor ordered him to stay home. Now, when a man contends that three or four hours' sleep each night is enough and spends most of the other eighteen or nineteen hours at hard work he is not the kind of person who likes to be told he must stay home under a physician's care. But Mr. Edison found that he had to obey, and, for the first time in eight years, be remained away from his laboratory at his factory, in West Orange, N. J. Mr. Edison was taken ill while on his vacation in New Eng land, but he made light of it. He was forced to curtail his vacation, however, and return home. It was thought that the illness was not serious.



Golf Game of People, and Life Insurance Companies Should Support It

By Former President of the United States WILLIAM HOWARD TAFT

HOPE to see the time not far distant when public golf courses will be offered to the public, as in Scotland, for those who cannot pay for costly club privileges. I would have the funds RAISED BY TAX-ATION. Golf is pre-eminently a GAME FOR THE PEOPLE, and they should be allowed to play it.

GOLF IS BOTH AMUSING AND SERIOUS. I BEGAN MY EXPERI-ENCE IN IT TWENTY YEARS AGO. I LEARNED IT IN CANADA, WHERE THE GREENS WERE ROUGH AND CONDITIONS WERE 50 DIFFICULT TO OVERCOME THAT I OUGHT TO HAVE BECOME A BETTER PLAYER. NOW I HAVE ABOUT FIFTEEN CLUBS, AND I AM ABOUT FIFTEEN TIMES WORSE. GOLF IS PSYCHOLOGICAL, AND THE PRESENCE OF SO MANY INSTRUMENTS TO PLAY IT WITH INDICATES WHAT YOU HOPE FOR.

I believe that John Reid, the introducer of golf in America, is entitled to the GRATITUDE OF THE WHOLE AMERICAN NA-TION. Golf is something that life insurance companies should support.

Aeroplanes, Vicious Wasps of War, Likely to Limit the Duration and Scope of Hostile Operations

By JOSEPHUS DANIELS, Secretary of the Navy

N my opinion, the newly developed art of aviation will not only tend to limit the duration and scope of hostile operations, but also aid in the CONTROL OF THE SEAS, one of the elements contributing materially to the power and prosperity of a nation

THE POTENTIALITIES OF THE AEROPLANE WHEN APPLIED TO THE ART OF WAR ARE EXTREMELY GREAT, AND ITS PROPER USE WILL UNDOUBTEDLY BE A DOMINATING FAC-TOR IN THE SUCCESS OF FUTURE CAMPAIGNS. THE PRINCIPAL ROLES OF THE AEROPLANE IN NAVAL WARFARE WILL BE FOR SCOUT-



ING AND RECONNOISSANCE WORK AND FOR OFFENSIVE DE-STRUCTIVE OPERATIONS AGAINST HOSTILE FLEETS AND FORTI-

Rash indeed will be the commander of an opposing fleet who would head his vessels against the fleet or coast of an enemy possessing a number of these VICIOUS WASPS OF WAR, and unfortunate indeed would be a commander who did not have ready at his -all this means of obtaining supremacy in the air.

States Can Best Stop Slaughter of Birds

By Senator GEORGE E. CHAMBERLAIN of Oregon, Father of a Bill to Prevent Slaughter of Birds

THE most effective means to prevent the slaughter of birds and stop the use of plumage is for the STATES TO TAKE AS THEIR CUE THE ATTITUDE OF CONGRESS as expressed in the tariff bill and enact legislation to prevent the possession and use of the prohibited feathers.

About such legislation there can be no doubt, and its EFFECTIVE NESS WOULD BE APPARENT IMMEDIATELY.

ASK BOND ISSUE TO COVER COST

WATER LEAGUE TO SUBMIT THE FACTS TO COUNCIL-TRY TO GET ELECTION

PEOPLE TO DECIDE ON PROBLEM

Is Mountain Water Worth the Cost of Getting it to City?-Boosters Think That It is and Will Work to Raise Cash

Through the city council, the people of Oregon City will probaby be given the chance to vote for a \$300,000 hoad issue for the construction of a pipe line to the sources of the south fork

een given charge of the investiga-He goes into all of the conditions that surround the task. He tells of the ast area draining into the Clackamas. He points out the fact that the source parkling waters of a stream that has seen distilled and cooled in nature's

No Chance for Filth. More than that, he shows to the eague the impossibility of the water of that stream ever becoming contamnated and the small chance that there of any population ever reaching that ir into the mountain fustnesses there rolls the sparkling Clackamas. great portion of the report deals, , with the cost of the construction of the line. It mentions the merits of he various sorts of pipe lines that are placed on the market. It suggests the distance where the conditions are such that it is needed and another kind here the conditions are varied.

Carefully Explained. After the report was read, the league decided to ask the city council to call vided the matter were taken up with a special election and submit the question the proper authorities. tion to the people. The report con tains all of the facts that are of in terest and shows the expense that is ntailed. It shows a supply of 15,641 of earrying 3,000,000 gallons. A dam would be built for the intake at an elevation of 800 feet. The line would be 18 inches for 13.6 miles, 16 inches 8.1 miles, 14 inches for 4.4 miles. making a total distance of 26.1 miles.

The report in full follows:

the early bird and the worm is found In the story of the two Boston boys who were struck by a meteor at 3 o'clock in the morning.

Of all the dictators Yuan bolds on with the least fuss and confusion. There are so many Chinamen that when a few of them are beheaded nobody else knows anything about it.

The tango has been barred from the hicago schools. There is a movement on foot in many parts of the country to have spelling and reading and arithmetic take its place in the schoolroom.

A Cincinnati woman married her son's wife's brother, and unless some thing happens in Cincinnati soon to divert people's attention the problem is going to drive half the city to the asy-

There is talk of a giant Zeppelin airship to cross the Atlantic with passengers for the Panama exposition. Germans are not quite so reckless as all that. Zeppelin disasters have inspired them with caution.

Being a congressman is no fun. If you stay in Washington and introduce bills the newspopers talk of the harm you are doing and If you go home they print tables showing how many roll

The Emperor William on an income of nearly \$7,000,000 is reported to be having a hard time "to make ends eet." The cost of fiving has gone up for initiers and secretaries of state as well as for the plain people.

Mexico whould be one of the richest and most contented of all the nations of the earth. It has the resources to make a rich population of 100,000,000 people. It is discouraging to see it waste its birthright and men back the ands of the clock of progress.

Don't pass your warries on; chloro-

Chihuahua is even more difficult to

pronounce than Juarez In the bright lexicon of love there is

no such word as eugenics. Of course right thinking people are

those who think as you do.

The price of cigarettes is going up. Now we have the high cost of inhal-

About the most useless gift we can think of would be throat troches for

It is reported the navy refused men understanding.

safe side, as engineers of the Fortland Railway, Light & Power Company shill hot, the pipe is rolled in saw dust shill have measured this stream for several years past and have never recorded so low a flow. The water shad, or carchinent area, of the stream as taken by planimeter measurement from the large Forest Service map amounts to 29 square miles, and, as the proposed intake is but one-half mile from the stream's mouth, all the low water flow and practically the entire carchinent area is tributary to the preposed pipe line.

East and West Forks.

One-half mile, or to be exact 3.250 feet, from its mouth the South Fork in the field, and derives its attempting feet, from its mouth the South Fork in the field, and derives its attempting feet, from its mouth the South Fork in the field, and derives its attempting feet, from its mouth the South Fork in the field, and derives its attempting feet, from its mouth the South Fork in the field, and derives its attempting feet, from its mouth the South Fork in the field, and derives its attempting feet, from its mouth the South Fork in the field, and derives its attempting feet, from its mouth the South Fork in the field, and derives its attempting feet, from its mouth the South Fork in the field, and derives its attempting feet, from its mouth the South Fork in the field, and derives its attempting feet, from its mouth the South Fork in the field in saw dust dust this mouth and the pipe its and the it is that gives this pipe its indeed for the same length of wood allowed the Orespon City of the carthand, it is not feet at line would mean that were it of rivet into would mean that were it of rivet meaning the timber of pipe its would, to carry 1,000, and in this half mile from the would mean that were it of rivet mea

One-half mile, or to be exact 3,200 from round steel rods which encircle feet, from its mouth the South Fork ing it are drawn tight by nuts and proper is formed by the coming togeth or of two streams of nearly equal size called the East and West Forks. So was initiated heavy rains had raised all the streams above their minimum or low water flow so that measurements made then would have been of no value as affecting the problem in hand. The West Fork according to the Forest Service map has a catchment area of 15.2 and the East Fork are of a curve having a radius of but it fact that it may be bent to the fact that it may be bent to the fact that it may be bent of the fact that it may be bent to the fact that it may be bent for fact that it may be bent to the fact that it may be bent for fact that it may be bent fo have little relation to minimum cun off, to any other pipe for getting around, we can judge little from this compar and over broken country. The fact son. A stream having steep rocky that it comes knocked down makes it slopes and generally rugged topo graphy will be "flashy" with frequent freight and hauling, and the smoother will have every low mergeren flow, while a stream with centle slopes, or better yet, with its sources in takes to make it as small as 10 inches in di-and ponds will have few freshets, and ameter. will maintain a fair flow even during the proposed water supply for the the dry season. From a study of the dry is in a region where the rugged map I am tuclined to the belief that the rags rear their heads high above the West Fork has rather the better of it as regards the low water flow, but the finest engineer's pocket book that I do not believe the East Fork will has yet appeared, and he begins his ver fall below 10 second feet and all section on Wood Stave pipe as folthis equivalent to 6,465,000 gallons in lows: 24 hours it alone will supply Oreson City for some time to come

West Fork in part not on Reserve. I have gone into this matter of flow part in T. 5S, R. 4E, and so is not on the Porest Reserve. This area outside the Reserve amounts to 6.4 square miles and has been patented, the odd sections to the Oregon & California Railroad, and the even sections to the Northern Pacific Railroad, excepting section 36 which belongs to the state of Oregon. O. & C. lands may revert to the United States in which event they will undoubtedy be added to the Reserve, and possibly by the time Ore gon City will need the flow of the West arefully explained by the engineer. Fork, the other patenties may be prevalled upon to take other lands pro-

The flow in Roaring River and Fish and decay will do for wood. Pitting treek was also measured by the engineer of the U.S. Geological Same engineers and the same engineers are supposed to the same engineers of the U.S. Geological Same engineers and the same engineers and the same engineers and the same engineers are same engineers. neer of the U. S. Geological Survey on Run line 10 years after it was down, the same day that he measured the and during the following 8 years many

flow of the South Fork, Sept. 27th, leaks were found, but, according to 1913, and the facts concerning all Mr. Clark, the Chief Engineer, this these streams appear in the table be pitting and leakage was confined al-The flow of the North Fork was not mile each, and with these repaired the measured by the engineer of the U.S. pipe is believed good for a number Geological Survey on the day that he of years.

I have been asked by your organization to make a survey and prepare an estimate for a pipe line to bring water small and near the mouth at least very formerly City Engineer of Scattle, in from the South Fork of the Clackamas poor as to quality. It is more of a proposing the second Cedar River River to Oregon City as a supply to replace that now provided by the pump-not at all suited for a municipal water which was the material of the first

Agreeable to this I would state that I have made the survey and would respectfully report as follows:

The Source.

The Source.

The Source for the reason that the West Fork is not the reason that the West Fork is not of the Clackamas River is a stream of sparkling, purewater having its source and entire fact that a dam across one fork will be cheaper than one across the entire stream, and for the further fact that flow, as measured by a representative stream, and for the further fact that the Springwater ridge, it is deemed for the U.S. Geological Survey on Sept. 27th of the present year, amounted to 242 cu. ft. per second which corresponds to 15,641,000 gallons in 24 hours.

This figure, if in error at all, is on the another about two hundred feet and should assign to run a box flume for about two hundred feet and should assign to run a box flume for about two hundred feet and should assign to run a box flume for about two hundred feet and should assign to run a box flume for about two hundred feet and should assign to run a box flume for about two hundred feet and should assign to run a box flume for about two hundred feet and should assign to run a box flume for about two hundred feet and should assign to run a box flume for about two hundred feet and should assign to run a box flume for about two hundred feet and should assign to run a box flume for about two hundred feet and should assign to run a box flume for about two hundred feet and should assign to run a box flume for about two hundred feet and should assign to run a box flume for about two hundred feet and should assign to run and for the first line; Mr. D. D. Clark, Chief Engineer (commission) on the Port Commission, on the other hand, states that they not the east that the problem of obtainable so the thrown about tike ordinary two-by-fours, on the other hand, states that they not the first line; Mr. D. D. Clark, Chief Engineer (commission) on the other hand, states that the first portions for the first point which the same of the first point whi another affige in the proverb about arise, it would be an easy matter to run a smaller branch flume up the Coating," is believed immune from West Fork. The intake works, con-sisting of a timber crib dam 5 or c tel high with screens over the intake renders it out of consideration for this proper will involve small expense.

Wood Stave Pipe.

Most of you are doubtless familiar ped, many engineers may be found with wood stave pipe, but for such as who believe the former more lasting

are not I will, in a few words, describe Wood stave pipe is of two kinds, berculation, show a gradual falling of z. "Machine Banded" and "Contin in carrying capacity so that as the

in Stave."

Machine Banded Pipe is made up increase, the amount delivered grows in 8 to 20 foot lengths in the shop and derives its strength from the wire pipe which in the beginning is as good which is wound spirally around its a carrier as cast iron and 10 per cent outside. The ends are made slightly better than rivoted steel does not de-conical and are joined consecutively in the field, except in the smaller. I am advised by the City Engineer in the field, except in the smaller sizes which telescope together, by collars similar in construction to the pipe itself. It is usual practice to dip Cedar River Line, where the great this pipe in hot asphaltum and coal pressure rendered the use of steel nec

Flow Sept. 27, 1913.

24.2 cu. ft. per sec. (15,641,000 gal. in 24 hours) 18.2 cu. ft. per sec. (11,763,000 gal. in 24 hours) 56.8 cu. ft. per sec. (36,710,000 gal in 24 hours) Not measured

Not measured West Fork of South Fork Area on Reserve

Fish Creek

Ropring River

East Fork of

South Fork Area not on Reserve

29 sq. miles 43 sq. miles

42 sq. miles 13.2 aq. miles

Catchment Area

15.2 sq. miles

22.6 sq. miles 6.4 sq. miles

Husband, Rather Than Wife, to Blame For Discontent Which Leads to Divorce

By JOHN J. FRESCHI, Magnitrate, City of New York

ROM my experience on the bench of a court that interprets the law and fixes the penalty in cases that range from misdemeanors to more serious violations of the criminal code I have come to the conclusion that it is LESS OFTEN THE WIFE THAN THE HUS-BAND WHO STRIKES THE PRIMARY CHORD OF DISCON-

IN MY SHARE OF THE BOME SIXTEEN THOUSAND CASES OF ALL NATURE THAT ARE ANNUALLY PASSED UPON BY THE TWENTY CITY MAGISTRATES I HAVE OBSERVED THE MARITAL PROBLEM FROM EVERY POSSIBLE ANGLE. THIS CONCLUSION COMES TO ME: THE PERCENTAGE OF DIVORCE IN THIS COUN-TRY IS INCREASING THREE TIMES AS FAST AS POPULATION; FOR EVERY TWELVE MARRIAGES THERE IS ONE DIVORCE. AS-TOUNDING, ISN'T IT, WHEN WE THINK NUMERICALLY OF THE PARTICIPATION IN MATRIMONY AND THE RESULTS?

Sociologists have argued that the rift in apparent domestic felicity comes because one of the pair develops vices or reveals unpleasant traits of character. But between the FIRES OF MATRIMONY and the ASHES OF THE DIVORCE COURT this theory loses its identity. It isn't that either of them has contracted new vices. Rather, one or the other has ceased to be tolerant of old frailties. The complainant with flat feet. May be only a mis- cavils at what once was condoned.

The Astoria Water Commission in 1895 constructed a line 7% miles in length consisting in part of 18 tach wood stave pipe and in part of 16 inch ated pipe. This line, the stave percalled the East and West Forks. So a tougue similar to the leakage which would ateal pipe. This line, the stave por far as I know, no measurements have been made of the flow of these streams been made of the flow of these streams separately, and at the time this work separately, and at the time this work steel plate which fits snugly into a was in 1210 replaced by a similar pipe of Redwood. Several Oregon City peoand I had hoped to visit it, but as f. could not do so, in addition to looking up the published accounts, I wrote the Water Commission and received the

'In reply to your inquiry relative to Wooden Stave Pipe Conduit, will say that at time of renewal the staves were in a decayed condition along the a cheap pipe from the standpoint of whole line and another year would treight and hauling, and the smoother have seen a collapse of the whole line. sudden floods after every storm and interior makes it a splendid aqueduct. The steel pipe was in a better condition and with the exception of about 1000 ft. of No. 12 (slightly under one 13.5 ft, and some manufacturers agree eighth inch), which was renewed, the original pupe is still in use. Where No. 10 (slightly over one-eight inch) steel was used there has been very little trouble but the No. 12 has developed many leaks. The original wooden stave pipe was made of "kiln dried" Douglas Fir and it is thought that the kiin drying shortened the life of the staves. When the line was re-Wood Stave Pipe had a variable reputation, and has been the subject of much discussion among engineers. stacked and dried in the open-

is made in sizes from 16 mehrs to

Durability of Wood Pipe.

but at on time a resident of Oregon

City, has recently gotten out possibly

Mr. A. I. Frye, of Brooklyn, N. Y.,

e writer has laid a great many miles

But it yet remains to be dem-

of this pipe and can recommend it for

cheapness of first cost and carrying ca-

enstrated to what extend it will com-

pare in economy with other kinds of

pipe when its lasting qualities are con-

This is probably a fair statement

of the case, yet many engineers be-

ture, to think of steel as indestruct

lble, but those who have had experi

ence know that rust, tuberculation and

pitting do for steel, as surely, and

many engineers may be found who will

most entirely to two stretches of a

In addition to the reason given in the above letter it may be stated that by far the greater number of holes were found at those points where the was near the hydraulic grade and the pressure accordingly stight. Consequently the saturation from within was almost negligible. Wood saturated with water will last indefinitely and the Astoria and Los Angeles, as well as other failures, have taught the

lieve that cast iron alone surpasses wood stave pipe in lasting qualities (1) Wood Stave Pipe to last must run at all points and at all times when the latter is properly laid. We are prone because of its metalic nafull of water, and for this reason is not suitable for newern

(2) Wood Stave Pipe is essential ly a pressure pipe and is more lasting, other things being equal, when used under a pressure upwards of 50 ibs. per square inch. This keeps the wood saturated from within

(2) Wood Stave Pipe is the better for careful back filling roots, sods. and other vegetable matter should nev er be used in back filling against the pipe. Stones and especialy angular fragments of rock leaving interstices for air are also undesirable back fill Many engineers say wood pine is better placed on wood or concrete saddies set on top of the ground than in a trench of any kind, and this s the practice in much freigntion and power work.

(4) The staves must be handled with care, as bruises on wood. Ilks

It is true that in the case of munic pound, a process known as "National pal supply the back filling has two function to perform. (1) preserving the pipe, (if it does preserve it); and keeping the water cool and palatable. Where these the only considline. As has been said, between wood stave pipe and steel as ordinarily diperations, I would unhesitatingly ommend that this line, for the first miles and at certain points along Both east Iron and steel, because of the ground, following as near as practicable close to the left or south bank the roughening of the interior by tu of the Clackamas River. The canyon, in carrying capacity so that as the population and the demand for water unning in a generaly east and west direction and being more than a thou-sand feet deep would, I think, afford far as keeping the water cool is con-

Wallace, Idaho, several years ago received, and, I believe, still receives a portion of its water supply from Placer Creek through a 2 incha2 inch box flume which follows the open can yon side for two miles and delivers its flow to a pipe line near the city limits. However, in the case of the Clack-amna Canyon, there is the necessity

of protecting the pipe from slides, rolling stones and logs which at many points might easily come down with such force and violence as to wreck the pipe. This must be taken into consideration for, even as it is, it is possible that the insurance companies may object to the city depending on so long a line as the one here proposed with so small a reservoir as the present one at Elyville. This feature will be commented on further along in the report. Taking all matters in to account, the best and most economical plan, in so far as both first cost and depreciation is concerned, seems to be to place the pipe on top of the ground at those points where no pro-tection from slides is necessary, and at points where such protection is necessary do only so much trenching as will accomplish the purpose. The damage from fire is believed negligible, especially if care be taken to keep the briers and ferns cleared away by late fall or early spring burnings. At points along the stave pipe line for the City of Vancouver, B. C., where the pipe is above ground, additional protection from fire is afforded by fire ose attached and ready or use. sidering the pressure under which the to keep the wood saturated this would seem a needless precaution in the case of the Oregon City line.

The Pipe Line. The line is designed to deliver 3, 000,000 gallons per 24 hours, and has a diameter of 18 inches between the Intake and the Springwater ridge, a distance of 13.6 miles; 16 inches between the Springwater ridge and the farm of W. G. Harris, 8.1 miles; 14 inches betwen the Harris place and the Elyville reservoir, 4.4 miles. The total distance is thus 26.1 miles. The 18 inch and 16 inch pipe are recommended to be continuous stave construc-tion and the 14 inch machine banded.

there are three cliffs, 200, 200, and soo feet in length which can be passed only by blasting away the material so as to form a shelf or a ledge on which to place the pipe. The longest of these which is opposite the old Jno. Straight place is marked by horizontal godina and it is believed that by the vantage of these a sent with the can be made at much less expe than won's otherwise he the case. One of these norisontal joints is shown in one of the small photographs submitted herewith. After passing this cliff the hills become less rugged and the danger from slides is almost neg-

Alternate Location

An alternate location between the Intake and Estacada would be to figlow the left or south bank of the main Clackamas River for about a mile and then cross to the north bank cliker over the water on a suspension bridge or under the water by means of cast fron with ball and socket ocation would follow as closely as practicable the wagon road grads which the Portland Rallway, Light g Power Company has practically con pleted from a point a short distance below, and opposite the mouth of the South Fork to the mouth of the North Fork. At this latter point the grads connects with the road from Garfield so that it will be necessary to build a road from the North Fork to the end of the track at the so-called "Upper Dam," a distance of one and three fourths mice if the location is to tol low the north side of the river. From the Upper Dam to the crossing back to the south bank, one-fourth mile above the Estacada bridge, the locarailroad and, for reason of economy in trenching the pipe, as close thereto as circumstances and the Light & Power Company's engineers will permit. The river is narrow at the point selected for the second crossing so that a sus pension bridge sufficient to carry the

The distance is practically the same by the north bank, as by the south bank location, but for the following reasons the south bank ocation is rec

(1) The difficult country at points between the North Fork and the Cara-dero Dam, and continuously for a distance from the Cazadero Dam toward Estacada

(2) The two river crossings, the apper one of which involves considerable expense and some uncertain-(3) The desirability of keeping

away from existing or projected works.

(4) The advantages of a shaded north slope over a heated south one Estacada to Oregon City.

Entering the county road near the south end of the Estacada bridge, the line will follow the Springwater road to the place where the "cut-off" joins the main road near the old Du-bols saw mill. From this point the line as surveyed follows the cut-of road to, and nearly across the farm of Mr. Trachsel. Here, rising groun-making it necessary to leave the road, the line as surveyed turns to the right and, following a generally northwest course, passes through the old "Barrin place" and crosses the Springwat er ridge at the point where the Viola read joins the main road leading from Springwater to Logan. This point which marks the end of the 18-inch pipe is 12.6 miles by the survey from the intake, and 100 feet less in elevation. This gives to this point a fall of 1.39 ft. per 1000 feet of length. From this point the fall will be 2.45 ft. per 1000 feet of length and the pipe

will be 16 inches. From the Springwater ridge the line will follow the county road, save where an occasional sharp bend makes the acquiring of additional right-of-way necessary, to, and through Viola and up the hill to the Redland cross roads at A. M. Kirchem's house, Here rising ground again makes it necessary to leave the road and the location, crossing first the field of J. W. Fullham, remains on private land for about one and one half miles, or to a in the road leading from the Redland Cemetery to Linn's Mill. The location will then follow this read nearly to the point where it commences to descend rapidly into the Abernathy canyon. Leaving the road at this point, the line will descend to the Abernethy which it will cross onefourth mile above Linn's Mill, regainhouse of Mr. Perry. As surveyed, the line, leaving the houses of Mr. Harris and Mr. Perry to the left, passes through the woods to the end of the lane on the line between the farms of Judge Campbell and Mr. Eggimann,

and thence to the Highland road. Since the survey was made it has been decided to raise the intake 19 feet, and this together with the shortening of the line by the direct course across the Abernethy canyon is be-lieved to have given sufficient elevation to enable the following of the county road to the Henerici school house and thence along the Highland

road as before to Oregon City.
The fall from the Harris place to the reservoir is such that a 14 inch pipe will more than carry 5,000,000 gallons. As a result, a stand pipe can be erected at Ely and by an auto valve the line can be made to fill this tank when needed and at other times discharge to the present reservoir.

Calculations show that a 144 pipe, delivering 7 hours out of 24 local tank or stand pipe 60 feet 10-24 to a at other times to the reservoir, and take care of all the water a 16-inc pipe will bring to the Harris farm. This implies the construction, at least, of a small reservoir at this place. However, this need not be done until Oregon City requires nearly the whole of the 3,000,00 gallons, and in case a shortage reservoir is ever built this would be the proper location for it.

The estimated cost, using 18-inch and 16-inch continuous stave pipe and 14-inch machine banded pipe, in \$288. 000.00; using 18-inch continuous stave to Estacada and 18-inch, 16-inch and 14-inch machine banded from Estacada to Oregon City it is \$273,000.00 Considering the character of the country from Estacada east, I would

Two hundred feet below the proposed intake hich, as stated, will be on the East Fork of the South Fork, the line will cross the South Fork and follow of the U. S. Reclamation Service, Partitions and part solid rock and as there state that this report and estimate should be verified by some engineer