While they last; These are fin-lively fish. Get them NOW.

25c Two Gold Fish 25c HUNTLEY BROS CO.

THE REXALL STORE

75c Beef, Iron & Wine 38c 20c Talcum Powder, 10c 25c Playing Cards 17c

ANNUAL JANUARY SALE

Starts January 2nd

TO those who have participated in our former January sales, the mere announcement is all that is necessary to convince them of the great savings in all departments. To others we wish to say that our January Sale means genuine reductions---not fictious prices placed on goods for the purpose of price cutting---but generous reductions from our already low prices with which we meet Portland prices so successfully. Our constantly growing business proves our regular prices right; any reduction from them is a real gain for our customers. Come and participate, we want to reduce our stock as low as possible before invoicing.

40c Standard Books of Fiction, 28c

These are books by all the Standard authors -fiction, love, adventure, books published at 50c, sold by us regularly at 40c and now for this sale reduced to 28c

50c Boys' and Girls' Books 40c This includes Motor Boys Series—and Motor Girl Series—Dorothy Dale Series and all other 50c books.

40c Boys' and Girls' Books 28c Hundreds of the most popular boys and

girls books in this line. Books by Ellis, Castlemon, Optic, Webster, The Boy Scouts Series, Dashaway Series, etc.

\$1.50 Family Atlas of World (1912 Ed.) \$1.10 \$1.25 White House Cook Book 88c \$1.15 \$1.50 Poultry Culture \$1.00 Profitable Poultry

Keeping, 75c

Life of Theodore Roosevelt 50c Illustrated-Cloth binding, 400 pages.

\$1.25 Self Pronouncing

Dictionary, 98c Tlexible Morroco Binding-Thumb Indexcensus edition with colored plates. This dictionary is the best value at \$1.25 that we ever saw, at 98c it's a real bargain that every home and office ought to take advant-

\$1.00 Guaranteed Watches 83c

75c Leather Bound Gift Books, 48c 50c Leather & cloth Gift Bks., 35c All gift books ranging in price from 25c to \$1.90 reduced one-fourth to one-third.

Fine Stationery, 4 to 2 Less

We have grouped all the remnants of 50c 40c and 35c box papers into one lot priced at 25c. All in first class conditions, though some boxes are slightly solled.

Initial Stationery 25c Pound Paper 25c 35c 25c Envelopes-Heather Bond, 10c

On many odds and ends of Tablets reduc-

Framed Pictures Reduced, 1 to

You will be surprised at what a nice picture you can buy for 25c to 50c. Regular prices run from 25c to \$10. There are some here that you want in your home.

All Leather Suitcases and Bags

Prices run from \$2.50 to \$20 and in our line this year is the famous "Likely" Bags and Cases which are guaranteed for 5 years.

All Caledars Reduced 1

20 per cent of

Ladies' Leather Bags Reduced 1

All leather bags and purses are included in this reduction. Regular prices which have brought us a wonderful leather goods business, run from \$1.25 to \$10. You may de

Casseroles-Bean Pots-Custards and All Enameled Cooking Ware 4 off

This line includes mounted and unmounted dishes in many sizes and shapes. It's ware that every housekeeper needs and wants and at the prices we now quote every one can afford.

Bibles, Prayer Books, Testaments, 20 per cent off

This includes also our Standard America

ı	recipeu	Didion,		
Ì	\$1.15	Sunday	School	Scholars
ı	Bibl	0		90

\$1.35 Pictorial Bible—4000 Ques tions and Answers-Self Pro nouncing\$1.08

\$2.00 Red Letter Questions and Answer Bible \$1.60 \$3.00 Red Letter Teacher Bible\$2.40

All Bibles and Testaments from 25c up to \$5.00 equally reduced.

Guaranteed Fountain Pens, 1 off We have decided to carry in the future only

Waterman's Ideal and Huntley's Dollar Fountain Pens. The balance of our large stock of guaranteed Pens will be placed on sale at one-third off the regular prices. These are bargains that are seldom offered.

All Brass Ware Reduced

This line was so popular that we have only a small stock left. Make your selection

All Pottery Jardineres and

Vases, 1 off

Crepe Tissue Paper 15c Best Paper Napkins (100), 10c 20c Decorated Crepe Paper 5c 25c Playing Cards (Linen

Finish), 17c Whist Playing Cards 35c Playing Cards

All Post Card Albums Reduced 3 Regular prices run from 10c to \$5. Select what you want and deduct one-third from

the marked prices.

All Umbrellas Reduced

a	\$1.00 Ombrenas, Wen's of La-
,	dies'
c	\$1.50 Umbrellas, guaranteed quality\$1.25
	\$2.00 Umbrellas reduced to \$1.65
	\$2.50 Umbrellas, reduced to \$1.98
	\$3.00 Umbrellas, reduced to \$2.48
3	All Umbrellas \$5 and over reduced one-third.

50c Most Popular Home Songs 38c 50c Most Popular Love Songs, 38c 50c Most Popular Hymns 38c

This is the best selling line of music books published. In addition to above are Most Popular National Songs, Most Popular Col lege Songs,

German Clocks \$1 50 Talon Alarm \$1 10

75c N	lidget
\$1.25	Bell Alarm89c
	Alarm69c
\$1.20	Alarm79c
This is	a new line of German Clocks just

German Silver Mesh Bags

\$6.00 German Silver Mesh Bags \$4.00 \$4.98 German Silver Mesh Bags\$3.32 \$3.98 German Silver Mesh Bags \$2.65

\$1.98 German Silver Mesh 50c German Silver Mesh

and prices very close before this additional 33 1-3 per cent cut.

\$2.00 Razors 98c \$1.75 Razor Strops 98c Our razors no matter how cheap are fully

50c Floating Castile

Soap, Large Bars, 33c This is the best and most economical soap

60c Parisian Ivory Combs These are priced at much less than whole-sale cost. Don't ask us how we can sell them for 20 cents but take 'em along while

\$1.29 White (Imitation) Ivory Brushes, 89c

Bath Towels \$1.00 69c

All our bath towels and bath matts cut at least 33 1-3 per cent. Don't fail to lay in a

supply now,

20c Violet Talcum Powder 10c We have only a few dozen of this. Get it

of protecting the pipe olling stones and logs which at many points might easily come down with uch force and violence as to wreck the pipe. This must be taken into dero Dam, and continuously for a dis-consideration for, even as it is, it is tance from the Cazadero Dam toward possible that the insurance companies may object to the city depending on so long a line as the one here pro-posed 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 into 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 protection from slides is necessary, and at points where such protection is necessary do only so much trenching as will accomplish the purpose. The as will accomplish the purpose. The damage from fire is believed negligible, especially if care be taken to keep road to, and nearly across the farm of the briers and ferns cleared away by Mr. Trachsel. Here, rising ground late fall or early spring burnings. At making it necessary to leave the road, 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 hose attached and ready or use. Considering the pressure under which the pipe wil be used and which will tend 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 In-take 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 Ely-ville 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.

The Intake to Estacada. 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 thence down the left or west bank for 2,500 feet. The material here is part loose and part solid rock and as there is no danger from slides on the left bank, the line may be placed on cradles above the ground. This will necessitate cutting the timber in reach, and in this half mile is found about the only green timber along the

Leaving the gorge of the South Fork the proposed location follows as close to the Clackamas River as the ground points, as the profile shows, it will be est to rise nearly to the hydraulic line, as above the Cazadero Power House and at other places.

In addition to the numerous points which will require some shooting, there are three cliffs, 200, 300, and 900 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 seams and it is believed that by taking advantage of these a seat for the pipe can be made at much less expe than would otherwise be the case. One of these horizontal joints is shown in one of the small photographs sub-mitted 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 folow the left or south bank of the main then cross to the north bank either ver the water on a suspension bridge or under the water by means of cast iron with ball and socket joints. Once on the north bank the Power Company has practically com-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 grade 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 threefourths mies if the location is to folthe Upper Dam to the crossing back o the south bank, one-fourth above the Estacada bridge, the location will follow the upper side of the railroad and, for reason of economy in trenching the pipe, as close thereto as circumstances and the Light & Power 'ompany's engineers will permit. The iver is narrow at the point selected for the second crossing so that a sus pension bridge sufficient to carry the pipe line will involve no serious ex-

The distance is practically the same by the north bank, as by the south

mas Canyon, there is the necessity | 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 Caza-

Estacada (2) The two river crossings, the upper one of which involves consid-

erable expense and some uncertain-The desirability of keeping (3) away from existing or projected works.

(4) The advantages of a shaded

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" road joins the main road near the old Duthe 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 road joins the main road leading from Springwater to Logan. This which marks the end of the 18-inch

pipe is 13.6 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-ofway necessary, to, and through Vlola and up the hill to the Redland cross roads at A. M. Kirchem's house. Hero rising ground again makes it necessary to leave the road and the loca-tion, crossing first the field of J. W. Fullham, remains on private land for about one and one-half miles, or to a point in the road leading from the Redland Cemetery to Linn's Mill. The location will then follow this road nearly to the point where it com-mences 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, regaining the county road again near the house 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 10 feet, and this together with the short-ening of the line by the direct course across the Abernethy canyon is believed 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 3,000,000 gallons. As a result, a stand pipe can be erected at Ely and by an automatic 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 14-inch pipe, delivering 7 hours out of 24 to a tank or stand pipe 60 feet high and at other times to the reservoir, will take care of all the water a lightch take care of all the water a 16-inch 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 Clackames River for about a mile and 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, is \$288,location would follow as closely as 000.00; using 18-inch continuous practicable the wagon road grade which the Portland Railway, Light & and 14-inch machine banded from Espower Company of the continuous stave to Estacada and 18-inch, 16-inch and 14-inch machine banded from Espower Company of the continuous stave to Estacada and 18-inch machine banded from Espower Company of the continuous stave to Estacada and 18-inch machine banded pipe, is \$288,and 14-inch machine banded from Es-tacada to Oregon City it is \$273,000.00. Considering the character country from Estacada east, I would state that this report and estimate should be verified by some engineer whose experience has made him a specialist in this class of work. would, in this connection refer you to Mr. D. C. Henny, Consulting Engineer of the U.S. Reclamation Service, Port-

Respectfully submitted, H. A. RANDS.

CUT FLOWERS and Potted Plants; also all kinds of Fruit Trees, Roses and Shrubbery for sale at the new green houses on Center and Third Sts. Funeral work done at lowest possible prices. Orders received over puone—Main 2511.

E. J. BIGGER.

land, Oregon.

Get your letterheads and envelopes printed with the name of your farm on them. The Courier will make them cheap for jou

NOW FOR PURE

Continued from Page 1

board, and the leakage which would otherwise occur between the ends of individual staves is prevented by steel plate which fits snugly into a saw kerf in the ends of the staves There are no collars or coupling and as the staves break joints the pipe presents a smooth continuous appear ance, hence its name. This pipe, from the fact that it may be bent to th are of a curve having a radius of bu 60 times its own diameter, is superio to any other pipe for getting around and over broken country. The facthat it comes knocked down makes i a cheap pipe from the standpoint o freight and hauling, and the smoother interior makes it a splendid aqueduct It is made in sizes from 16 inches to 13.5 ft. and some manufacturers agree to make it as small as 10 inches in di-

Durability of Wood Pipe. Mr. A. I. Frye, of Brooklyn, N. Y. but at on time a resident of Oregon City, has recently gotten out possibly the finest engineer's pocket book that has yet appeared, and he begins his section on Wood Stave pipe as fol-

The writer has laid a great many miles is now little made.

are prone because of its metalic napitting do for steel, as surely, and many engineers may be found who will say positivey more rapidly, what rot and decay will do for wood. Pitting began to cause leaks on the first Bull Run line 10 years after it was down, and during the following 8 years many leaks were found, but, according to

line; Mr. D. D. Clark, Chief Engineer never very seriously considered wood second Bull Run line which nen are of national reputation.

"Wood Stave Pipe and a variable great weight leave it out of consider-reputation, and has been the subject of much discussion among engineers." which would come next in durability giving trouble for a number of years. (3) Wood Stave Pipe is the better for careful back filling—roots, sods, Wall

The writer has laid a great many miles of this pipe and can recommend it for cheapness of first cost and carrying capacity. But it yet remains to be demonstrated to what extend it will compare in economy with other kinds of pipe when its lasting qualities are considered for this pipe and can recommend it for cheapness of first cost and carrying capacity. But it yet remains to be demonstrated to what extend it will compare in economy with other kinds of pipe when its lasting qualities are considered for this pipe and can recommend it for cheapness of first cost and carrying capacity. Steel pipe, when one-fourth inch inch thick and wrapped with burlap pass ple have spoken to me about this line pipe. Stones and especially angular fragments of rock leaving interstices to could not do so, in addition to looking the published accounts, I wrote the pipe when its lasting qualities are considered from the control of the control of

life. Its cost, as that of cast iron, following reply: renders it out of consideration for this of the case, yet many engineers be- line. As has been said, between wood lieve that cast iron alone surpasses stave pipe and steel as ordinarily dipwood stave pipe in lasting qualities ped, many engineers may be found when the latter is properly laid. We who believe the former more lasting

Both cast iron and steel, because of ture, to think of steel as indestruct-tible, but those who have had experi-ber culation, show a gradual falling off the steel pipe was in a better condi-tion and with the exception of about 1000 ft. of No. 12 (slightly under oneence know that rust, tuberculation and in carrying capacity so that as the population and the demand for water increase, the amount delivered grows less and less as the years go by. Wood pipe which in the beginning is as good better than rivoted steel does not deteriorate with age and use.
I am advised by the City Engineer that the kiln drying shortened the life

Mr. Clark, the Chief Engineer, this of Seattle that in making the calculations of the staves. When the line was repitting and leakage was confined altions for certain short sections of the newed the staves were of Redwood, most entirely to two stretches of a Cedar River Line, where the great stacked and dried in the open."

mile each, and with these repaired the pressure rendered the use of steel nec. In addition to the reason given in the above letter it may be stated that escary, the tail per thousand test at the greater it may be stated that for years.

Iowed was one and one-half times that by far the greater number of holes by far the greater number of holes.

Engineers differ as to recommend-pallowed for the same length of wood were found at those points where the ing wood pipe. Mr. R. H. Thompson, pipe. This applied to the Oregon City of the pressure accordingly slight. Conformerly City Engineer of Seattle, in proposing the second Cedar River of steel pipe it would, to carry 3,000. sequently the saturation from within line for that city, recommended wood one gallons daily at the end of 25 was almost negligible. Wood saturwhich was the material of the first years, have to have a fall between the intake and Springwater ridge of 150 and the Astoria and Los Angeles, as

> There have been two notable fail-ures of wood pipe; one a large outfall the City of Astoria.

usual conditions is more durable than either steel or wood, but its cost and great weight leave it out of considers now little made.

Steel pipe, when one-fourth inch of Redwood. Several Oregon City peo- er be used in back filling against 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 whole line and another year would have seen a collapse of the whole line The steel pipe was in a better condieighth inch), which was renewed, the original pipe 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 dea carrier as cast iron and 10 per cent veloped many leaks, The original wooden stave pipe was made of "kiln dried" Douglas Fir and it is thought

the pressure accordingly slight. Con-

following:
(1) Wood Stave Pipe to last must like the first, was of steel, though sewer of the City of Los Angeles and full of water, and for this reason is the ground, following as near as practicable close to the left or south bank

dies set on top of the ground tha put in a trench of any kind, and this is the practice in much irrigation

(4) The staves must be handled with care, as bruises on wood, like bruises on an apple, make a starting point for decay and trouble. They must not be thrown about like ordi nary two-by-fours.

The foregoing deductions have an mportant bearing in considering the problem of locating the pipe line, especially the statement regarding the back filling, for if the only back fill obtainable is of such nature as experience shows will decrease, rather than increase the life of the pipe, why go to the expense of excavating a trench at all? Why not place the pipe on saddles on top of the ground where t may be easily inspected and cheaprepaired and where, if renewal there must be, it may be attended with much less expense than were the pipe buried in a trench?

It is true that in the case of municpal supply the back filling has two function to perform: (1) preserving the pipe, (if it does preserve it); and (2) keeping the water cool and palattine; Mr. D. D. Clark, Chief Engineer intake and Springwater ridge of 100 feet as designed well as other failures, have taught the crations, I would unhesitatingly recommend that this line, for the first Where these the only consid-4 miles and at certain points along run at all points and at all times the next 5 miles, be placed on top of ticable close to the left or south bank (2) Wood Stave Pipe is essential of the Clackamas River. The canyon. Before passing from this heading the Astoria Water Commission in ly a pressure pipe and is more lasting, running in a generaly east and west it may be stated that cast iron under 1895 constructed a line 7½ miles in other things being equal, when used direction and being more than a thou-

In Every Profession

there are men, who thru special training and experience are more fitted than others

My 17 years optical experience, enables me to fit glasses successfully where others have failed

I am now manufacturing my on lenses which being made under my own supervision, assures you of perfect fitting glasses

Come in and get the benefit of this experience without extra cost to you

Broken Lenses Duplicated While You Wait Um. A. Schilling GERMAN EYE-SIGHT SPECIALIST Willia Bieliet : Jeveler Sore Oregon City, Oregon FACTORY ON PREMISES