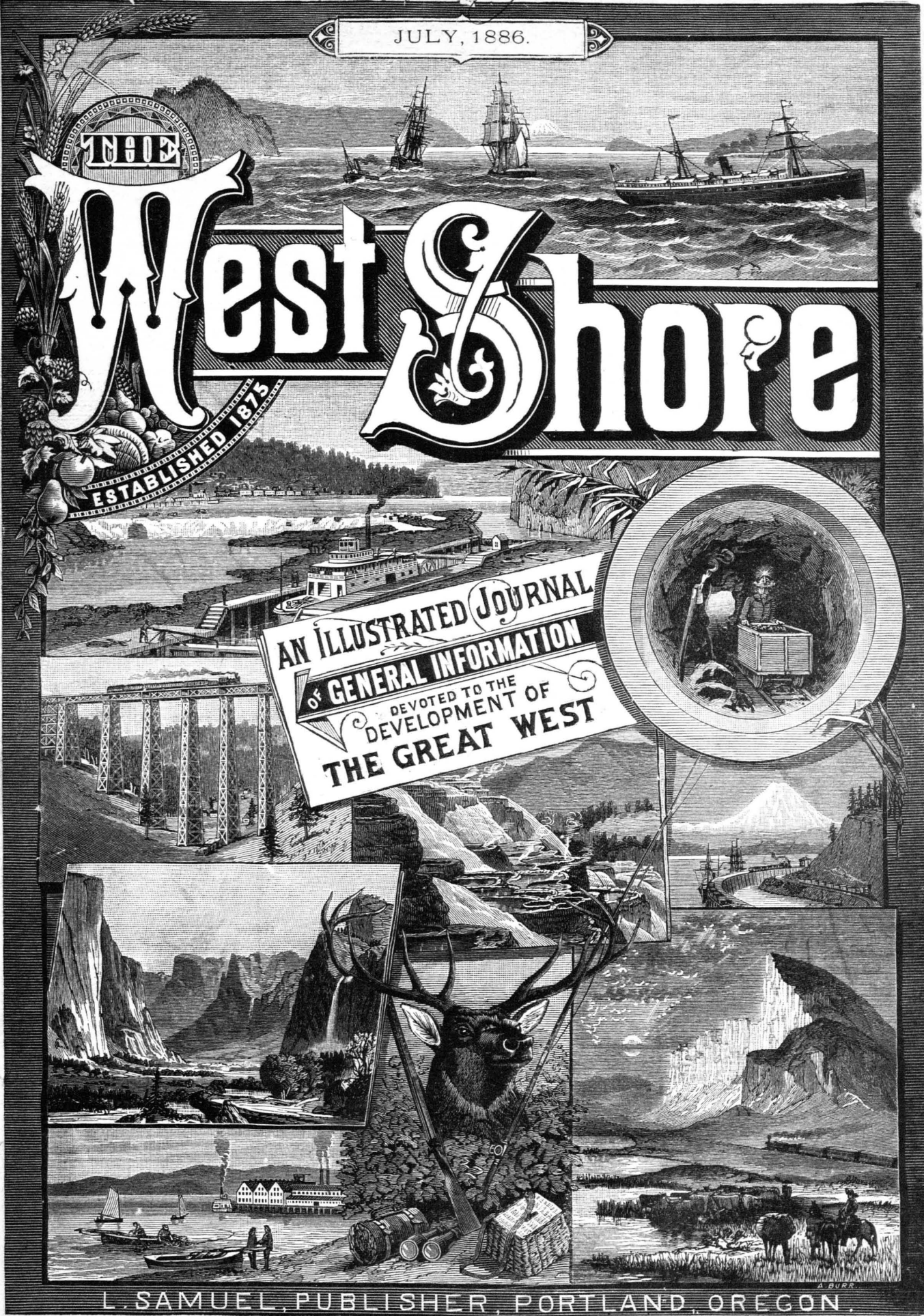


J. S. Wakeley

JULY, 1886.

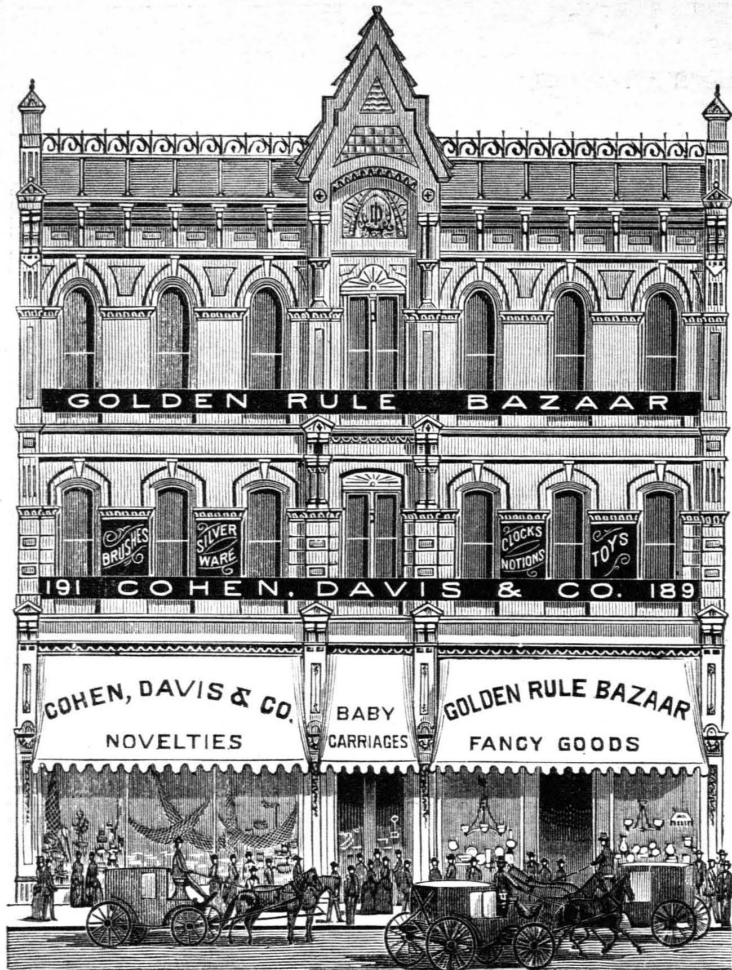


AN ILLUSTRATED JOURNAL
 OF GENERAL INFORMATION
 DEVOTED TO THE
 DEVELOPMENT OF
 THE GREAT WEST

L. SAMUEL, PUBLISHER, PORTLAND, OREGON.

OFFICE—Nos. 171-173-175 Second Street Corner of Yamhill.

THE WEST SHORE! A literary journal circulating extensively throughout the Pacific Coast and the East. Its leading feature is the original illustrations and descriptions of the towns, cities and industries, resources and magnificent scenery of the Pacific Coast. A volume of it contains more information and handsomer engravings of the Northwest than can be secured in any other form at any price. Per year, postage paid, \$2.00; to foreign countries, \$2.25; sample copy, 25 cents.



Golden Rule Bazaar!

189-191 First St., bet. Yamhill and Taylor.

Largest and Most Complete Establishment in Portland.

RELIABLE ^A T RELIABLE
GOODS ONLY. PRICES.

Rogers Brothers Silverware,
Clocks, Bronzes and Bisques,
Fancy Glassware,
Bird Cages, Parrot and Mocking Bird Cages,
Pocket and Table Cutlery,
Stationery and Notions,
Books and Games of all kinds.

FLAGS AND FIREWORKS!!

DOLLS,
Toys, Croquet, Lawn Tennis, Baseball Goods,
Music Boxes, Albums, Frames, Brackets, Baskets,
HOUSEHOLD GOODS,
Wagons, Bicycles and Velocipedes,
BABY CARRIAGES,
Novelties of every kind. Novelties of every kind.

Country Orders Promptly Filled. One Price, Plain Figures.

Our Illustrated Catalogue Sent Free on Application.

COHEN, DAVIS & CO.,
189-191 First Street, - - PORTLAND, OREGON.

THE ST. CHARLES,

Leading Hotel of the Northwest.

C. W. KNOWLES,

PROPRIETOR.



200 Rooms 200

Cor. Front and Morrison Sts., PORTLAND, OR.

This house has just been thoroughly overhauled, from ground floor to attic, being repainted, papered and re-furnished throughout. Twenty additional rooms on the west end, second floor, all entirely new in appointments.

AN OTIS ELEVATOR

Has just been introduced, with a capacity for carrying Ten Tons Weight, making the upper floors as convenient as those on the ground. The ST. CHARLES, as now arranged, is undoubtedly the finest and most complete establishment of the kind in the Northwest.

THE RESTAURANT, in charge of CHARLES HEILMAN, is conducted in first-class style and affords every luxury known to the epicure.

Farmers & Mechanics' Store,

ONE PRICE TO ALL.

SHOPPING BY MAIL.

There are no difficulties in the way of purchasing goods by mail, either imaginary or real, which can not be overcome if proper care is exercised by both buyer and merchant. Many who have become familiar with the simple details find it oftentimes less troublesome than shopping in person. The advantages gained in buying in Portland are so great that one can ill afford to lose them, if any way is afforded by means of which they may be obtained.

To be agreeably served, buyers must perform their part thoroughly and well, state their wants clearly and fully, omit nothing, such as the size of hose, gloves, etc., the color desired, or their NAME or address, and must allow sufficient time for the transit of letters and goods. They must remember, also, that the merchant is limited in what can be procured, that all things are not possible with him, and that the supply of any kind of goods may be quickly exhausted; it is, therefore, not always possible to send just what was ordered, no more than it is to find it by a tour through the stores of so large a city as this, and possibly, here lies a principal cause of dissatisfaction. For illustration: certain kinds of goods may become extremely popular after samples have been sent almost broadcast, and may be sold before the orders from such samples can be received; as it required months to produce the stock already sold, it is out of the question to manufacture more; what shall be done?—if the purchasers live within a day's mail route of the city they can be notified that such is the case, and other samples submitted; but if they be far away much time would be lost in doing this; were they at the counter similar goods would be shown them from which to make another choice; as they are absent the difficulty is overcome by making the choice for them and sending it subject to their approval, they having the same opportunity to reject as though present, for their money will be refunded if they return the goods, which they are at perfect liberty to do.

That those who live away from town may stand on the same footing with those who come to our stores, samples of nearly all kinds of goods are sent without charge; these samples are not scraps, odd pieces and remnants, but are cut from the rolls of goods as received from the manufacturer, and are sent freely and willingly. Mistakes occur in spite of the utmost care, but when made known are corrected and made good.

As letters are sometimes lost, a failure to receive a reply indicates that the letter never reached us or our answer has gone astray; if you do not receive a reply in due season, write again. Confidence in the merchant is the key-note to success in shopping by mail. The reputation of our house is a guaranty that its principles and dealings are correct, and open and above board, and that it is worthy of confidence; if we sell goods subject to their being returned, for which we must refund the money, it is evident that it is for our interest to send only the goods wanted; and as it is desirable to retain the same customers year after year, it is proof that the general treatment must have been satisfactory to have resulted in so large a business.

Our catalogues of information will be sent without charge to all who desire.

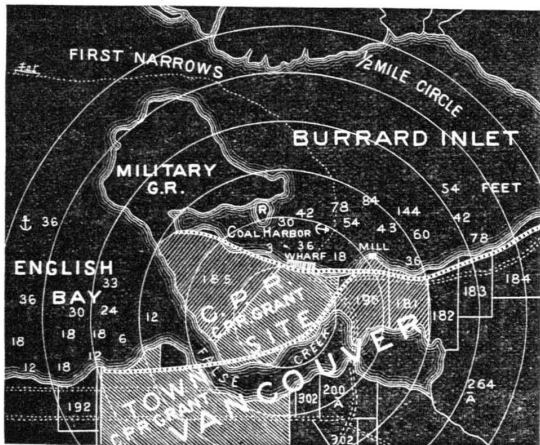
FARMERS' AND MECHANICS' STORE,

200, 202, 204 First St., and 6 Taylor St.,

PORTLAND, . . . OREGON.

Farmers' & Mechanics' Store,
ONE PRICE TO ALL.

Vancouver, Pacific Coast Terminus of the Canadian Pacific R'y



Offers to-day the best inducements for the investment of capital of any new city in America.

The company have recently put their property on the market, and the most desirable lots can be secured much cheaper than a few months hence.

The company must spend a large amount of money in the next two years in Station Buildings, Round Houses, Wharves, etc. Buildings are rapidly being erected by private capital, and as the city is now incorporated, a Mayor and Council being elected, large City Improvements must be commenced immediately. Now is the time to invest.

Maps and further information can be obtained from

A. W. ROSS & CO., Real Estate Brokers, Vancouver.

CHAS. H. DODD & CO.,

Front, First and Vine Sts., PORTLAND, OREGON,

IMPORTERS OF

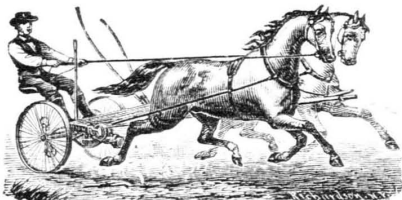
HARDWARE, IRON AND STEEL,

—AND—

FARM MACHINERY.

We are Sole Agents for the following celebrated implements:

BUCKEYE MOWER AND REAPER.

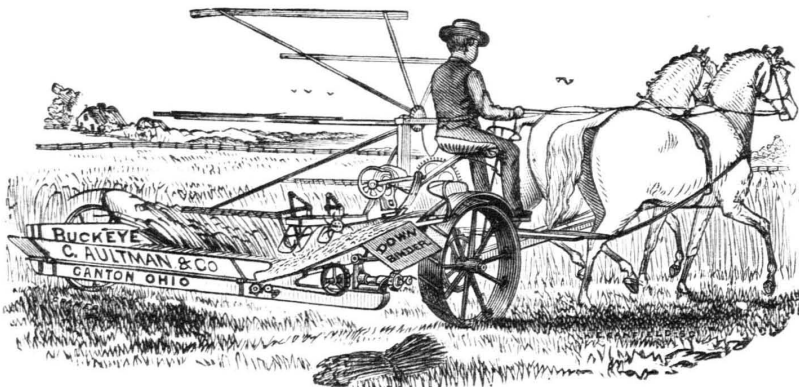


BUCKEYE ON THE ROAD.

These machines are too well known to need comment. Thousands of farmers here have used them, and all speak of them with praise. They are in every way the ne plus ultra of Harvest Machines.

The tests of TWENTY HARVESTS have made manifest the remarkable durability of the BUCKEYE, resulting from the simplicity and perfection of its mechanism, and an immense majority of the farmers in the Pacific states and territories have given the same verdict as the farmers in every part of the world where the Buckeye has been used, pronouncing it to be

The only Harvesting Machine that will give Entire Satisfaction to the Purchaser.



THE BUCKEYE LOW DOWN BINDER.

The features that most strikingly distinguish the Buckeye Platform Binder will be made obvious by a glance at our illustration. It is a lower, narrower, and lighter machine than the Elevator binder. It will pass in a straight line through a ten and a half foot gate, and will do the work on reasonable side hill as well as on level ground and it is the only binder that will do it.

WE ARE ALSO SOLE AGENTS:

New Model Vibrating Thresher, The most effective and successful combination for cleaning grain ever constructed.

Hodge's Haines' Header, The most durable and Lightest Draft Header ever made; so improved for 1886 that it is beyond question, without a rival.

MONITOR UPRIGHT FARM ENGINES,
PHENIX STRAW-BURNER THRESHING ENGINES,
SCHUTLER FARM WAGONS,
FOUR-SPRING WAGONS, BUGGIES, HACKS, ETC.

Send for Special Circulars for the articles desired. Mention this paper. CHAS. H. DODD & CO.

BUTTERFIELD BROS.,

Watchmakers, Jewellers and Engravers to the trade. Orders from the country promptly attended to. 162½ First street, Portland, Or.

AGENTS WANTED for **DR. SCOTT'S** beautiful **Electric Corsets**. Sample free to those becoming agents. No risk, quick sales. Territory given. Satisfaction guaranteed. Address **DR. SCOTT, 842 Broadway, NEW YORK.**

THOS. VARWIG, SANITARY PLUMBER, GAS and Steam Fitter, No. 73 Washington street, between Third and Fourth, Portland, Or.
Dealer in Lead and Iron Pipe, Copper Bath Tubs, latest improved Water Closets, Marble Basins, Rubber Hose, &c.

A. H. JOHNSON,

Stock Broker, Wholesale Butcher and Packer, and Dealer in all kinds of

Fresh and Cured Meats, Bacon, Hams and Lard.

Special attention given to supplying ships. Stalls 26, 27 and 28, Central Market, Portland, Or.



No. 66 Washington St., PORTLAND, OR.

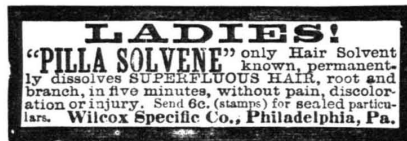
Portland Steam Candy Manufactory.

ALISKY, BAUM & CO., Proprietors,

MANUFACTURERS OF

French and American Candies and Confectionery.

Retail department, 145 First st. Wholesale department and factory, cor. E and Sixth, Portland, Or.



THE BISHOP SCOTT GRAMMAR SCHOOL.

A Boarding and Day School for Boys.

The eighth year under its present management begins September 1. Boys of any age or degree of advancement admitted. Boys fitted for college or business. Three Yale graduates among the teachers. Special instruction in penmanship, drawing, music and modern languages. Discipline strict. No bad boys admitted. For catalogue and circular, or any information, address **J. W. HILL,** P. O. Drawer 17, Portland, Or. Head Master.

WILLIAM BECK & SON,

Wholesale and Retail Dealers in Sharp's, Remington's, Ballard's, Marlin and Winchester Repeating Rifles, Colt's, Remington's, Parker's, Moore's and Baner's Double and Three Barrel Breech-loading Shotguns.



Fishing Tackle of every description and quality. Leaders, Fly-Books, Baskets, Bridged and Tapered Oil Silk Lines, six-spliced Split Bamboo Rods, Sturgeon Lines and Hooks of all kinds.

165 & 167 SECOND ST., PORTLAND, OR.

THE WEST SHORE.

12th Year.

Portland, Oregon, July, 1886.

No. 7

ESTABLISHED 1875.

THE WEST SHORE.

An Illustrated Journal of General Information, devoted to the development of the Great West.

Subscription price, per annum.....\$2 00
To foreign countries, including postage..... 2 25
Single copies..... 25
Subscription can be forwarded by registered letter or postal order at our risk.
Postmasters and News Agents will receive subscriptions at above rates.

L. SAMUEL, Publisher, Nos. 171 and 173 Second St., Portland, Or.

Entered for transmission through the Mails at Second Class Rates.

TABLE OF CONTENTS.

	Page
An Imposing Monument (Illustrated, page 214).....	216
Beet Sugar.....	225
Bird's Nests in Japanese Houses.....	220
Editorial.....	199
Healthful Influence of Bathing.....	205
Iron Ore of the Pacific Northwest.....	203
Joan's Tramp.....	206
Multnomah (Illustrated, page 212).....	217
Notes of the Northwest.....	226
Pioneers of Oregon (Illustrated, pages 223, 224).....	221
Swedish Iron Mountain.....	215
The Balmy Chinook.....	218
The Cottage by the Sea (Illustrated, pages 201, 202, 211).....	200
The Okanagan Mines.....	216

It should be a great fundamental principle of all Americans to patronize home enterprises and purchase home products in preference to foreign articles; and this idea should not be confined to its national sense, but be applied locally in all the affairs of life. It should be so thoroughly localized that every citizen would discriminate in favor of his own state as against any other, his own county when in competition with another, and his own city, town or village in preference to all others. Above all things those local industries which are struggling to secure a foothold and whose presence and successful operation mean added business and prosperity to the communities in which they are located, should be encouraged, not only by well wishes but by actual, tangible patronage. It is, of course, asking too much to insist upon the public purchasing an inferior article at a higher price, simply to encourage home production; but when both the quality and price compare favorably with those of work performed or goods shipped from a distance, it is the duty of every citizen to aid the home manufacturer by giving him the preference. If he be a merchant or professional man depending upon the prosperity of the community, an owner of property whose value is regulated by the same standard, a capitalist whose money is secured by that property, a manufacturer of other goods in the same community, or even a mechanic whose family is dependent upon his opportunity for constant employment, in fact if he be actively engaged in almost any of the avocations of life, he will be helping himself by aiding to uphold the industries of

his own city, county or state. There has been much said on this subject by the press and private individuals, and it would seem strange that so little effect has been produced by so much preaching, were it not a well-known fact that precept has been estranged from example, that some of the most frequent and persistent scolders are often guilty of the offense they so forcibly lay at the door of others. Let us all do what a proper public spirit and a true regard for our welfare should dictate, and the complaints of manufacturers and dealers will cease, and with them will disappear much of the hard times and scarcity of employment which bear so heavily upon many of our people.

COMPETENT persons estimate the coming wheat crop at about the same quantity as that of last season. As the acreage is somewhat larger this year, this is allowing for a small reduction of the average yield, owing to the lack of rain for maturing the spring grain. Since this estimate was made there have been several rains of sufficient precipitation to benefit the crops materially. The total yield will not fall below that of last year and may exceed it. In some localities last year's crop will be largely exceeded by the coming harvest. What our farmer's need is not so much a large crop as a fair price for what they harvest, and this seems possible only through lower rates and better transportation facilities, since there is apparently no ground upon which to base a prediction of a marked advance in wheat quotations.

Now that congress has practically decided that the United States shall have a navy, it is to be hoped that the efforts being made to have a naval station and ship yard established by the government on Puget sound will be successful. All the elements of coal, iron, wood, timber, sheltered harbors, and distance from open sea where there is exposure to capture in times of war are present on Puget sound more fully than any other locality in the union. Lake Washington, back of Seattle, offers the best fresh water harbor on the coast and can be connected with the sound by a short and comparatively inexpensive canal, by the way of Lake Union and the stream discharging from it.

BEGINNING with the present number THE WEST SHORE makes another important step upwards. Its illustrations will in future be printed in three colors, giving them a finish and artistic elegance which can not be produced in any other way. A large engraving of the beautiful Multnomah falls occupies two pages in the center of the magazine, and it is the intention of the publisher to give similar large and elegant engravings of our choicest scenery from month to month. This will render it doubly attractive and valuable.

THE COTTAGE BY THE SEA.

ALTHOUGH we are happily exempt from those days of scorching sun and nights of oppressive heat which are the heritage of dwellers in Eastern cities, when he who can afford it seeks refuge among the mountains, in some quiet country home, or where the cool sea breezes bring him delicious relief, while he who can not pass the day in sweltering toil and at night visits the housetop for a breath of pure air, the custom of "going out of town" for a brief season in summer is becoming yearly more general with our people. And this is a matter more of custom than necessity, for to spend a summer in Portland is by no means a hardship. With the days never so warm that one is uncomfortable in the shade, and with the nights so cool that bed clothing is not a burden, while a slight fire at times does not come amiss, no one can complain of the climate; with a splendid river on which may be seen a multitude of boats; with good streets and splendid roads leading back into the hills, upon which one may drive and enjoy the twilight, which in this latitude lingers until far into the night; with places of amusement open to the public and all the varied attractions of the city scarcely diminished, the stay-at-home need not feel discontented with his lot.

The Portlander does not leave home in summer to escape discomfort so much as for the reason that this is the only season when he can be comfortable in the places to which he desires to go to relieve the monotony of existence. The devotees of society find in a complete change of surroundings and method of life recuperation of their vitalities; the over-worked merchant, clerk or professional man finds in the mountain retreat or on the breezy beach rest from his toil and a healthful stimulant for both body and mind. He fills his lungs with the pure air of the mountains or the salt breath of the sea and feels himself endowed with the vigor of a new life. The matron, worn with family cares and bending beneath the burden of domestic drudgery, finds in these quiet retreats rest from her labors, and with the invigorating atmosphere draws in strength to again take up her load of care with a lighter heart and a renewed vitality. The student, also, the overtaxed scholar and the patient, but wearied, teacher find amid the mountain firs and on the sands of the seashore health and strength for another year of labor.

There are so many health and pleasure resorts within easy reach of Portland, that none of them seem in danger of becoming over-crowded. The mountains invite the hunter and fisherman, the snow-draped peaks enchant the inquisitive explorer, and the mineral springs hold out promises of health to the invalid, but the great mass of our summer exiles seek the ocean beach, because they find there such an absolute and complete change of surroundings and habits of life. Year by year the number of these temporary dwellers by the sea increases, while excursions down the noble Columbia to beaches near its mouth are more frequent and better patronized.

It is becoming "quite the thing" to have a "cottage" in one of the several seaside settlements, a term sufficiently flexible to apply to any kind of habitation from a two-roomed shanty, innocent of paint and plaster, to a domicile of proportions and finish that would entitle it to a place on any thoroughfare in the city. Numerous tents are pitched among the trees back from the beach, whose occupants enjoy all the freedom and discomforts of camp life or board at one of the several seaside hotels in the vicinity, whose rooms are filled with guests who prefer a less radical change from their usual mode of life.

Life at the beach, as revealed by the artist, on pages two hundred and two and two hundred and eleven, is one devoted entirely to pleasure and health-gaining, days of freedom from care and abandonment of mental and physical labor. Surf bathing is, of course, the prime and most beneficial amusement, but with this are linked numerous other pleasant diversions, such as driving and promenading on the beach, fishing and hunting in the mountains a few miles inland, boating on the streams entering the ocean near the settlement, and the social enjoyments customary where friends are collected together and have ample time to devote themselves to pleasure. Dame Fashion has, as yet, laid a light hand upon our summer resorts, but as time passes more attention will probably be paid to her whims, though it is to be hoped that such will not be the case.

The resorts most frequented are Yaquina bay, which may be reached in a day from this city, over the lines of the Oregon & California and Oregon Pacific railroads, and those at the mouth of the Columbia, which are reached by steamer. Besides the usual daily steamers to Astoria, the *Olympian* and *Telephone* make regular trips during the week, their time being especially arranged so that one may leave here Saturday, spend Sunday at the beach and return in time for business Monday morning. Frequent excursions take hundreds of pleasure seekers for a day's enjoyment in viewing the beautiful scenery at the mouth of the river, visiting the lighthouse at Cape Hancock, and sniffing the salt air from the ocean. South of the mouth of the river several miles is the famous Clatsop beach, the oldest of all the resorts, where two hotels, fine camping spots and a splendid beach for bathing and driving are the attractions. North of the river are Ilwaco and the adjacent North beach, and still further north is Long beach, the former being sometimes known as "Stout's," and the latter as "Tinkerville," in honor of the proprietors of their respective hotels. There is, also, Ocean Park, where the Methodists hold annual camp meetings. The cottages are to be found chiefly at Ilwaco, Stout's and Tinkerville, and are becoming so numerous that choice building lots which a few seasons ago brought little else than a smile when offered for sale, now command upwards of one hundred dollars each. A few years more will see a sojourn at the beach a regular summer custom of the majority of those who can afford it, and a cottage by the sea an almost universal adjunct of an establishment in town.

IRON ORE OF THE PACIFIC NORTHWEST.

BY a curious, but valuable, provision of nature, iron, the most indispensable of metals, is also the most widely disseminated, being found in nearly every geological stratum, and amidst the most divers surroundings. It is, therefore, not to be accounted extraordinary that its ores are extremely common throughout the Pacific Northwest, being found in nearly every county in Oregon, Washington and Idaho, as well as in many districts of British Columbia, to the northward.

The parsimony, or rather, the ignorance, of legislatures, has thus far prevented the almost unmatched mineral resources of this part of the Union becoming known through an always necessary geological survey, and left to chance or the exertions of voluntary and usually inaccurate observers, the dissemination of that information which should be the care of the state. Consequently, whatever is at this day said of the occurrence and extent of the iron ore bodies is largely approximate in its application, and the same is true of the deposits of all other valuable minerals.

Notwithstanding a certain barrenness of detail which enfolds the subject, one is able, by the help of what has been printed in relation to the iron ores of the Pacific Northwest, to point out the existence and locality of several beds, or collections of beds, which by their extent and position warrant one in assuming that they will be the future source of the greater part of the iron made in this region. These deposits may be designated, first, the Lower Willamette Beds; second, those of Snoqualmie, W. T.; and third, those of Texada island, in the Gulf of Georgia, B. C. These do not, by any means, comprehend all of the valuable deposits, but are simply the most extensive, and at present, by reason of their location, appear as the most easily and profitably worked. There are, as is well known, a great many considerations which affect the value of a deposit of any ore besides its extent and purity. The principal one in the case of iron ores is accessibility; for the product, crude cast iron, is of such great weight for a given value that cheap transportation to market is an imperative necessity. Second is the question of fuel and fluxes for smelting the raw ore into merchantable metal; mineral coal is the only fuel used in a large way, enabling the art of smelting to rise to the dignity of a business, and this fuel must be mined close to the blast furnace where it is to be consumed, for like crude cast iron, it will not pay expensive transportation. Then a bulky flux, limestone, is used, and it, too, requires to be had very cheaply. It is only by a combination of cheap ore, cheap fuel and cheap limestone, with an enormous output, that American ironmasters are able to maintain themselves against a powerful competition that lays down an excellent article of pig iron in New York for less than twenty dollars per ton, and promises to do even better with the removal of the duty.

There is a locality that combines all the above cited advantages in an eminent degree; so much so, in fact,

that it seems as if the Divine Architect had decreed that the seat of great iron manufactories should be on Puget sound. Rather more enterprising than their Oregon neighbors, the people along the "Mediterranean of the Pacific coast" have examined into and mapped out and described their principal mineral deposits, and are enabled to inform the world that upon certain islands and the neighboring main lands there exist beds of iron ore, coal, and limestone, sufficient beyond doubt to furnish steel and iron for the universe. There are deposits of an excellent quality of brown hematite (limonite) in Skagit county. Three inexhaustible beds on Cypress island have received particular attention, and an examination by an expert has revealed some facts of great value. These ores are magnetic, and lie in sandstone and slate, but of what geological age does not appear. The Tyll lode has two parallel beds twenty-eight feet apart, and of a thickness of thirty-two and thirty-seven feet respectively, and are traceable on the surface for over three thousand feet. The Mabel, varying from twenty to sixty feet in thickness, and the Conner, fifteen feet, are, like the former, easy of access, and are composed of oxidized ores of a uniformly high percentage value. A trial lot was smelted and pronounced first-class. The principal value of these beds, like the others on Puget sound, lies mainly in the cheapness of transportation and the nearness of coal and limestone in immense quantities. Other deposits of nearly as great value exist in numerous localities on and near the sound, notably one within fifteen miles of Tacoma. The Chinacum beds have furnished hematite ores for the blast furnace at Irondale, and promising ores exist in Whatcom and other counties. In the aggregate the accumulations of bog (limonite) and magnetic ores seem inexhaustible, and the iron workers of the far distant future centuries will very likely take the same view.

Perhaps the most remarkable of all the iron deposits are those of the Snoqualmie pass, which also rank among the most important on the coast. Pretty well up in the Cascades, seventy miles from tidewater, there exist ores which compare well in chemical composition with those of the famous Lake Superior beds. Iron mountain is three miles from the pass, and is penetrated by immense layers of magnetite of the following composition:

Metallic iron.....	67.	71. per cent.
Silica.....	1.3	4.02 "
Phosphorus.....	0.031	0.039 "
Sulphur.....	0.003	0.042 "

This analysis is certainly very low in those objectionable substances, sulphur and phosphorus, and there is no doubt the ore would smelt into an uncommonly pure iron. Still it is not by the result of the analysis of a single test sample that practical iron workers are guided, but by the average composition of a great lode. The deposits are known as the Denny mines, and have a vertical outcrop strike nearly north and south, and vary from six to one hundred and fifty feet in thickness. The analysis given is from a specimen taken from the

Cliff lode. Not far away, at the east end of the pass, are immense beds of red hematite ores of equal purity, suitable for mixing with the magnetic iron, to increase the value of the product. A favorable circumstance attending is the existence of coal in great quantity close at hand, and it is said that limestone is also found near by.

In Cle-el-um mining district, W. T., a great lode of magnetic iron is said to penetrate throughout, with deposits of silver, copper and nickel ores attending. This lode, as well as numerous others found in Eastern Washington and Eastern Oregon, have received no especial attention, and doubtless will not be for many years to come of any particular value. The same is true of the iron ores of Idaho and Montana, which have not thus far been utilized, except in very small amounts as a flux in lead smelting. It is worth mentioning that at a point fifty miles south of Caldwell, Idaho, and near South mountain, is the Narragansett iron mine, which consists of a body of magnetic and specular ores so large that two acres of surface dirt stripped away have not revealed any limit to the bed. Near by, a fifteen-foot lode of hematite exists, which is said to carry thirty dollars per ton in gold; but this is, no doubt, an exaggeration and scarcely allowable unless the mine is for sale.

In British Columbia are a great many surface indications of iron, but very little attention has been paid to them. The most important find yet made is on Texada island, in the Gulf of Georgia, about one hundred miles north of Victoria. There are enormous masses of coarsely granular magnetic ore which are traceable for miles and are finely situated for mining and shipping, being close to deep water. The ore carries, by analysis, sixty-eight per cent. of metallic iron, with very little phosphorus, but so much sulphur as to require roasting before smelting. The location is within twenty miles of the extensive Comox coal fields, on the shore of Vancouver island. Limestone is plentiful in the immediate vicinity. It is under such favorable conditions that great iron manufacturing enterprises are certain to grow up, and it is highly probable that the next, or even the present, generation will see these rich deposits utilized, and an industry of unparalleled magnitude take its rise. The first ore mined at Texada was in 1879, when it was sent to London for smelting, the shipments that year amounting to two hundred dollars, but increasing considerably in later years.

Puget sound has already become the seat of iron manufacturing, for at Irondale, five miles below Port Townsend, exists a smelting plant of some importance, which has made during a series of years the initial efforts to firmly establish the industry upon these shores. Beginning work in the seventies, a blast furnace with a capacity for smelting ten tons daily was first set up and run on mixed ores, receiving hematite from Chinacum and magnetic from Texada. A schooner plying to the mines brought the minerals cheaply, and calling at San Juan island took thence limestone for flux. The fuel was charcoal, burned in the neighboring forests, as many as two hundred and fifty men—half the whole dispos-

able force of laborers attached to the works—being employed in chopping wood and attending the kilns. In 1882 and 1883 the business made such a satisfactory showing that great additions were made. A wharf two hundred yards long was built and the furnace was replaced by one of fifty tons capacity, with elevators and all the usual accessories of a first-class establishment. Twenty tons of iron were turned out daily during a part of 1883, and the business seemed assured, but owing to the universal depression, a partial cessation of operations has occurred.

The principal iron ore deposits in Oregon lie along the west side of the Willamette, reaching from near the falls of that river to a point opposite Kalama, on the Columbia, being developed most strongly in Columbia county, and in geographical extent are hardly equaled elsewhere in the world. The ores are bog iron and to a great extent lie in depressions upon the upper surface of lava beds, being covered for the most part with a thin layer of soil washed there by running water. Iron ore occurring in this manner in cavities in basalt is not unknown in other localities, though not elsewhere found in such prodigious quantity. The deposits are varied in quality as well as quantity. Certain layers found near Oswego gave, upon analysis, fifty-five per cent. of metallic iron, while in other localities near by the best lots only yielded ten per cent. The ores worked in 1866, on the starting of the blast furnace at Oswego is described as a brown hematite, containing from forty-six to fifty-six per cent. of metallic iron. In 1876 the ore used had but ten per cent. A Mr. Olds first drew attention to these deposits by erecting, in 1862, a miniature reduction furnace two miles from the mouth of the Tuaitlin, wherein he smelted some iron, getting a product that was pronounced very fair. This was the first iron reduced from ore on the Pacific coast of North America. During the subsequent years the industry has been kept up not far from where the embryo works stood, and what is satisfactory to add, with as constant progress as the times would admit of. In May, 1865, a company was incorporated, with a capital of \$500,000.00, to work the mines, with W. S. Ladd as president, and twenty Portlanders owning the most of the stock; within a year works were erected at Oswego, a hot blast furnace of ten tons daily capacity included. The institution was a wonder to Oregonians, few of whom had ever seen the like. In 1875, the daily product being ten tons, the expenses of producing one ton were proportioned as follows: ore delivered at the furnace, \$10.75; charcoal, one hundred and fifty bushels, at nine cents per bushel, \$12.50; wages, \$4.00; limestone, brought from San Juan, Puget sound, five hundred pounds, \$5.00; total cost of one ton of iron, \$33.25. The metal sold in San Francisco for \$46.00 per ton, and has ever since been in demand in limited quantities for those special purposes where charcoal pig is considered indispensable. The Central Pacific Railroad Co. tested it and found it well adapted to car wheels, etc., but it never could compete for ordinary purposes with Scotch and English pig,

first-class brands of which are delivered in San Francisco, and even in Portland, for little over \$20.00 per ton. The works have been in operation about ten of the twenty years that have elapsed since their completion, and have undergone many changes. The average annual production during the periods of activity has been about fifteen hundred tons, worth an average of about \$35.00 per ton. For example, there were fourteen hundred and sixty-five tons, worth \$45,232.00, shipped in the year ending June 30, 1883, and for the next year, fifteen hundred and forty tons, valued at \$29,274.00. Oregon does not appear in the census statistics of 1870 as a producer of iron, but in 1880 the state (meaning, of course, the Oswego furnace) is credited with an output of thirty-two hundred tons, which entitles Oregon to rank as the twenty-eighth state of the Union in point of production of iron. It may not be amiss to remark that the total product of the United States for the same year was seven million two hundred and sixty-five thousand one hundred and forty tons.

The decline in the price of iron and steel has been universal, charcoal iron keeping pace with it, so that the metal from Oswego sells for about half what it commanded twelve years ago when the above estimate of cost was made. But as iron has fallen so, too, has the cost of producing it. Labor is somewhat cheaper, the ore can not possibly cost half as much as there stated, charcoal in large quantities can certainly be procured for half of nine cents per bushel, and limestone, costing \$20.00 per ton in 1874, was but \$6.00 in 1876, and could probably be furnished now at a dollar or two less. Besides, the producing powers of the plant have been largely increased in late years until it is now regarded as one of the best equipped and most effective establishments in the country. Its product is quoted now in San Francisco at \$21.00 per ton, while various brands of Scotch pig, brought as ballast in wheat ships bring from \$19.00 to \$23.00 per ton. It appears that the Oswego pig does not have the advantage of being made from a mixture of ores in scientifically proportioned charges, whose constituents are of known composition as determined by chemical analysis—in other words, chemistry's transcendent powers are not brought to bear upon the problem of making the best out of whatever materials are at hand at Oswego. It is thought by some that the magnetic iron ore of Gold Hill, Jackson county, might be profitably shipped for reduction with the limestone of Clackamas county, the Gold Hill deposit being of exceptional purity. The experiment is well worth trying.

H. O. LANG.

HEALTHFUL INFLUENCE OF BATHING.

Bathing for health and comfort is a practice long tried, sanctioned by many nations, and condemned by none. The ancient Grecians and Romans, once the proud models of both physical and mental superiority, had in their little villas very expensive public baths connected with their gymnasiums and libraries, and in

all subsequent ages able and intelligent people have continued this valuable appliance, until now the better class of Europeans deem the absence of a well equipped bath room in any residence almost a disgrace to the owner. It is said "the bath is common in Turkey, Egypt and Persia, among all classes, from the crowned head to the poorest peasant." And "in all Russia, Finland, Lapland, Sweeden and Norway, no hut is so poor as to be destitute of a family bath." To these proofs of the utility of bathing, science adds volumes of explanatory items of fact.

"The skin of the human body is made up, to a large extent, of excretory and secretory glands, of minute blood vessels and millions of branches of the principal nerves of sensation. In Wilson's "Treatise on Healthy Skin," we are told there are about two thousand eight hundred pores to the square inch of surface, and on the entire body several millions, which are but the openings into miles of minute tubing, little channels of intercourse between the outer world and inner life. Let anything unhealthy be retained in these channels, and disease and death results. To keep them free to act there is nothing equal to complete immersion in water of a temperature varied to suit the temperament and condition of different persons and different seasons in life, whether cold, tepid, warm or comparatively hot, as experience and good judgment may suggest, the immersion being attended or followed by friction or rubbing.

People in every variety of business vocation, and in almost every condition of life, have repeatedly given testimony to the healthful and happy results of appropriate bathing. Gardeners, florists, horticulturists, farmers, tillers of the soil, need a bath. Crude earth may nourish vegetation, but not man, and when mixed with glutinous perspiration it forms an unhealthy, almost poisonous compound, which calls for the cleansing effects of the bath. The engineer, brickmaker, machinist, housebuilder, blacksmith, shoemaker, saddler, harness-maker, every kind of mechanic needs a bath. Dust and grease may not injure their work, but they do not improve the appearance or health of any person, and they effectually clog the pores of the skin. All laborers come in contact, more or less, with unclean substances, and all of them should have access to a convenient bath; and there is another class of men who need a bath, as much for its happy effects on their nerves as for simple cleanliness; the studious scholar, the professional teacher, the magistrate, the scribe, the clergyman, the dealer in nice fabrics, all indoor workers, and especially mental workers, need not only the cleansing but invigorating and happifying effects of a good bath. And last, but not least, in case of sickness, which often happens when least expected, as in cholera, cholera morbus, cramp, fits and numberless other ailments, a pliable portable bath which requires but little water, ready just at the right moment, may save some precious life. Finally, every house should contain a convenient bathing apparatus, and every member of the household should use it at least once a week. As good, practical, portable baths are advertised for sale at a merely nominal price, no one need be without so useful an article, which is invaluable in health and inestimable in sickness.—*Health and Home.*

JOAN'S TRAMP.

WHAT are you saying, Miss Heath? Pray give us all the benefit of your remarks, and we'll pay the closest attention." The speaker, a young man of some five-and-twenty summers, was lazily reclining on the grass-carpeted ground, his back resting against a stone, fallen at some distant period from the ruined tower that furnished the shade in which the whole party was grouped.

It was a pic-nic party. The meal being finished the partakers thereof had left the turf enclosure which had served as a dining room, to settle down in this shady corner, here to wait until the heat should diminish, for the sun was shining with almost tropical intensity.

"Certainly, Mr. Emerson," said the young lady addressed, who made an agreeable picture, in her pink cotton dress, shown up by the dark background of ivy. "I merely said that I know why Nellie Heriot is not here. Her nerves have not recovered since the terrible fright she had day before yesterday."

"Indeed?" drawled a young Hercules, whose eyes had been glued to the fair speaker. "How interesting! Pray tell us what it was."

"A ghost?" asked the youngest girl present.

"Or a spirit message through the dining room table?" asked Emerson.

"Neither," said Phyllis Heath. "She met with a tramp when out walking, and he terrified her into giving him everything of any value she had about her—watch, rings, purse and a little locket she wore around her neck. Silly girl! to go for so long a walk alone. I never do."

"I should think not," said young Hercules, otherwise Carter Abbott.

"But I wonder," remarked a quiet girl in brown, "that she did not scream for help or run away. Phyllis says she was so frightened that she handed over everything like a lamb."

"How dreadful!" said another. "It makes one feel quite nervous."

"Miss Heriot must be exceedingly foolish, I think," stiffly said Prudence Heath, elder sister to Phyllis.

"What should you have done in her place, Miss Heath, if I may venture to ask?" And the dark eyes of Kane Emerson danced mischievously under the hat he had pulled low, to ward off a wandering sunbeam which had squeezed its way through a chink in the old gray pile.

"I never walk alone," Prudence replied in a curt tone.

"I should have fainted, I am sure, Kane," said Lottie Emerson.

"Don't doubt it, my dear," he said dryly, "especially if you saw help coming."

Lottie laughed.

"How disagreeable and sarcastic brothers are! You are very silent, Joan, what are you thinking of; what would you have done under like circumstances?"

She turned as she spoke to a tall, fair, graceful girl, seated upon a projecting corner of stone. Her large hat lay on her knee, that she might more conveniently lay her head against the hard wall.

Many eyes followed Lottie's in the pause that followed her question, but the ones that contained the most interest were those of Kane Emerson and Fred Lenthall, his friend, a thoughtful looking man of apparently thirty.

"I would not have given up a thing," said Joan, with a half scornful smile, "I should have knocked the fellow down."

A burst of laughter followed, but Emerson said under his breath—

"By George, I believe she would."

"That comes from going in for gymnastics," said Phyllis Heath, looking pensively at her own little delicate wrist. "I am afraid that if I hit a man I shouldn't hurt him."

Joan's red lips took a more disdainful curve, but Carter Abbott, who had been gradually edging himself nearer to the object of his intense admiration contrived to whisper—

"Wouldn't you, though! You've hit me, and it hurts awfully."

Phyllis ignored him and continued to Joan—

"What a pity you're not a man, dear! I'm quite afraid of you, I declare, you are so perfectly strong and masculine."

"The little humbug!" said Emerson, aside, to his friend, and added aloud: "If that is true, Miss Kennet, you will not mind climbing with me to the top of one of the towers. The view is worth the trouble. Are you too much afraid of the heat?"

"Oh, no; I am quite willing," said Joan, rising, in perfect unconsciousness of the cloud that instantly darkened the brow of Fred Lenthall. "Come, Lottie," and she passed her arm through that of Kane's sister, "I know that you are not more afraid of freckles than I am."

The cloud passed from the face of Lenthall, to rest for a second on that of Emerson, who, however, was equal to the occasion.

"Fred," he said instantly, you must come and help Lottie up the difficult steps."

The four were soon mounting the dark, worn stone steps. They paused to take breath at the first remains of a landing, and looked out from a deep embrasure at the blue lily-covered moat.

"Now, Mr. Lenthall," said Lottie, "let us be in front this time. I know we can get up more quickly than they do."

He was compelled to follow. Joan was about to do the same, when Emerson stopped her.

"Stay a minute, please, Miss Kennet, and let us rest on this window seat," he said, suiting the action to the word. "I twisted my ankle slightly coming up. It will be all right directly."

"How unfortunate," said Joan, sitting down as far away from him as the width of the niche would allow.

"Quite the contrary. Any pain would be welcome, if it kept you by my side."

"Compliments are wasted on me, Mr. Emerson," she replied.

"That was not a compliment, truly, but the plain truth."

"You are so much given to small fictions," Joan said with a quiet smile, "that I never know when you are speaking truth. I am compelled to take refuge in believing nothing you say."

Emerson looked vexed and mortified.

"That is rather harsh. I don't think I quite deserve it."

Joan rose.

"I will go to the top," she said, "and you can join us on the way down."

"Don't go yet," he entreated, following her to the rude staircase. "Do listen to me for five minutes, won't you?"

"I have heard enough fiction for one day. I have a great dislike to being taken in, Mr. Emerson."

"What do you mean? Oh! my ankle? Well, I'll own that was a little bit of invention of mine to keep you near—"

She was already up some steps, so he had to give up the idea of saying more. He stood for a minute, frowning and silent, then quickly bounded up in pursuit.

* * * * *

Some few days after this Joan Kennet was walking homeward in the cool evening, after an afternoon spent with a friend. The lower edge of the sun was just touching the purple horizon, and the portions of the landscape that lay highest were suffused with a ruddy orange light.

The lane was a lonely one, but Joan was not nervous. She lingered to let her eyes dwell on the soft alternation of gold and purple tints, nor did she hurry when she heard behind her the heavy tread of a man.

A shambling, shuffling tread it was, its sound accompanied by a hoarse cough. It came nearer and nearer, and then she was aware of a thick and husky voice addressing her in a feeble, whining monotone—

"Poor man—can't get any work—got any coppers to spare, kind lady? Wife and eight little children—" etc., etc.

Joan's hand at once sought her pocket. But before she could produce anything therefrom her watch chain was clutched; it snapped at her hasty movement to escape, but the man, a tramp by his appearance, made another snatch.

Joan was hardly conscious of what she did. She only remembered afterward that a hand was for a moment on her wrist; that she exerted all her strength in a fierce thrust; saw her adversary lose his footing and stumble back into a ditch by the roadside; and that she fled with all the speed of which she was capable.

Her assailant was gathering himself up from among the nettles, when he found himself grasped by the throat, and Fred Lenthall, breathless with running, panted—

"You cowardly ruffian—how dare you?"

A brief scuffle ensued. Then the tramp was thrown heavily to the ground.

"You brute, Fred! You've half killed me!" came faintly from him.

Lenthall started and stared.

"Emerson!" he exclaimed, incredulously.

There was no reply. Stooping lower, for the twilight was increasing, he could see now that they were indeed the features of his friend. His eyes were closed, and he appeared perfectly unconscious.

"I don't pity you," muttered Lenthall, as he chafed the other's hands and loosened his neckcloth. Some minutes elapsed without this treatment producing the slightest result.

Half frightened, Lenthall looked round for water. There was none to be seen, but he remembered that lower down the hill on the crest of which he stood, a little stream trickled from the bank.

No movement from Kane. He stooped again to make sure, then picking up the shabby, slouched hat that had hidden the tramp's white brow, he carried it off as a vessel to convey water, and ran down the slope.

At the same instant Kane sprang up and shook his fist after the retreating figure.

"Got my hat, have you, Master Fred!" said he, "well, there's no one coming."

He hastily divested himself of a heavy, dark beard, flung it into the ditch and started off in the direction Joan Kennet had taken.

She was far ahead. He did not overtake her until she was in sight of her own gate.

"Miss Kennet!"

Joan turned around with a pleased smile, on hearing after her adventure, the voice of a friend. At the first glance his uncovered head and tattered coat told her the truth. Her face changed, and she walked on without a word.

"Miss Kennet," he said again, "I hope you were not really alarmed."

No reply.

"You are offended, I see," said Emerson, keeping by her side. "Well, I humbly apologize. It was what you said the other day that put the idea into my head."

Still no response.

"I wish I hadn't done it," he said gloomily, "I am always putting my foot in it with you. Do speak, unless you want me to blow my brains out. No, pray don't go in yet—not till you have forgiven me."

He laid his hand on the gate and held it shut, waiting for a reply. But Joan merely looked him coldly over, with an inward inclination to laugh at his odd appearance.

"How could I tell you would take it so seriously?" and Kane opened the gate, finding she was yet dumb.

Joan passed through, then half turned.

"I think," she said with energy, "there are few things more contemptible and underbred than a practical joke."

"What an idiot I am!" thought Emerson as she disappeared.

He stood leaning on the gate-post for awhile, absorbed in thought. The moon was rising as he walked slowly back. He scarcely raised his eyes from the ground, but kicked the stones along as he went, as if they had a share in his discomfiture.

"Hi!"

He looked up. The call came from Lenthall, who, with a cigar between his lips, was idly sitting on a stile.

"Well?"

Emerson waited until Fred Lenthall came up by his side.

"Kane," said the latter, looking him over, "if it pleases you to make yourself look like a stupid, pray do so; but if you frighten Miss Kennet again like this, you shall answer for it to me."

"Indeed!" said Kane coolly, "how long has it taken you to compose that speech?"

"Wherever you acquired a taste," Lenthall went on, ignoring this last remark, "for this vulgar masquerading—"

"Fred, you are an idiot!" interrupted his friend. "Don't grand-language me! If you want to punch my head, do it like a man. I'm ready!"

He threw off his rough "gaberdine," and made a feint of rolling up his shirt sleeves, but Lenthall did not move.

"You evidently want to be laid up with rheumatism," he said, "the air is full of moisture."

Kennet picked up the coarse garment and proceeded to put it on once more.

"You're a nice friend, he said," as they walked on together. "As soon as I am in trouble you jump on me."

"In trouble?" Lenthall repeated.

"Yes. I've mortally offended Miss Kennet. Fred, old man, I'm awfully fond of that girl, and she does not care a straw for me."

"I wonder at that," Fred said dryly.

"Well, I don't know, but I don't think it's my fault. I don't think that sort of thing comes from anything you do or say. By Jove! Isn't she strong, too? Still, I shouldn't have gone down so easily if I hadn't been just on the edge of the ditch. Oh, here's my hat—wet through, of course. Capital disguise, wasn't it?"

He picked up the soaked head-gear from the road and became silent. He was out of humor with himself, while Lenthall would say nothing that would bring back his self-respect. The latter was inwardly elated that his friend should have made so false a step with respect to Miss Kennet.

A little group was collected on the smooth lawn at Heathfield, as the Heath family called their pretty, gabled, red-brick house. The occasion was that of a garden party, at which were present nearly all who had been in the pic-nic at the ruined castle.

The center of this little group, toward whom even the tennis and croquet players cast now and then an inquisitive glance, was the fair Phyllis, in a complete costume of pink, with hat, gloves and sunshade to match. Her interested listeners were Joan Kennet and her mother, Carter Abbott, Fred Lenthall, and one or two others.

"I suppose," Phyllis was saying, "that he must have been riding carelessly. I was just peeping out of my window, and there he came, looking a wee bit melancholy, I thought, but perhaps that was only my fancy; I know I am foolishly sentimental."

She gave a quick glance at her large admirer, who tried very hard to think of some complimentary remark. However, he had no sooner constructed one beginning with "Well, I sh—" when Lenthall nipped it in the bud by saying—

"Pray, go on, Miss Heath."

Phyllis complied.

He was about opposite our house when his horse stumbled, and then scrambled and seemed to try to save itself, but could not. Down it went on its knees, and Mr. Emerson was thrown completely over its head. I screamed."

She dropped her sunshade on the grass, and clasped her pink gloves at the recollection. Her hearers looked so pale, especially Lenthall and Joan, that she felt encouraged to proceed.

"He came down on his head with oh! such a horrid thud! And then, somehow, he and the horse seemed to be all mixed up, and it sprawled about trying to get up, and at last did get on to its feet, and galloped away. I just saw from the window that there was blood on his face, and that he did not move.

"And what did you do then," asked Abbott breathlessly.

"Oh, I don't like to tell you," and Phyllis hung her head and looked at the ground; "I am such a little goose, I know; I fainted."

"You are too graphic, Miss Heath," said Lenthall, seeing Joan's ashy face. "Let me take you to a seat, Miss Kennet."

"No, thank you," she said decisively. "I would rather hear the rest. Is he—is he dangerously hurt, Phyllis?"

"When I came to," she answered, declining to give the conclusion of the story before legitimately reaching it, "mamma being in a great fright, and pouring lots of dreadfully cold water on me, he was down in the dining room and the doctor had been sent for—and his father, old Mr. Emerson. Papa wanted him to stay here so as not to be moved, but Mr. Emerson would have him home at any cost. I didn't see him, but I crept down to the door, and, oh dear, it was so horrid!"

"What was?" inquired Joan.

"I heard him groan! It frightened me so I ran away as fast as I could!"

"And this is all you know, Phyllis?"

"Almost. Papa went to ask how he was this morning. His head is very much hurt, and the horse had kicked him, but there was no danger. But he will be very much disfigured. Isn't it a great pity?"

"I don't know so much about that," said Carter Abbott, pulling his long mustache. "He was altogether too good looking before. No chance for us plain fellows."

"Poor fellow!" sighed Phyllis, with a pensive air. "His mother is fearfully upset. And as for Lottie!—papa said she had cried herself into a perfect fright. There, that is all! Now let us have some tennis. I see that game is finished. Joan, what do you say to Mr. Abbott and me against you and Mr. Lenthall?"

Joan excused herself and was walking away, when she found Lenthall at her side. He was extremely grave, and certain lines appeared in his forehead, which only showed when he was disturbed in mind. He saw that his companion was pre-occupied, and for awhile said nothing.

But when Joan found that they had strayed to some distance from the rest, she turned to go back. And although she did not know it, Lenthall had almost taken this opportunity to tell her of the hope he had so long cherished.

If it had not been for her pallor, and illy-concealed agitation on hearing of Emerson's accident he would have spoken the words that trembled on his lips. As it was, he kept them back, afraid to risk the almost certain "no."

An hour later Mrs. Kennet signed to her daughter that she wished to take her leave, but Phyllis caught Joan by the arm.

"Come up to my room before you go. I've something to show you," she whispered.

The two girls walked decorously in at the open French window, but once out of sight they ran up-stairs at full speed. When they reached her room, Phyllis locked the door and placed a chair for her friend.

"Sit down, Joan, while I get it out," she whispered.

Joan obeyed, half wondering what was to come, while Phyllis turned the key in a drawer and pulled it open. The next instant she held up by the brim, with thumb and forefinger, a battered, shapeless thing, hardly recognizable for it originally was—a hat.

"Look there!" And she waved it before Joan's astonished eyes. "I picked it up and brought it in here just to look at, and now I don't know what to do with it. I dare not let it be seen—anyone might think that I was in love with him. I am—rather. What would you do with it?"

"I don't know," said Joan, looking at it without the shadow of a smile.

"Wouldn't you like it, dear?"

"No, thank you. Why don't you burn it? It can't be any further use. With what a crash he must have come on his head to make that hat such a shape! Ugh! It makes me feel sick!"

"You are quite sure you would not like to have it, Joan? I thought perhaps you would like to treasure it up."

Joan laughingly declined the offer, and after the drawer was once more closed and locked they went out together.

After this she only heard of Emerson at intervals, sometimes from his sister Lottie, sometimes from the Heaths. And now and then she met Fred Lenthall, whose manner to her was quite altered from the time of his friend's accident.

About this time her mother insisted on Joan taking iron, and not being satisfied with the result of a course of that tonic, she tried steel. Joan said nothing, but took her doses with apathetic resignation.

Two months passed, and Mrs. Kennet had prescribed plenty of open-air exercise. Joan not infrequently sent little notes to Lottie asking for her company.

One day in the middle of September, the latter called for her and asked her to accompany her to the village. Lottie was in low spirits.

"Did your brother tell you of the trick he played me here?" asked Joan, pausing at the well-remembered spot on the hill. "He dressed up as a beggar and followed me."

Lottie had heard nothing of the incident, so Joan recounted it.

"Ah! That makes matters more clear to me," said Lottie, as she slipped her hand through her friend's arm. "You have not forgiven him for it, you cruel girl."

Joan made no reply to this, but her lips curved into a smile that was not easy for her friend to understand.

"The house is so gloomy now," sighed Lottie. "It seems as though Kane would never recover his old light-heartedness. Mamma is always grieving over his disfigurement; and papa is quiet and serious now, Kane never makes him laugh as he used to. I do my best, and Fred comes in very often and tries to cheer us all up; but in spite of all we do, the poor boy keeps so thin and dispirited—and the doctor says he will never be better unless he gets over those dreadful attacks of depression."

"Poor Lottie!" said Joan, tenderly, as the girl's voice became tearful.

"My happiness is all clouded," she went on, after a pause. "I once thought that if Fred were to ask me to be his wife I should be too happy to live. And things have turned out so differently! Ah, Joan, I used to be so jealous of you. He used to follow you everywhere, and was only civil to me. Everyone used to run after you. Who would have thought that Phyllis and I should be engaged first!"

"Phyllis engaged!"

"Yes, to Mr. Abbott. They, at least, seem to be perfectly content. When do you mean to follow suit, Joan?"

Joan was gathering and eating blackberries. She hooked down a high branch with her umbrella, and gathered all of the ripe fruit from it before she answered quietly—

"Not at all."

Lottie looked at her eagerly.

"Why not? Joan, you might tell me whether you have any reason for saying so—whether there is not some person you care for? You know it would go no farther."

"No farther than Mr. Lenthall, you mean," said Joan, quietly. "No, Lottie, dear, I have no little romance to tell. I did have one, once, but it's over now—dead and buried. There, now, you know all there is to know."

She walked on, so abstracted that it was some time before she became aware that Lottie was crying quietly. Her large eyes became almost round with surprise.

"What is wrong?" and she put her arm around the weeping girl, and drew her to where the ferny bank offered an inviting seat.

"My last hope!" sobbed Lottie. "Don't Joan, I thought better of you."

"What do you mean? I don't understand you," said Joan.

Lottie dashed away her tears and drew away from the encircling arm.

"I would not believe it before. He said you avoided him, coming from church, Sunday, but I was sure he was mistaken—I knew you used to care for him. Why, if Fred were hideous, I should not care. He'd be the same to me. Here, let's go back."

"Go back!" Joan repeated in surprise. "I thought you wanted me to go to the village with you."

"Not now—not that way!" and Lottie, looking very nervous and excited, caught Joan by the arm, and tried to drag her back the same way they had come.

"Are there some cows coming," asked Joan, superfluously, for the road here turned a sharp corner, and it would have been utterly impossible to see anything till it was close on them. "How absurd you are, Lottie! I will not stir a step till you tell me why."

"Because—because—oh, here they are!" stammered Lottie, confusedly, her cheeks becoming red as her eyelids.

As she spoke, Lenthall and Emerson turned the corner, arm-in-arm.

"This was a plan, then! Lottie, I'll never forgive you," she whispered.

She shook hands in a cold and distant way with each of the young men. Lenthall was quite unconscious of any stiffness, for he had seen the wetness of certain eyes, and he was all anxiety to learn the cause.

Emerson, however, instantly shrank into himself, for he had become painfully sensitive, attributing any fan-

cial slight to his changed appearance. He was scarred, certainly, but his dark eyes had not altered, except in expression.

"Shall we turn back with them, Kane?" Lenthall asked, and the other assented.

There was no help for it. Lottie and Fred must be allowed to linger just out of hearing, and to converse in tender undertones. Joan felt that she had been trapped, and suspected Emerson of being in the plot, though in fact he was under the impression that the meeting was accidental.

"I am glad to see you are able to go out again," said Joan, formally.

"This is not the first time; I was in church, Sunday," he answered.

"I saw you," and Joan tried to seem unconscious of his quick glance.

"I thought so—although you would not speak to me."

The reproach made Joan feel a little choky in the throat. How could she tell him why she had shrunk from the meeting—not trusting her power to greet him calmly?

"This is the first time we have met," Kane went on, as she was silent, "since I offended you so bitterly. I hardly thought you would nurse that offense so long—after I had apologized."

"I did not," said Joan, finding a voice, but rather a harsh one, through her effort to command it. "I was annoyed at the time, but that was all."

Then her coldness and distance were all due to his marred face, Kane thought, and longed for the interview to end.

"I shall not annoy you in that way again," he began, for the sake of saying something. "I think when I fell on my head I must have smashed my organ of humor, for I have felt sober enough ever since."

Joan's throat was a little troublesome again.

"It is being out of health. That is all, I hope," she said, after a pause.

"What, don't you think it an improvement? I remember how you used to complain that I was never serious."

"And now I wish you were less so," said Joan, looking away from him. "Shall we wait for the others?"

"If you like," he answered, and he looked back to where the lovers were following slowly far behind.

"I never gave you credit for so much vanity, Mr. Emerson," said Joan, breaking the uncomfortable silence.

"Vanity!"

"What is it but vanity that makes a scar or two trouble you so much?"

"It is not the scars that trouble me, but the difference that I find in my friends," Emerson answered, moodily.

"Mr. Emerson, you surely do not think such a thing as that could make any difference to your friends."

"We will take one instance," said Kane, looking at her. "You and I used to be on good terms till I offended you. You say you have forgotten that affair. And yet—"

He stopped expressively for a minute, then went on again—

"I met Miss Heath the other day. She was so horrified at the sight of me that she shrieked and almost ran away. These are not pleasant experiences."

They sauntered on again.

"You would think them trifles if you were better. You are not really so much disfigured. I was agreeably surprised," said Joan.

He did not answer nor look at her. Joan paused a minute, then gave way to impulse, and laid a hand gently on his arm.

"Please don't think—"

Her voice failed, but her swimming eyes said the rest.

Emerson gazed into them at first in the most genuine astonishment, which gave place to something very different.

"Joan!"

Lottie had been watching them all the time, only half attending to Lenthall's remarks. Again and again she had sighed to see so much of the road between the pair.

Now she turned toward her companion with a satisfied smile.

"Look there, Fred! Do you feel jealous?" she said archly.

SWEDISH IRON MOUNTAIN.

In company with the article on "Iron Ore in the Northwest," the following, from the *Mechanical World*, will be of interest:

It can not be said that our iron mining companies have latterly had any very profitable times, for they have had to pay ruinous mineral royalties at a time when trade is very depressed and prices almost unprecedentedly low, and the amount of competition existing not only between home, but from Spanish, Swedish and other foreign sources, is very great. It has become a common occurrence, in fact, for imported ores to undersell ours, even in places contiguous to the mines. An enterprise, however, is now being undertaken, which, when completed, will have a considerable effect on the iron ore market of both this country and the continent, and will lead to still further competition in this direction. We allude to the opening up of what are, perhaps, the largest deposits of iron ore to be found in the world, large hills being almost entirely composed of this material of an extremely rich and valuable nature. The deposits in question are situated in the extreme north of Sweden, verging on Lapland, and a railway is now being constructed for the purpose of bringing the metal to market. The Northern Europe railway, said to be the most northern in the world, commences at the port of

Lulea, at the northwest end of the Gulf of Bothnia, a town of about four thousand inhabitants, having a very large timber trade, and possessing a good harbor, which vessels of large tonnage can easily enter, and runs across the Scandinavian peninsula to Ofoton Fjord, on the Atlantic coast of Norway. The line follows the Lulea river valley for the first twenty-five miles, then turning north, crosses the Arctic Circle and proceeds to Gellivara, one hundred and forty miles from Lulea. This section of the line, in which the work of construction is light, passing principally through valleys of sand and gravel, is now on the point of completion.

Vast forests of pine are here met with, extending over hundreds of square miles, and timber will now be able to be readily brought to the port for shipment. At Gellivara stands the mountain of that name, entirely composed of rich iron ore, hundreds of feet thick and covering many square miles. The ore requires no mining, being close to the surface, and can be quarried and put into railway wagons direct, the railway passing round the mountain for that purpose. A small portion of this ore already reaches Lulea, being carted the whole distance during the winter months. After leaving Gellivara, the line passes Lakes Tjantjas and Panki, to the great iron mountain of Kirunavara, whose peak of solid metal is visible at a distance of forty miles. This mountain is several miles long and eight hundred and fifty feet above the level of Panki lake. It is composed of about ninety-eight and one-half per cent. of peroxide of iron, very rich in quality, and is estimated to contain about two hundred and eighty millions of tons of metal above the waters of the lake. It is estimated this ore can be quarried and put into trucks for two shillings per ton. It will have to be carried eighty-five miles by rail to the proposed Atlantic harbor. A sister iron mountain, Luosavara, stands four miles to the northwest of Kirunavara, being about the same height, and also containing gigantic deposits of equally rich ore. The two mountains are separated by a valley, through which the railway will pass on its way to the Norwegian frontier, running by the Great Thorne lake, fifty miles long, and through forests of fir trees, until the frontier is passed on a tableland sixteen hundred feet above the sea level. The descent from the Kjolen mountains to the terminus, a distance of twenty-eight miles, is circuitous, and will necessitate some severe gradients and expensive works during construction, which is being undertaken by English contractors under the supervision of English engineers.

TOOTHACHE.—Pulverize about equal parts of common salt and alum. Get as much cotton as will fill the tooth, dampen it, put it in the mixture and place it in the tooth. This is also a good mixture for cleaning the teeth.

THE humble and contented man pleases himself innocently and easily, while the ambitious man attempts to please others sinfully and difficultly.

AN IMPOSING MONUMENT.

Standing on a commanding site in River View cemetery, the beautiful home of the dead occupying a high position on the west bank of the Willamette, just above the City of Portland, is an imposing monument of white bronze, recently erected by Mr. George C. Sears, on his family burial lot. It is elegant in design, commanding in size and beautiful in the execution of its various detailed features. The monument proper, including the statue, is fourteen and one-half feet in height, and rests upon a rough ashlar base twelve inches high and forty-eight square. It weighs two thousand six hundred and sixty pounds, and cost one thousand dollars as it stands. The four sides bear various inscriptions and emblems of the several orders to which Mr. Sears belongs, viz.: Masonic, Knights of Pythias, Odd Fellows, and Grand Army of the Republic; also, the Woman's Relief Corps, of which Mrs. Sears was a worthy member. Inscribed upon one side of the shaft is the following: "Jennie M. Sears, wife of George C. Sears. Born November 7, 1846; died October 3, 1885. Aged 38 years, 11 months," beneath which is the sentiment "In after time we will meet her." On the opposite side appears the inscription "Little Tine Sears, son of George C. and Jennie M. Sears. Born September 2, 1871; died March 21, 1878. Aged 7 years and 6 months," followed by the quotation "He carries his lambs in his bosom." Above the inscription is the figure of a dove, and below that of a lamb. Upon the plinth of the column appear several appropriate mottoes. The shield, helmet, G. A. R. badge, monogrammes, etc., are all clear cut and well executed. The outlines are sharp and of more artistic proportion and execution than is seen in even the best work in marble. All the work is in relief and presents an extremely attractive appearance. Standing upon the top of the shaft is a very graceful life-size statue of Faith. In her left hand she holds an open bible, while with the right arm she points toward heaven, her eyes turned upward and an expression of trust upon her countenance.

The material from which this elegant monument is constructed is known as "white bronze," a substance which is rapidly coming into popular favor for monuments, statues, medallions, fountains, etc. White bronze is simply refined zinc, which may be cast in moulds to any pattern. After casting they are put under a sand blast, by which the surface is cut sufficiently to make it sparkle in the sunlight. On the surface a thin film of oxide is formed, which protects the metal from corrosion and renders it practically indestructible, so far as the elements are concerned. It neither becomes stained like marble, nor does it throw off verdigris like copper and bronze. Being cast in a mould, the inscriptions and emblems can be made as varied and artistic as the modeler's art is capable. Whatever the sculptor can do in clay can be reproduced in the metal. Artistic skill of the highest order can be brought into play to produce the most beautiful results.

THE OKANAGAN MINES.

The Moses reservation, recently thrown open to settlement by proclamation of President Cleveland, lies north and west of the Columbia river, and embraces two million two hundred and forty-three thousand acres of land. It lies in the western part of Stevens county, and extends from the Okanagan river to the Cascades, and from Fort Chelan to within fifteen miles of the British line. A portion of the country immediately south of it was thrown open in February, 1883, and those who prospected here have been long and eagerly awaiting the executive order, which would permit them to enter this promised land, from which they have been too long debarred.

A gentleman whose name we could not learn, but who has for several years past been attached to the reservation in the capacity of farmer, had kept himself thoroughly posted on the topography of the reservation, and quietly explored it for mines, which he dared not then under the law and the circumstances locate, was the first to drive his stakes on a mining claim. Being absent from the reservation at the time it was declared open, as soon as he heard that such was the case he rode day and night from a point in the vicinity of Colville till he reached it. The last night's ride was a weary and fatiguing one, but without resting he proceeded to the spot, well known to himself, and as he thought, to no others, began stepping off his fifteen hundred feet, and had scarcely finished driving his stakes, when, as daylight began peering through the half-sleepy eyelids of the morning, he discerned five horsemen approaching him. He was surprised to learn that their errand was to locate the same claim which he had just allotted to himself. Disappointed, but not aggrieved, the five breathless prospectors immediately set out to locate several mines near by, whose existence they had a year previously ascertained. Since then several parties have gone to the Okanagan, and have returned or sent back glowing reports of that country's mineral promise. Among them is Mr. A. E. Benoist, one of the discoverers of the Old Dominion, near Colville. Mr. Philip Pierce, of Colville, returned from the new district some two weeks ago, and he reports that the country is pleasantly accessible to the prospector, that ledges have been discovered which measure from eight to thirty feet face, and which assay ten dollars in gold and fifty to ninety dollars in silver.

As was to be expected, a moderate stampede of miners from the South Fork and Colville districts set in, and it is safe to say that at present writing there are one hundred prospectors striking heavy blows, bidding the treasures of Okanagan come forth from their lurking places. Thus it will be seen that another mining camp of great possibilities has been added to the list of those either surrounding or not far distant from Spokane Falls. This vast region has also many fertile valleys and large areas of splendid grazing land.—*Spokane Falls Miner.*

MULTNOMAH.

BY PHILIP HOFFMAN.

In the days of Pometacom, when the Indian roamed free
 From the valley of great waters westward to the mighty sea,
 When the buffalo and bison and the antelope and deer
 O'er the broad and sweeping prairies sported wild without a fear,
 Long before the cave of miner, or the hut of trapper shown
 Through the wilderness and forest on the hills of Oregon,
 In the wigwam on the mountains, reaching out so bleak and high
 That it seemed to rest half hallowed midway 'tween the earth and sky,
 Lived a little Indian maiden, fair as mortal ever saw,
 Whom the father called his jewel, and the redmen Multnomah.
 She was young and ever joyous, pure in heart and bright in mein,
 Loved by all who chanced to know her, treated like a May-day queen,
 Sought by many a boastful lover, chief of tribe and warrior bold,
 Who to her pledged all their riches, wampum, feathers, rings and gold,
 And with arms outstretched 'fore heaven by their ancient fathers swore
 To obey her, and to follow where she led, forever more.
 But no answer could she give them, save that sweet, benignant smile
 That belongs to childhood only—half to please, half to beguile.
 For as yet, love was a stranger to Multnomah's heart so pure—
 Never had she nursed the passions that all lovers must endure.
 At no meeting had she ever felt her milder passions rise,
 Nor at parting found the teardrops lurking in her pretty eyes;
 But in innocence and freedom, tripping through time's golden hours
 With the open sky and landscape as her riches and her dowers,
 Thinking little, caring nothing what the future hours would bring,
 She served neither law nor manual, feared no master, lord or king.
 All alone she loved to wander through the trees by hill and glen,
 Keeping company with the squirrel, talking to the jay or wren, [quail,
 Warbling notes that fooled the robin, strains that thrilled the modest
 Chirping like neglected nestlings that made old birds cry and wail,
 Or away to race unwary with her shadow o'er the lea,
 Till her limbs would quake beneath her and her heart beat violently;
 Stopping then beneath some pine tree, waiting but to catch her breath,
 Off again to chase a rabbit over valley, stream and heath.
 Thus the childhood of Multnomah passed, as passes it with all,
 Leaving naught but recollections for us after to recall.
 Happy, then, are those whose childhood has been knit with childish joys,
 And unfortunate the others whose was stained with dire alloys.
 But at last the day of bondage dawned upon Multnomah's life,
 And around her careless spirits locked the chains of care and strife,
 As one morn she lightly wandered where she oft was wont to roam,
 Close beside a little streamlet running near her mountain home,
 And was casting careless pebbles at her shadow in the water,
 Filling all the dismal forest with her gusts of merry laughter,
 Suddenly before her vision stood a youth of noble mold—
 Stood the noted Pocatello, he, the mighty and the bold.
 "Ah! fair maiden," said he sweetly, "in the woodland here below,
 All disheartened with my troubles I was walking to and fro,
 When the accents of thy laughter stealing through the lonesome air
 Fell so softly on my hearing that it bore away my care;
 And I came to seek, and with you by this little stream sojourn,
 That the secret of thy pleasure and thy lightness I might learn."
 Not a word could find its fitting on the lips of that sweet child
 As she looked at him and wondered, and he looked at her and smiled;
 But a voice seemed to speak for her and a form her actions sway
 As she felt herself draw near him and beside him walk away.
 Why it was, the blithesome maiden could not plainly understand,
 That her heart should be so ready to obey his light command,
 Or why in the cheerful features or the manner that he bore
 She could find so many beauties that she never saw before.
 Just the same perplexing feeling troubled here the heathen heart
 That is nurtured and transplanted in the dowery cultured mart;
 For whenever nature's workings in their boundless channels move,
 There we find that power resistless—undefiled, unfathomed love.
 From that hour to glad Multnomah every leaf and bird and stone
 Seemed to wear a sweeter semblance than they e'er before had done.
 And one day alone in silence smothering a heavy sigh,
 Thus she argued with the streamlet as it hurried softly by:
 "Little streamlet, idle streamlet, how I loathe the livelong day,
 Here to sit and gaze upon you as you wend your lazy way,
 Stealing in through shady byways where the balmy winds waft low,
 Out again to kiss the sunshine, careless thus you come and go.
 But why should I call you idle, or why should I thus complain—
 I who know not what is labor, I who never felt a pain?"

As your course is so my life is—through the brightest thoroughfares,
 As you run around each hindrance, so I turn aside from cares.
 Eagerly you seek but one thing, and that is to reach the sea,
 And my one and only object is my lover's bride to be.
 So forgive me, little streamlet, and my secret do not tell—
 Ah! but hush! here comes my lover—gentle wanderer, fare you well."
 Love which rises accidental is the keenest of them all,
 But as true as 'tis the keenest so it is the first to fall.
 Strong at first had grown the fetters binding these two hearts as one,
 And each meeting saw them stronger as the days wore slowly on.
 But as human aspirations, gliding in their normal range,
 Never satisfied with plenty, struggling ever for a change,
 So at last their joys and pleasures, all the hopes they'd nursed so well,
 Turned to woe and wrath and sorrow in an idle lover's quarrel.
 Far adown the murmuring streamlet strolled Multnomah then again,
 On her brow the marks of sorrow, in her heart the dregs of pain;
 Careless where her steps were leading sad and slow she wandered on
 Till she came to scenes more distant than she e'er before had gone—
 Till she came to where the waters, with a rippling, splashing sound,
 Over rock and shell and pebble rushed in hurried torrents down;
 And here she sat down sadly, wiped the teardrops from her eyes,
 And again addressed the streamlet, talking slow 'mid sobs and sighs:
 "Little friend and lithe companion of my childhood's sunny years,
 For the first do I behold you through the dim of gushing tears;
 For the first in all my life-time have I felt, and feeling, know
 Of the pain induced by sorrow and the wage of human woe;
 And the first time, gentle comrade, sadly is it that I know
 That a ripple broke thy smoothness or a stone ere troubled you;
 But I see how well you bear it, and again you glide along
 Just as if thy smiling surface never felt the hand of wrong;
 So I will forget my sorrow, happy to my love I'll go,
 And redress with smiles and kisses for these idle tears of woe."
 Speaking thus she turned and hastened back across her wayward course,
 And of Pocatello meekly sought a balm for her remorse;
 And she pleaded for forgiveness, begged to be restored again—
 But when man is truly jealous woman's tears are shed in vain;
 As the waves are lashed and riven on the rocks along the shore,
 So the teardrops fall as powerless on the heart which they implore;
 Blinded then with disappointment, maddened with a sense of wrong,
 Poor Multnomah went an outcast from the haunts she'd known so long.
 And beside her faithful streamlet, through the dark and dismal wood,
 Night and day she journeyed seaward, taking neither rest nor food
 Till one evening, faint and weary, as her strength was failing fast,
 She was looking for a lone spot, there to lie down for the last.
 Suddenly her path betook her to a fearful precipice,
 Over which the waters bounded fading far beneath in mist;
 And once more in falt'ring accents thus she to the streamlet spoke,
 As her heart beat with emotion, and its throbs her voice would choke:
 "Little streamlet thou hast known me from my infancy till now,
 Thou hast ministered and listened to each childish wish and vow;
 And you were the only witness when I to my lover swore
 I would love him, and none other, through this world forevermore;
 And the same to me he promised—but the promise of a man
 Bends as easy, breaks as quickly as a rod of green rattan;
 Whilst a woman's vow is ironclad, braced with ribs of seasoned oak,
 That by vexing or by coaxing can be neither bent nor broke;
 And far rather would I suffer all death's agonies than lie,
 So with you I'll leap in silence o'er this precipice and die."
 'Twas but a moment and the smoothness of the water's distant roar
 Quivered with a dull sensation and Multnomah was no more.
 True to every bond of friendship that her heart had ever made,
 True to every vow and promise was this little Indian maid;
 And unflinching in her duty for the one she'd promised all,
 Thus she sanctioned all her passions in the surging water-fall.
 But no good can come to nothing and each noble act receives
 In the urn on memory's altar many fresh, unfading leaves.
 To the brook to which the red men oft in deep submission came,
 Added they with thought of honor the unfortunate maiden's name;
 And forever and forever as the years to ages draw,
 Green the streamlet keeps the memory of the lovely Multnomah;
 And the stars that nightly watch it from their peerless homes above,
 Nourish there an everlasting emblem of true woman's love.

THE eye of the master will do more work than both
 of his hands. Not to oversee workmen is to leave your
 purse open.

THE BALMY CHINOOK.

THE warm Pacific wind which penetrates inland across Oregon, Washington and British Columbia to the valleys of Idaho, Montana and the Canadian territories, melting the snow and keeping the cattle ranges clear for stock to graze the entire winter, is known throughout this whole region as the "Chinook." It follows the mountain passes in its journey inland, and consequently is in some localities a south wind, in others a north wind, and varying from all points of the compass west of these. This wind in its relation to the province of Manitoba, was thus recently discussed by Mr. A. Bowerman, B. A., at a meeting of the Manitoba Historical Society in Winnipeg:

Some one has said "The climate makes the country." If this proposition is only measurably true—and there seems no doubt of it—there are few questions of greater importance in connection with the capacities and future prospects of our land. It may have been noticed how readily the citizens of our country, having grown proud of the country, become likewise proud of the climate. It would be counted a strange method to open up the question of our climate with a consideration of a phenomenon occurring a thousand miles west, but our ideas readily adapt themselves to the largeness of our land. "No pent-up Utica contracts our powers; but the whole boundless continent is ours," and we easily regard the Rockies as only just the other side of our horizon. Moreover, it will appear on inquiry, that the Chinook winds are intimately connected with the whole question of our climate. These winds are noticed by the observer as coming down in the dead of winter from the snow-covered mountains so warm and dry as to cause the total disappearance of the snow in a few hours. So hard is it to credit the evidence of our senses, that the common description of these winds is that they come through the passes of the mountains from the Pacific—a wonder none the less than that which it is supposed to explain. One observer of some note, indeed, hazards the conjecture that the warm winds of the Gulf of Mexico reach all the way up north, over the high plateau of the great American desert, over the still higher mass of hot and rarified air overhanging this desert, and drop conveniently on our lower plains to the north. But as this writer—of deserved repute in his own department—manifestly confounds the lines of equal heat with the direction of the winds, we may be excused from giving much consideration to his theory. Fortunately, we have sufficient data of a strictly reasonable and scientific kind, without indulging in conjectures which, too often, are the only support of theories on climate or the weather. A very brief statement of a few points in physical geography may be necessary as a prelude to the matter before us. Outside of the region of trade winds, i. e., from thirty to sixty degrees north latitude, is a zone noted for its alternate winds; winds from the southwest alternately with winds from the northeast—the southwest prevailing. This is the belt of the return trades,

or anti-trades. As the trade winds get their direction from the motion of the earth, which glides, as it were, from under the cool winds moving equatorwards, they retain the westward motion gained at the equator, and in latitudes not so progressive outstrip the motion of the earth, and thus give rise to southwest winds. But these have not the persistency of the genuine trades of the equatorial regions, and so merely alternate with the polar winds from the northeast. Such being the state of things in the wide belt including such a great part of the continent, we may now take up the local modifying influences. Consulting our map, we notice a lofty barrier along the west coast—in fact, a number of successive ranges of mountains. The point most interesting to us is where the Coast range is broken by the inlet called the Strait of San Juan. And here let me call attention to the peculiar elbow made by the ranges nearest the ocean, the direction changes from due north to northwest, best seen on a globe. Next note that all the ranges are much lower here than further south. The coast range south of forty-nine degrees rises up like a great wall, and the inner ranges are still loftier. Then the valleys of the Fraser and Columbia give unmistakable hints of passages through the mountains, which furnished a pathway for the winds long ages before the adventurous railroad builder threaded his way across and through the labyrinth. The southwest winds then blowing warm from the Japan current, the Gulf streams of the Pacific, brought to a focus, as it were, in this angle of the mountains, crowd onward through the river valleys, over the low ranges, across the sea of mountains of British Columbia, and finally breasting the last great wall of the Rocky mountains, make their final leap into the valley below.

Having thus traced their course over the mountains, let us inquire into their adventures in this journey of five hundred miles. On leaving the Pacific they are warm and heavily laden with moisture. The first range they meet takes toll from their burden. Heavy clouds are formed and rain falls. The process is repeated at each successive range. In higher regions the scanty supply of moisture now becomes snow. In lofty altitudes, almost completely robbed of moisture they become greatly rarified and very cold. Moisture is gone and heat is gone. Our problem is still unsolved. Let us now retrace our steps to the coast and examine into the question of heat, for modern science declares that that is never lost any more than any other force of nature. We find that in each condensation, first cloud, then rain and snow, heat is produced—to speak accurately, latent heat becomes sensible. Rain and snow remain behind, are absolutely lost to the air currents. Not so the heat; this remains with the air, and seems to be increased. But in the lofty regions of the mountains rarefaction takes place, and this uses up heat. It requires heat to produce rarefaction, or disappearance of heat accompanies rarefaction, put it which way you will; the heat is not lost, and when, pouring down the mountain side, the great volume of dry air becomes

condensed again in lower altitudes, this heat, latent away up in the lofty peaks, now comes out from its hiding-place, and the dry and warm air proceeds to business by licking up the snow, not leaving behind even the moisture caused by its melting. We are speaking now of the winter. Not much heat can be lost in contact with the dry snow, and what is lost by radiation into space may be made up by the heat of the sun, even in the short days of winter.

Some other considerations remain to be noticed. As I have just said, the time is winter. In the long, melting days of early summer, over the dissolving snows of the ravines and warm slopes, over thousands of foaming torrents and countless rivulets, the air, instead of gaining heat, now loses it by the reverse operations of liquefaction and evaporation, and thus chilled it falls on the ill-fated potato patch in the form of June frost. This matter of heat being absorbed by thawing and set free by freezing is one of common experience. The chilly feeling of a March or April day is shiveringly in the memory of all of us, who, in early life, braved the inclement skies of Ontario. And some of us have known the farmer's plan of saving his potatoes by carrying water into the cellar on an extra cold night—the water giving off in the process of freezing sufficient heat to save the vegetables. Of course the process does not go on *ad infinitum*. But the process of heat disappearing by the rarefaction of air and becoming sensible again on re-condensing—this is not so much within the range of our daily experience. The falling of a barometer before a storm is due to the rarefaction of the air, and we have all noted the increasing coolness at such a time, though almost invariably this is accompanied by the formation of clouds which quickly shut out our great source of heat, the sun, so that the lesser cause of coolness is obscured by the greater. Those who have ascended mountain peaks have observed, first, the rarity of the air, and second, the coolness. They may consider if the latter is caused by the former, as *post hoc* is not always *propter hoc*. Suppose they are not related as cause and effect, but only accidentally. Then, first, why is it warmer near the sea-level? It can not be the earth simply which gives the heat, for then, a high plain, or even a mountain peak, might be as hot as the low level, and second, we know that heated air rises, so the greater the elevation the warmer should be the air. The fact is, nature does not work for nothing, or with nothing. If a gas, air for example, becomes rarefied—and it will if it gets a chance—heat is used in the process; and when the re-condensing takes place the heat is given off again, all of it. Nature is not a banker, and knows nothing of discount. When a spring is compressed, its power lies dormant. When you wind up your watch, you are only storing up the force exerted by the muscles of your fingers, and the spring will give back all the force again, minus the friction, of course. I have dwelt at some length on this point because it is one in which the greatest incredulity is manifested, and all sorts of theories have been projected from the refusal to believe that

warm winds can come from snow-clad mountains. When Sir Alexander MacKenzie first wintered on the Peace river, away up in latitude fifty-nine degrees, like a second Balboa looking out in his mind's eye over the great Pacific, he saw the striking effect of these southwest winds and noted in his journal that the ocean could not be far away. Little did he think that nearly six hundred miles of rough mountains lay between him and its warm shores. This was in 1792. He remarked the difference between the effect there at the mouth of Smoky river, where the snow disappeared in a few hours, and at Fort Chipewyan, on Lake Athabasca, three hundred miles further east, where no thaw occurred, though the wind brought delightful, clear weather. It is only a few years since one of those indefatigable slaves of nature, a German doctor—what should we know but for the German doctors?—worked out a mathematical demonstration of the amount of heat made latent by rarefaction in the higher altitudes and regained by condensation; and, still more, the amount of heat caused by the precipitation of moisture as the wind rises up the slope of the mountain. This calculation, I may say, seems to have been undertaken to solve the same problem in Europe, as they have, it seems, Chinook winds under the lee of the Alps and the mountains of Norway, only Chinook is not the German name of it. It is said that even the west coast of Greenland is visited by such a wind, coming over the elevated lands of the interior. These winds come from the southwest, far away over the ocean, and are not cooled by the colder current along the coast inside the Japan current. We have constantly to remember the looseness that prevails in our ideas of heat and cold. Two quite different standards prevail, one the thermometer, the other our feelings. In summer a zone of forty degrees F. is quite too near the freezing point to be pleasant, while, as we all know, anything near zero in winter is bracing and delightful. But water freezes and snow melts, not by our feelings but by the thermometer. Thirty-five degrees F. with dry air is quite sufficient to remove six inches of new fallen snow. And we must not think of these winds as constant. They alternate with their contending brothers from the north, this fury of alternate winds extending around the whole globe. The great fertile belt lies just on the border where the polar winds, somewhat moist and decidedly cold, meet and contend with the heated air from the Pacific, dried but only partially cooled by the mountain ranges it has crossed. This contact of heat and cold in the air always produces precipitation, rain or snow. It may not be superfluous to call attention to, the fact that the same cause which now keeps up the fertility of the great Northwest evidently produced that fertility. Even in remote ages—geological ages—there must have prevailed the same climatic conditions, the same warm Pacific winds, dry to a degree probably forbidding forest growth, the same colder and damper winds from the north, the same mantle of snow and same deep grip of winter's frost to modify the too ardent flame of our long summer's day, which would otherwise parch the tender

shoots of growing plants. These conditions must have prevailed since the northern half of the continent has had the shape it now has. Whether once the Rockies were too low to obstruct the moisture-laden winds which thus swept far inland across the plains, whether the Laurentian range, the true and ancient backbone of the continent, then reared its lofty head higher than even its younger upstart brother, the Rocky mountain range, does now, thus serving to catch the moisture carried all the way from the Pacific and to condense it in the form of great snow masses and glaciers, the real polar ice-cap of pre-Adamite ages, whether this is true—such a state of things would furnish a solution of some of our problems—mighty glaciers have written their autobiography in marks and deep grooves over the rocks of half our continent, a record before which the works of Memphian kings are as insignificant as they were when compared with Milton's Satanic architects. These glaciers, sliding down to the south and west, would scarcely yield to anything but the periodical visits of great Sol himself. The drippings furnished a supply of pure ice water for the Mississippi. Their grinding action made the soil; and the streams of fogs and rains all along its borders furnished moisture for the coarse and hardy vegetation of the times. But what the sun, unaided, could not accomplish in the lofty rarified air of those primitive peaks, was at last accomplished by the subsidence of the great range itself. Back, slowly back, through successive centuries the glaciers retreated, leaving a great shallow lake between the rear of their baffled columns and the newly elevated coasts whence the shortened Mississippi took its rise. Still further centuries and a further subsidence drained off even the most of this lake, a mere sluggish and tortuous creek serving to mark the deepest part of the lake—the present Red river of the North. The immense uplifting, too, of the Rockies effectually shut off the supply of moisture from the Pacific, and thenceforward came the present climate of our Northwest. The old framework of our continent, the very first to appear above the archaic waters, has now sunk so low that we are apt to forget the part it played in the formation of our country.

At the new Cirque Nautique, in Paris, there is an aquatic performance of a very novel character. After the conclusion of the ordinary gymnastic and riding entertainment, the carpet is removed from the floor of the ring, and the latter entirely submerged. A circular pond is thereby produced, and an electric arc lamp illuminates the water from below. The swimming performers appear like mermen and mermaids in the translucent depths of the sea. The general installation throughout the building is a very fine one, and includes both arc and incandescent lamps; the lamps soleil producing a beautiful effect.

FAITH always implies disbelief of a lesser fact in favor or a greater.

BIRDS' NESTS IN JAPANESE HOUSES.

Nothing recommends itself more to the traveler as a national trait among the Japanese than their gentleness and kindness to children and animals.

It is in consequence of this that not only the domesticated, but the so-called wild, animals and birds of this country are far bolder and easier of approach than in other parts of the world. There is here a species of swallow, much resembling the chimney swallows of Europe, which actually frequents the houses, and twitters and circles about the heads of the people in the different apartments, as we have seen tame canaries when set free from their cages in the house where they are kept. Only in this case the swallow is free to come and go through the open window or door, and makes his own living in the open air. Even in Europe and America this beautiful little bird is a favorite. Humphrey Davy says of it: "The swallow is one of my favorite birds, and a rival of the nightingale, for he cheers my sense of sight as much as the other does my sense of hearing. He is the glad prophet of the year, the harbinger of the best season. He lives the life of enjoyment among the loveliest forms of nature. Winter is unknown to him and he leaves the green meadows and forests of England in autumn for the myrtle and orange groves of Italy and for the palms of Africa. He has always objects of pursuit, and his success is sure. Even the beings selected for his prey are poetical, beautiful and transient. The ephemerae are saved by his means from a slow and lingering death in the evening, and killed in a moment when they have known nothing but pleasure. He is a constant destroyer of insects, the friend of man and a sacred bird. His instinct, which gives him his appointed season and teaches him when and where to move, may be regarded as flowing from a divine source, and he belongs to the oracles of nature, which speak the awful and intelligible fiats of a present Deity."

Of course this character of symbolic grace and modesty goes far to recommend the bird to so artistic a people as the Japanese, and it is, in consequence, almost a national emblem, being a favorite subject with their decorators, and finding a place with the crane and the lotus as a religious type. It is, however, in the building of its nest and rearing of its young that the Japanese swallow pays the highest compliment to, and exhibits the greatest amount of confidence in, its protectors; for, however incredible it may seem, its habitation is built, and its little family brought up, in the living rooms of Japanese families, and this not only in unfrequented parts of the country, but, as Prof. Morse assures us, in the midst of their largest cities. The professor, than whom no more acute observer of Japanese life exists, in speaking of these nests says that they are not built in any remote part of the house, but in the principal and oftenest visited rooms, where the inmates are the busiest about the household affairs. He adds that the children take great delight in watching the nest in process of construction, and in the rearing and education of the young birds afterward.

PIONEERS OF OREGON.

Tuesday, June 15, the Oregon Pioneer Association held its fourteenth annual reunion at Oregon City. There were present visitors from widely different localities, who had come to renew old friendships and greet again those who had endured with them the privations, and braved the dangers, of pioneer days.

At eleven o'clock the members formed in procession, arranged in the order of the year of their arrival, and marched through the city to the park just above, where the ceremonies and festivities were to be held. About two thousand people assembled at the park and listened to a programme of entertainment, which consisted of music, prayer by Rev. J. W. Sellwood, address of welcome by the president, J. T. Apperson, the annual address by Col. John Kelsay, occasional address by Hon. M. C. George, and an address to the Indian War Veterans by Col. L. F. Mosher. Officers for the following year were chosen, as follows: M. Wilkins, president; J. W. Grimes, vice president; George H. Himes, secretary; J. M. Bacon, F. X. Mathieu, Joseph Watt and Clark Hay, directors. When the exercises were concluded, the pioneers adjourned to the spot where an immense barbecue was in progress and partook of the broiled meats and the contents of their baskets. Mirth and social enjoyment were the order of the day. In the evening the pioneers gathered about the camp fire, while the younger generations enjoyed themselves at the pavilion. The reunion was a thoroughly pleasant one in every respect. A series of sketches depicting incidents of the reunion are given on pages two hundred and twenty-three and two hundred and twenty-four.

A brief resume of the history of the pioneers will show by what undeniable right they thus annually gather to celebrate their advent into this country and commemorate the deeds and events which wrested Oregon from foreign domination and added her to the ever-increasing circle of the Union. Such results are worthy of commemoration, and the hardy men and women who achieved them are deserving of honor from those multitudes who now enjoy the blessings won for them through privations, toil and dangers, by the perseverance, patriotism and moral and physical courage displayed by these pioneers in a thousand different ways.

In 1840, all that portion of the United States lying west of the Rocky mountains and north of the line of California, Nevada and Utah, embracing Oregon, Washington, Idaho and a portion of Montana, was known as "Oregon." Title to this vast region was in dispute between the United States and Great Britain, and, under a temporary compromise, it had been open to joint occupation by the subjects of both nations for twenty-two years. Joint occupation was, however, more nominal than real, since the entire region was dominated by a great English corporation, the noted Hudson's Bay Company, which maintained a great central headquarters at Fort Vancouver, on the north bank of the Columbia, and had numerous other posts established in various sections

covering the entire country. So firm a grasp did this great organization hold upon Oregon, and so great was its influence with the natives, that all efforts at joint occupation by Americans for the purpose of trade had met with disastrous failure. Several efforts to induce emigration of settlers had resulted in nothing, except to lay a foundation for future settlement.

The opening wedge for American settlement of Oregon was the Protestant missionaries. In 1834 the Methodist Board of Missions dispatched Rev. Jason Lee, Rev. Daniel Lee, Cyrus Shepard and P. L. Edwards overland to Oregon, and these zealous men, traveling first with one brigade of trappers and then with another, finally reached the Willamette valley, and founded a mission ten miles below the present site of Salem. In 1836 Dr. Marcus Whitman and wife, Rev. H. H. Spalding and wife, and W. H. Gray, representatives of the American Board of Commissioners for Foreign Missions, reached Oregon in a similar manner, and established a mission at Waiilatpu, a few miles from the site upon which Walla Walla was subsequently built. These missionaries received accessions to their numbers from year to year, and annually a few American trappers established themselves in the Willamette valley, as did, also, many former half breed and Canadian employees of the Hudson's Bay Company. The Catholics, too, established missions in 1839. This gave, in 1840, a population summarized as follows: American settlers, thirty-six; American women, thirty-three; children, thirty-two; Methodist ministers, thirteen; Congregational ministers, six; Protestant missionaries, not ministers, thirteen; Catholic priests three; American physicians, three; English physician, one; Canadian-French, sixty. This gave a population of one hundred and thirty-six Americans and sixty-four subjects of Great Britain, exclusive of the officers and employees of the Hudson's Bay Company, who outnumbered them largely.

The first regular immigration from the East arrived in 1841, beginning that steady stream of young and vigorous life which has annually flowed into Oregon for nearly half a century; and the end will not be seen for many years to come. There were deep and lasting causes for this resistless stream to force its way across the trackless plains, through rugged mountain ranges and across barren alkali deserts and flow on unceasingly in its deeply-cut channel to Oregon. Trappers who had visited the Pacific coast sang the praises of the lovely and fertile valley of the Willamette, where winter was unknown and the grass remained green the year round, where destructive storms were unheard of, where the summer days were not excessively warm and the summer nights were deliciously cool, and where there was no rain in harvest time to destroy the labors of a year. The western frontiersman caught up the refrain as it passed from cabin to cabin, and in a few years the tale was an old one with the hardy settlers of the Mississippi valley. The publication of Irving's "Bonnevillie" and "Astoria," of John Dunn's work on Oregon, of Dr. Parker's travels, and a letter written by Robert Shortess,

who had settled in the valley in 1839, combined with a general financial depression in the Western states to direct much attention to Oregon. The two senators from Missouri, Thomas H. Benton and Lewis F. Linn, whose names have since been bestowed upon counties in this state, ceaselessly urged upon the government the claims of Oregon. In this way the fame of this region spread and a determination to save Oregon from the clutch of England grew up among the pioneers of the West. To this was added the belief that congress would pass the bills introduced by Senator Linn, giving each Oregon immigrant one square mile of land.

The immigration of 1841 consisted of one hundred and eleven persons, who, owing to the supposed impossibility of crossing the mountains with wagons, brought no vehicles with them. The same year twenty-three families of French-Canadians were brought by the Hudson's Bay Company from their settlements on Red river, with the design of using them to counteract the effect of American settlements. Many of these became thoroughly Americanized and are among the most respected of the pioneers. The immigration of 1842 consisted of one hundred and nine people, half of them adults. They started with wagons, but one-half of these were dismantled at Green river and made into pack saddles. The others were taken as far as Fort Hall, on Snake river, where they were abandoned upon the advice of Captain Grant, the factor in charge of the post maintained there by the Hudson's Bay Company, who assured the immigrants that wagons could not be taken across the mountains further west.

In the spring and summer of 1843 these pioneer settlers held a series of meetings at which a temporary form of government was adopted, purely democratic in principle. A few weeks after this the great immigration of 1843 arrived, consisting of three hundred men upwards of sixteen years of age, with women and children sufficient to make a total of about eight hundred. These immigrants brought wagons as far as Fort Hall, where they were advised, as formerly, to leave them; but Dr. Whitman was with the party, and upon his earnest solicitation and assurance that the wagons could be taken through, the advice of the Hudson's Bay Company agent was rejected, and in consequence the wagons were brought through to the Willamette valley, though with infinite difficulty. These new recruits combined with their predecessors to organize a provisional government, which continued in power until Oregon became an organized territory of the United States in 1849. The immigration of 1844 was nearly as great as that of the previous year, adding strength and confidence to the struggling settlement. In 1845 some three thousand people started across the plains. About one-third of them turned off at Fort Hall and went to California, the remainder coming through to the Willamette, some of them being induced to try a new route and suffering great hardships in consequence. In 1846 some two thousand people started with four hundred and seventy wagons. Some of them followed the old route down

Snake river, others came by a new one across Northern Nevada to Klamath lake and Southern Oregon, and about one-half of the entire number went to California. The same year the great controversy between Great Britain and the United States was terminated, and the title to Oregon was confirmed in the United States, this grand achievement being the result, in a large measure, of the labors of the pioneers, who, with infinite difficulty, had forced a path through the wilderness and laid the foundation of a republican government in this far-distant land.

The immigration of 1847 has been estimated at five thousand souls, fully two-thirds of whom came to Oregon. These immigrants brought with them a greater assortment and quantity of articles needed in developing this region than had any of their predecessors, including mill stones, fine Durham cattle, fine blood sheep, stocks of goods, vegetable seeds, fruit seeds and the celebrated "traveling nursery" of valuable fruit trees brought by Henderson Luelling. The immigration of 1848 was quite large, though statistics in relation to it have never been gathered. Many who had originally started for Oregon changed their destination to California upon hearing while enroute of the discovery of gold at Sutter's mill. In 1848 came the massacre of Dr. Whitman, which brought the pioneers to arms to avenge his death and defend their homes by administering to the Indians severe chastisement. Those were perilous times, but bravely did those self-reliant men and women deport themselves. In the spring of 1849, Oregon became an organized territory under Governor Joseph Lane, and the simple, but effective, republican government the pioneers had instituted was merged into that authorized by congress. There was practically no immigration to Oregon in 1849, but a great tide of adventurers surged across the plains, around the Horn and across the Isthmus of Panama into the gold fields of California. Of these many afterward became citizens of Oregon. Nor did the year 1850 see many emigrants on the road to Oregon. California was still the glittering goal of western adventurers. In 1851 the tide began again to set in the direction of Oregon, and in 1852 came one of the largest immigrations known, seeking the state by both the northern and southern routes. Practical experience in the mines had served to dispel, in a measure, the glamour surrounding them, and people bent on a journey westward began to realize that the homestead generously offered them in Oregon was better than the hazards and uncertainties of the mines. Many of them came with the intention of locating a home in the Willamette valley before trying their fortune in the gold fields. The season was a dry one, and the great throng of cattle and horses soon disposed of every vestige of grass along the route, so that thousands of stock famished and died, their putrid carcasses marking the trail for those who came later. There was, too, much sickness among the emigrants, caused by scarcity of water and food. The slow progress made by the enfeebled cattle caused the supplies in many of the wagons

to give out long before the Columbia was reached, while many emigrants, whose stock had all died, were compelled to struggle along on foot with only such food as could be packed upon their backs. Of the trains coming to Oregon, the names of one hundred and twenty-one persons who died on the route have been recorded. Relief for the famishing emigrants was sent out to meet them as soon as news of their deplorable condition reached the Willamette valley. [In the procession in Oregon City the other day, every year from 1840 to 1852, save 1849, was represented by a banner, appropriately inscribed]. Others came year by year, helped build up this great commonwealth, defended the settlements from the attacks of savages, cleared the forests, subdued the land to the plow, placed steamers upon the rivers, built up industries and commerce, built lines of railway and telegraph, established common schools, academies and colleges, and performed the multitude of acts which have resulted in producing what we see to-day. It is by the acts above outlined these now venerable men have earned the right to meet annually in commemoration of them, and to receive the honor and respect of every citizen as long as the last of them shall abide among us, which honor shall cling to their memory as long as the structure built upon the foundation they laid shall last.

In speaking of the pioneers it is meet that honorable mention should be made of one who was the pioneer's friend and aid in times of need, the venerable Dr. John McLoughlin, whose portrait is given on page two hundred and twenty-three. He came to Oregon in 1824 to manage the affairs of the Hudson's Bay Company on the Pacific coast, and continued in that capacity until he retired from the service of the company and became an American citizen. The contest between the settlers and the great fur monopoly for the possession of this region naturally engendered bitter feelings, and the odium in which the company was held naturally attached to its resident officers, of whom Dr. McLoughlin was the chief. The policy of the company was to discourage the settlement of Americans in this country, even to the extent of refusing them commercial privileges necessary almost to their existence; but the chief factor must be disassociated entirely from the company in this matter, since he failed utterly to carry out this heartless policy. He was ever the sympathizing friend of the needy pioneer, and liberally aided him when in distress; and when called to account, in 1844, for not enforcing the company's policy of withholding from American settlers all assistance whatever, resigned his position and became nearly penniless, because of being held personally responsible for the debts he had permitted many destitute immigrants to contract at the company's store. His was a grand and noble character, and his memory is honored throughout Oregon by those who chanced to know him well. Dr. McLoughlin died on the third of September, 1857, at the advanced age of seventy-three, and a stone marks his last resting place in the Catholic church yard at Oregon City.

BEEF SUGAR.

The following interesting facts are taken from the columns of the *Seattle Post-Intelligencer*:

From the fact that the valley lands along the shores of Puget sound are most admirably adapted to the growth of sugar beets, anything concerning the manufacture of beet sugar is read with interest by our people. An hour or more was very pleasantly spent recently with a prominent stockholder in the Standard Sugar Company, of California, who is on the sound on a business tour, and from him were learned some interesting facts in regard to the manufacture of sugar from beets, which are here with given to our readers:

The beet sugar industry in the United States has never been either a commercial or financial success until a very recent date, and the secret of the business reverses lay chiefly in the fact that there was a lack of chemical and expert help necessary to produce a profit-paying product. In 1880, one of the stockholders of the company which had failed, conceived the idea that he could successfully manufacture sugar from beets, whereupon he bought the old plant at Alvarado, California, and after convincing the farmers of that locality that they could successfully raise sugar beets without exhausting the soil, and at a higher rate of profit than their land would yield from other crops, he struggled along, and after the first year he was able to show both a mercantile and scientific success, with an ill-adapted equipment. The result of his six years' business has justified him in presenting the scheme to capitalists, who have incorporated the Standard Sugar Company, which is intended to absorb the older organization, and erect near the same place a factory containing the most recent improvements, with a capacity for handling two hundred and fifty tons of beets per day, during what is called the beet campaign, which means the period between August first and March first, the latter date indicating the length of time that the raw beets may be kept without undergoing chemical change. For the information of our readers we would explain that the company produces its own beet seed, of known qualities, that yield the highest percentage of saccharine juice and the lowest percentage of wood fibre. No impoverishment of the soil results from the successive yearly crops, which vary from twelve to thirty tons per acre, with an average of between fifteen and twenty. The rate paid during the past two years, under contract, has been \$4.00 per ton, delivered at the factory, and the present establishment, with its capacity of eighty tons per day, can not purchase all the beets that are offered at the contracting period, in February. The process of manufacture is substantially as follows:

The raw beets, in a somewhat dirty condition when hauled from the field, are first put in a tank and rapidly stirred by the revolving arms of a shaft, and thoroughly cleaned by the rapid passage of water, after which they are elevated and dropped into a cylinder, in the bottom of which a number of sharp knives revolve at a high

speed. This process cuts the beets into what might be likened to macaroni. The pieces are three-cornered instead of round. In this condition the material is transferred to what is called the infusion battery, which consists in the introduction of water at a proper temperature, and of steam, so that the sugar juice contained in the small vegetable cells will become diffused through the water, after which two per cent. of powdered lime is added to take up, chemically, the organic salts which are in the juice. Next carbonic acid gas is added, which, joining the lime, forms the insoluble precipitate of carbonate of lime, and enables the chemist, in the next process, through filter cloths, to remove from the juice all the lime and all of the organic substances which it has absorbed. The juice is next passed through long vertical tanks closely filled with animal charcoal, after which it is passed through what is called the osmotic process, where other foreign substances are abstracted through a parchment which separates the juice from flowing hot water. After this process the juice is taken to the boiling pans, where, in a vacuum, and by the aid of steam, the water is driven off until the juice has attained a proper consistency for the centrifugal machine, which, revolving at a high rate of speed, throws off to the sides all the liquid portions and keeps the sugar crystals in the center. These crystals are then taken and ground, screened and dried, and packed in barrels ready for use. Under the old processes, and under the methods now pursued in Germany, the beet molasses thrown off by the centrifugal machine was carried to settling tanks, and when the sugar crystals had settled to the bottom the molasses was drawn off and retanked, while the crystals were put through the refinery process and shipped. Ordinarily it required from ten to twelve months before this molasses had yielded all the sugar which it contained. By a new method, discovered and patented in 1884, all the sugar can be abstracted from the molasses in thirty-six hours, besides leaving a very small proportion of molasses, which, when made from beets, is only fit for manufacture of vinegar, and alcohol for mechanical purposes.

The Standard Sugar company, which controls this patent, expects to begin construction during the coming summer and to be ready for the beet harvest beginning August 1, 1887. After demonstrating the value of this enterprise it is expected that they will build a factory in the vicinity of Portland, or, perhaps, for the economy of fuel, near Seattle. Based upon the cost of making beet sugar in Germany, and of the experience of the present factory, it is confidently believed that at the new works refined white sugar can be made from beets, equal in every respect to sugar made from cane, at four cents per pound, delivered in San Francisco.

The fifth volume of "California," Bancroft's works, will be issued during the latter part of July, the terrible loss suffered by the author in the fire of April 30 having only temporarily checked the publication of his work. The volume referred to covers the period of gold discovery in 1849, and will be of very great general, as well as local interest.

NOTES OF THE NORTHWEST.

Three thousand head of cattle have been sold by a firm of stockmen in Western Washington, to be taken from ranges in Yakima county and on the opposite side of the Columbia. They were purchased by a Montana buyer, who will turn them out upon ranges in that territory. The price averaged \$40 per head, or a total of \$120,000.

Preparations are being made for the construction of extensive stock yards between the cities of St. Paul and Minneapolis, which will naturally lead to the springing up of large beef packing enterprises. There seems to be no reason why all the stock shipped by the Northern Pacific should not be handled at the twin cities instead of Chicago, and shipped from there in the form of packed or dressed meat.

Work on the northern extension of the California & Oregon railroad is progressing steadily, and it is expected that before the year closes the gap will be reduced from one hundred and twenty miles, the distance last January, to eighty miles. The amount of tunnel and bridge work on the sections now being constructed is very heavy, requiring a large force of men to make progress. Next year, when the line reaches Shasta valley, the work will be lighter and can be pushed ahead faster.

The mica mines, located thirty miles southeast of Moscow, Idaho, have been bonded to English capitalists who have been looking into their merits for some months past. The value of mica depends upon the size of the sheets, varying from fifty cents per pound for small pieces to seven dollars per pound for sheets as large as eight by ten inches. The owners of these mines have demonstrated that large sheets can be produced, and, consequently, that the property is an exceedingly valuable one. The price to be paid has not been made public.

The State Teachers' Association of Oregon will hold a session at Yaquina City, on July 6th, 7th, 8th and 9th. Through trains run daily from Portland and other points in the valley, offering opportunities for teachers and their friends to attend any one or all of the sessions. The railroads will make low excursion rates, granting thirty days' time to those who desire to remain and enjoy themselves at the beach during the warm days of July. Yaquina bay is one of the best seaside resorts on the coast. The leading educators from colleges, universities and public schools of the state will be present and assist in the work. The programme for the four days has been divided into departments, as follows: Theory and Practice, Science and Art, Kindergarten, Chautauqua Literary and Scientific, College and University, Superintendence, Industrial, General and Miscellaneous. Daily programmes will be issued each morning. This will be a splendid opportunity for teachers to improve both mind and body.

It is reported that at last a machine has been made which saves all the gold in the black sand mines of the ocean beach. It is the invention of Abe Rose, who is working it at his mine at Randolph, and consists of a set of sluices containing peculiar devices on the bottom for separating the sand and gold. The machines can be cheaply constructed, and if they succeed everywhere as well as at Randolph, will come into general use.

Latest advices from the East are to the effect that the New York hop crop is practically ruined by lice and honey dew. The importance of this fact can only be realized by one who knows that New York produces four-fifths of the entire crop of the United States. If, then, there is to be less than half as many hops put on the market from this country as last year, the price, which is now but from five to seven cents per pound, must advance materially, much to the advantage of growers in Oregon, Washington and California, where a good average yield is expected.

The Oregon Pacific Railroad and Oregon Development Company have issued a circular stating the arrangements made for accommodating members of the G. A. R. who desire to attend the grand re-union in San Francisco. Fare from Corvallis or Yaquina to San Francisco and return will be \$16.00, and if more than one hundred and twenty-five go, a rebate of \$2.00 on each full ticket will be given. This offers a splendid opportunity for members of the order in Western Oregon to attend conveniently and cheaply. These rates can be obtained at the company's office in Corvallis, on presentation of proper certificate from the post commander. It is desirable that names be placed on file as early as possible to avoid inconvenience at the last moment.

The tenth annual catalogue of the Oregon State University, located at Eugene City, has been received. It is a neatly printed pamphlet of sixty-two pages, issued from the office of the Eugene City *Register*, and contains a list of officers, faculty, students and graduates, with calendar, course of instruction, and all information in regard to government of the institution and its relation to the state. Special attention is called to the statute giving each county one free scholarship in the collegiate department, and one additional for each member of the legislature. Persons desiring more information about free scholarships should apply to their county superintendent of schools. Catalogues may be had by addressing the secretary of the faculty, at Eugene City, Oregon.

At a meeting of the Fruit and Vegetable Growers' Association of the United States, recently held at Columbus, Ohio, Ezra Arnold, of Illinois, presented specifications and drawings of a cheap evaporator made by himself, which he claimed to have used with better success than the more elaborate and expensive ones. It is very simple and can be made by any one at a trifling

cost. Mr. Arnold presented to the association his title to the evaporator on condition that it would appropriate a sufficient sum to cover the expense of procuring illustrated descriptions and directions for making and using them. It was his idea that thousands of people would avail themselves of this opportunity to dry fruit who ordinarily could not afford to do so. Any one desiring one of these illustrated circulars should address W. Orlando Smith, secretary of the association, box one hundred and four, Alliance, Ohio, and enclose stamp for return postage.

Work is progressing rapidly on the Montana Central, and will soon be completed and rails laid if arrangements for shipping them can be made. The Montana Northern, from Great Falls to Assinaboine, on the international boundary, has surveying parties at work from both ends of the line. The Canadian Pacific will soon begin work on a line running south from Maple Creek to connect with Assinaboine, and before the end of the year the entire route from Helena, by way of Great Falls and Fort Benton, to the Canadian Pacific at Maple Creek will be under contract and partially constructed. This is an invasion of Montana by the Manitoba system which the Northern Pacific will probably counteract by running a branch to Fort Benton, from either Helena, Livingston or Billings. A company has been organized to parallel the Montana Central's line from Helena to Red Mountain, and it is asserted that the same will be done with the line to Benton. The Manitoba line is being pushed westward from Devil's lake at a rapid rate to meet the Montana Northern, and the appearances indicate that in another year Helena will have two more Eastern outlets, one by the Canadian Pacific and one by the Manitoba.

NEW BALLOON.

A new dirigible balloon, of colossal dimensions, is now in course of construction in Berlin. The inventor, Herr Gaswindt, hopes to overcome the grand difficulty in aeronautics—the attainment of a speed greater than the average velocity of the wind—by the enormous size of the balloon. A series of meteorological observations extending over several years, has shown that near the surface of the earth the velocity of the wind in the temperate zone rarely exceeds twelve meters per second, and Herr Gaswindt expects to attain a speed of not less than fourteen to fifteen meters. A sum of two hundred thousand marks, it is said, has already been offered for the patent. The balloon is one hundred and fifty meters in length and fifteen meters in diameter, with a capacity of eighteen thousand cubic meters, about ten times as great as that of the Renard and Krebs balloon. The total weight is about forty-three thousand pounds, the envelope and netting alone representing ten thousand pounds. The propelling machinery consists of two steam engines of fifty horsepower each. The cost is estimated at one hundred thousand marks (\$50,000).

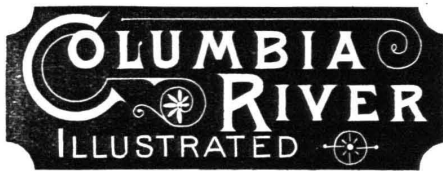
UNIVERSAL BATH.
 Full, Steam, &c. in use.
 Vapor and Water—fresh, salt, Mineral
 Artificial Sea Bath.
 Centennial Award, Medal and Diploma, against the world.
 Wholesale & Retail.
 Send for Circulars. **E. J. KNOWLTON, Ann Arbor, Mich.**
 Many Thousands long in use.
 Old Baths Renewed.
 Patented in Great Britain, France, Germany, and the United States.

SAMUEL'S
Souvenir of Portland.
 Contains large panoramic and twenty-one other views in and about Portland, finished in the very highest style of the art. For sale by
W. B. AYER & CO.,
 93 FIRST ST., PORTLAND.

DAYTON & HALL,
 IMPORTERS
ELECTRICAL GOODS,
 BATTERIES, BELLS, WIRE, &c.
 Send for Illustrated Price List.
PORTLAND OREGON.

A Valuable Relic for 10c.

For ten cents we will send, postage paid, a copy of the *Oregon Spectator*, the First Newspaper published on the Pacific Coast
 Dated Oregon City, Feb. 5, 1846.
 Address **L. SAMUEL,**
 171 and 173 Second Street, PORTLAND, OR.



This is a beautiful souvenir of
Columbia River Scenery,
 CONSISTING OF
 Sixteen full pages of Views of the most noted and picturesque scenes along the
The Great River of the West.

The engravings are executed in colors and are enclosed in a handsome cover. Just the thing for tourists to keep as a

Souvenir of the Columbia,

And just what every resident of the Northwest will desire to send to friends. Sent post paid upon receipt of fifty cents. Address

L. SAMUEL, Publisher,
 171-173-175 Second St., PORTLAND, OR.

A MAGNIFICENT ENGRAVING
 OF
Mount Hood,

PRINTED IN EIGHT COLORS,

Is now in preparation and will soon be issued. It will be sent FREE to all yearly subscribers to

THE WEST SHORE,

Or to any address upon the receipt of one dollar. Now is the time to subscribe and secure this elegant engraving. Address

L. SAMUEL, Publisher, - Portland, Oregon.

PORTLAND, OREGON.

The Metropolis of the Pacific Northwest.

A handsome pamphlet, giving complete information about Portland and the country tributary to it, has just been issued, and will be sent, postage paid, on receipt of

TWENTY-FIVE CENTS.

In addition to the information it contains, it gives two general views of the city, and Twenty-three of Streets, Parks, Harbor, etc., etc., etc., and a large 18x24 colored picture of the New High School Building.

It is just what every Tourist and Emigrant should have. Address

L. SAMUEL,
 P. O. Drawer 3. PORTLAND, OREGON.

C. H. Meusdorffer

REMOVED TO 146 FIRST STREET.



HIGGINS HOUSE,

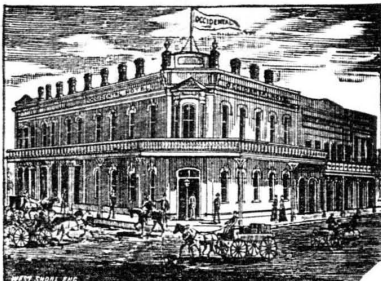
Three-story Fireproof Brick Hotel.



Only First Class House at White Sulphur Springs, M. T.
JONAS HIGGINS, Proprietor.

THE OCCIDENTAL,

Corner Wharf and Johnson Sts., Victoria, B. C.
LUKE PITHER, Proprietor.



Rates, \$1, \$1.25 and \$1.50 per day, according to room.

DRIARD HOUSE.

The ONLY FIRST CLASS HOTEL
In Victoria, B. C.
REDON & HARTNAGEL, Props.

This house offers special attractions for families and tourists. It is located in the healthiest part of the city, and contains large, airy apartments in suits or singly, while the table is unsurpassed by any hotel on the Coast.

THE COSMOPOLITAN HOTEL, HELENA, MONTANA.



Is again under the personal management of Schwab & Zimmerman, who have made this house the most popular in Montana. It is centrally located, is first class in every respect, and charges will always be moderate. We shall be pleased to see all our old friends, and invite the public in general to give the Cosmopolitan a trial.



B. F. DOWELL
And Daughter,
Attorneys-
at-Law,
Mulkey's Build-
ing, Portland, O.

Particular at-
tention is paid to
collections, in-
cluding Govern-
ment claims.

LANDS FOR SALE.—160 acres, with good new house and fine orchard, all under fence and greater part prairie. 115 acres of the Jesse Applegate Donation Land Claim; railroad runs right through the land. 63 acres near the Jesse Applegate Donation Claim, with good new house and 15 acres in young fruit trees. These lands are situated near Yoncalla Station, in the Umpqua Valley, Oregon, and have everlasting rivulets running through them. To be sold without any "ifs or ands." Also 640 acres on Goose Lake, Lake County, Or. Also garden and fruit land, three miles southeast of East Portland, in small tracts. For further particulars, call on or address

B. F. DOWELL,
Mulkey's Building, Portland, Or.

MILLER AND WEST
COMMISSION MERCHANTS
BROOKLYN MILLS FLOUR AGENCY
111 FRONT ST.
BET WASHINGTON & STARK.
PORTLAND, OREGON.

Consignments solicited and returns promptly made.

Flour, Feed, Hay, Grain, Potatoes, Butter, Eggs, Cheese, Dry and Fresh Fruits handled.

CRESCENT CREAMERY BUTTER.
J. C. MILLER. WILL H. WEST.



The Corbett Fireproof Livery, Hack & Feed Stables,
Corner Third and Madison Sts., Portland, Or.
MAGOON BROS., Props. Telephone No. 331.

MARK LEVY
WHOLESALE
FRUIT & PRODUCE
AND GENERAL
COMMISSION MERCHANT
122 FRONT ST., PORTLAND, OR.

Oregon Pacific Railroad.

Willamette Valley to San Francisco via Yaquina.

DAILY TRAINS.

Trains leave Corvallis daily, except Sunday, at 2:00 p. m. Trains leave Yaquina daily, except Sunday, at 7:10 a. m.

The Fine A 1 Steamship "YAQUINA,"

Sails from Yaquina, on Tuesday, July 6; Tuesday, July 20.

Sails from San Francisco, on Tuesday, July 13th; Tuesday, July 27th.

The company reserves the right to change sailing days. Fares and freight at reduced and moderate rates. River Boats on the Willamette connect at Corvallis.

For further information, apply to

C. C. HOGUE,
A. G. F. & P. Agt., Corvallis.

Oregon Railway and Navigation Company.

OCEAN DIVISION.

Between Portland and San Francisco.

From Portland—12 Mid.	From San Fran.—10 a. m.
State of Cal..... July 4	Columbia..... July 3
Columbia..... 9	Oregon..... 8
Oregon..... 14	State of Cal..... 13
State of Cal..... 19	Columbia..... 18
Columbia..... 24	Oregon..... 23
Oregon..... 29	State of Cal..... 28
State of Cal..... Aug. 3	Columbia..... Aug. 2

RAIL DIVISION.

Transfer steamer connecting with Atlantic Express leaves Ash street wharf, Portland, daily at 3 p. m.

Pacific Exp. arrives at Portland daily at 10:30 a. m. Main Line Passenger Trains run daily, connecting at Wallula Junction for points on Northern Pacific Railroad.

Through Sleeping Cars—Pullman Palace Drawing Room Sleeping Cars between Portland and St. Paul. Emigrant Sleepers are run from Wallula Junction to St. Paul, and from Huntington to Council Bluffs, without change.

MIDDLE COLUMBIA RIVER DIVISION.

Daily, except Sunday. Boat leaves Portland for Dalles at 7 a. m. Boat arrives at Portland from Dalles at 5 p. m. Leaves Portland for Astoria at 6 a. m.

Leave Portland for	Mon.	Tue.	Wed.	Thur.	Fri.	Sat.
Astoria & Low'r Columbia.....	a. m. 6 00	a. m. 6 00	a. m. 6 00	a. m. 6 00	a. m. 6 00	a. m. 6 00
Dayton, Or.....	7 00	7 00	7 00
Corvallis.....	6 00	6 00	6 00	6 00	6 00
Salem.....	6 00	6 00	6 00	6 00	6 00

General Offices, cor. Front and D Sts.

C. H. PRESCOTT, Manager.
JOHN MUIR, Traffic Manager.
A. L. MAXWELL, Ticket Agent, Portland.
JNO. J. BYRNE, Gen. Pass. and Ticket Agent.

The Royal Route,

COMPOSED OF THE

Chicago, St. Paul, Minneapolis and Omaha

—AND—

Chicago and Northwestern Railways,

From St. Paul to Chicago, and running in close connection with the

Northern Pacific Railway,

Is the best and most popular route with all classes of travelers. No transfers, no delays, and the equipment and track is the very best between St. Paul and Chicago.

Try THE ROYAL ROUTE when you travel.

W. H. Mead, General Agent, Portland.

T. W. Teasdale, Gen. Pass. Agent, St. Paul.

A GIFT Send 10 cents postage, and we will mail you free a royal, valuable sample box of goods that will put you in the way of making more money at once than anything else in America. Both sexes of all ages can live at home and work in spare time, or all the time. Capital not required. We will start you. Immense pay sure for those who start at once.
STINSON & CO. Portland, Maine.

SAMUEL LOWENSTEIN President.

WM. KAPUS, Secretary.

OREGON FURNITURE MANUFACTURING CO.

Manufacturers of Furniture and Dealers in Carpets, Bedding, Upholstery Goods, etc. Office and Warerooms, Nos. 208 and 210 First St. Factory, Nos. 209 and 211 Front St. Shipping Department, 7 and 9 Salmon St.,

PORTLAND, - - - OREGON.

Occupy an immense four-story brick building, a full block in length, enjoy facilities unequalled on the Pacific coast. The public is respectfully invited to inspect the premises and the stock of Furniture, Carpets and Upholstery Goods.

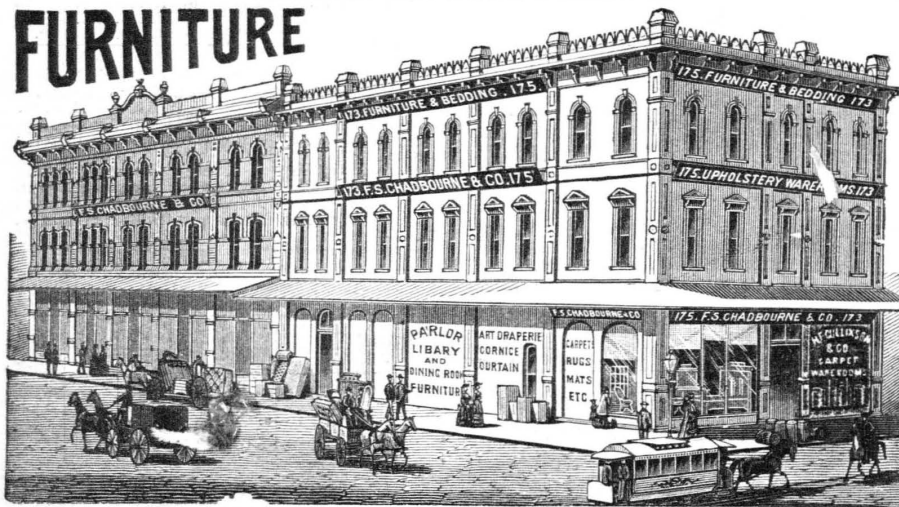
COLUMBIA RIVER ILLUSTRATED.

This is a beautiful souvenir of Columbia River Scenery, consisting of sixteen full pages of views of the most noted and picturesque scenes along the great river of the West.

The engravings are executed in colors and are enclosed in a handsome cover. Just the thing for tourists to keep as a souvenir of the Columbia, and just what every resident of the Northwest will desire to send to friends. Sent post paid for fifty cents. L. SAMUEL, Publisher, Portland, Or.

F. S. CHADBOURNE & CO.,
Wholesale and Retail Dealers in

FURNITURE



FIRST AND YAMHILL STREETS, PORTLAND, OREGON.

THE OLDEST RETAIL DRUG BUSINESS IN THE CITY. ESTABLISHED 1867.

S. G. SKIDMORE & CO.,

(CHARLES E. SITON),

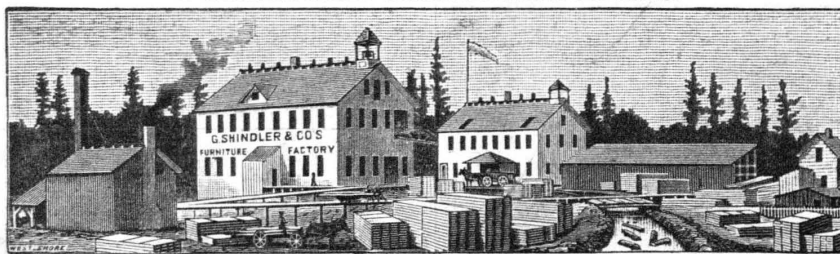
DRUGGISTS AND APOTHECARIES,

No. 151 First Street, between Morrison and Alder, Portland, Or.

Manufacturers and Proprietors of Pectoral Balsam (Trade Mark registered), for Coughs, Colds, Throat and Lung Diseases. Physicians' Prescriptions and Private Recipes a Specialty.

G. SHINDLER & CO.

FURNITURE MANUFACTURERS.



SCHOOL DESKS, OFFICE FURNITURE A SPECIALTY, BEDDING.
186 First st., through 200 feet to 187-189 Front st., next door St. Charles Hotel, Portland, Or.

Lithographing

Engraving

Commercial Stationery

Bank Checks

Drafts

Wedding Stationery

Stock Certificates

Catalogues

Show Cards

Letter heads

Bill heads

Business Cards

And everything in the Stationery line manufactured to order.

We have excellent facilities for doing color work and Lithographing and Engraving of all kinds equal to the very best Eastern.

West Shore Litho. & Eng. Co.

L. SAMUEL,

171-173-175 Second St., PORTLAND, OR.



The above Binder is intended for those who wish to save their copies of THE WEST SHORE. It is made of cloth, and will hold an entire year's numbers. Sent post-paid on receipt of \$1.00. Address THE WEST SHORE, Portland, Oregon.

BANKERS

Throughout the Northwest

Will please bear in mind that The West Shore Lithographing and Engraving Company has a complete outfit of the very latest improved steam machinery for manufacturing Checks and Drafts, Pass Books, and everything required in the Stationery line. We employ a large force of skillful artists, and can do anything in this line that can be done anywhere. Our work is equal to the very best Eastern, and so are our prices. West Shore Lithographing and Engraving Co., L. Samuel, 171-173-175 Second St., cor. Yamhill, Portland, Oregon. Send for Estimates.