OUR GREAT COAL FIELDS

OREGON HAS DEPOSITS COVERING LARGE AREA.

Coal-Bearing Rock Found in Upper and Lower Nehalem, Yaquina and Coos Bay Regions.

Perhaps no department of science is more worthy of our serious attention than physical and chemical geology. Under this head we may consider the hydrocarbons and more especially the coal measures, and study the deposits that produced their structure.

When I think over the geological fields of other states of the Union, with their numerous coal deposits covering thousands and thousands of acres, with the same geological formation which we have in Oregon, it seems to me strange indeed if out of such an immense territory we do not possess the same material under the same formation that exists in other states. We have in the United States about 200,000 square miles of territory corresponding in geological position and general aspect of their organic contents with the carboniferous system in Europe. These great coal beds of the United States lie in six detached areas in different states. This carboniferous age of coal is divided into three periods, viz.:

First—The carboniferous age, which was the period of preparation.

Second—The coal measures proper, the period of culmination.

Third—Permain, the period of decline and transition to the mesozoic, where the Triassic and Jurassic is ushered in. This is well established in Oregon.

Coal Formation.

The first stage of development of a coal field, either ancient or modern, must have been flat. The swamp in which the vegetation accumulated to form the coal beds extended more or less continuously over the whole field. It may have bordered upon the sea and was but little above the sea level, where the associated sandstones and shales contained fresh or brackish water. Or it may have been on an arm of the sea. But where the sediment containing purely marine shells were deposited, it must have been caused by the open ocean.

The gradual rising and sinking of the field resulted in the alternate deposits of the coal, sandstone and shale where the same area was so slight that the strata were laid one upon another in parallel position, but later, after the deposit of coal was completed, there came a time of change. Then our Coast Range of mountains were formed. The rock stratum, originally horizontal, was then compressed laterally and thrown into folds. During such folding, the rocks are generally broken and displaced, or folded along lines of fracture. Coal fields, consequently, have been affected in the same way. But this is of minor importance, and their displacement small. The student can read all this from a book. He cannot fail to be interested in the coal-black color of these vegetable remains with the light groundwork of the rock to which they are attached. His imagination will lead him back to a strange scene of another world, of a wet meadow, or a muddy current, a sluggish river or a tropical jungle of an age long past.

Coal Fields of Oregon.

Oregon has long been known as one of the coal-producing states of the Pacific Coast, but no systematic effort has been made to determine the whole field of its geological position and distribution of the coal-bearing rocks. When the topographical surveys have been made over the whole of Oregon west of the Cascade Range, it will be possible to show definitely the extent of this coal region. The coal fields of Oregon so far as yet known all lie west of the Cascade Range, and north of Rogue River, and mostly in the Coast Range. But some of them occur on the western foothills of the Cascade Range. Four fields will here be noticed:

First—The Upper Nehalem coal field, in Columbia County.

Second—The Lower Nehalem coal field in Clatsop County.

Third—Yaquina coal field, in Lincoln County.

Fourth—The Coos Bay coal field in Coos County.

Many other outcroppings of coal have been found in other parts of the state. Some of them will be noted, but little can be said of their extent, although no doubt some of them will prove extensive.

The Upper Nehalem coal field is in Columbia County, within the drainage of the upper portion of the Nehalem River. It extends northeast and southwest a total length of 13 miles, and two miles in width. The whole area is about 20 miles square. It contains two beds of coal, one of six feet and the other of nine feet in thickness. If upon test this proves to be good fuel, there is a demand for it in Portland at the present time; but there is no convenience for transportation. There is not even a good wagon road to the nearest outcrop.

The Lower Nehalem coal field is situated north of the Nehalem River, near the County line of Clatsop and Tillamook Counties. This coal field is five miles in length and of good quality, but so far as developed it is only 22 inches in thickness.

The Yaquina coal field is in Lincoln County, north of Yaquina River, and six miles from the coast. It borders Depot Slough on the west, and is about five miles in length and one mile in breadth. It has several beds of coal, which evidently belong to the same horizon.

The Coos Bay coal field is the most important in the state. It is in Coos County, upon the border of Coos Bay. Its area is not less than 100 miles square, and it is the largest coal field in Oregon. It has been successfully worked, and has largely supplied the San Francisco market for the past 50 years. It is classed as the lignite coals of the tertiary period. Out of the 33 analyses of the coal from the different mines, only two or three samples were found to be coking coal; therefore, no objection need be made to a coal for its noncoking qualities, for many of them are far superior to the coking coals, and may go higher in carbon, although for many reasons a good coking coal is preferable. The question of coal coking is not fully understood. The fat, or fusing coals, are generally the coking coals, and my belief is that the fat pitch coal is a variety of asphaltum, and that it has not been formed from the coal alone with which it is associated, although the vegetable material similar to that which yields coal may have formed some of the original material which, by a process of distillation was converted into pitch coal. In short, the pitch coal has in all likelihood been formed in the same general way as other asphalts which are believed to have been the result of distillation of animal or vegetable remains in the presence of hot water or steam, for sometimes a seam of pitch coking coal is found just above or near other coals which do not coke. This is only a theory of my own, for no one can say why one coal should coke and another should not.

Different Kinds of Coal.

Owing to the transformation which the substance of the coal has undergone, it is natural to expect that the material so produced should have very different properties according to its more or less state of decomposition. Many of them, indeed, have so close a resemblance to one another that they pass imperceptibly from one stage to another, and it is almost impossible to mark the distinction between them, and nothing but an analysis will make the determination. But to the experienced person the associated rock is the best guide. Fossil plants are characteristic of the period. Everywhere the shales bear impress of the delicate tracery of ferns, leaves and stems depicted with the sharpest outlines of forms and characters now unknown upon the surface of the earth. Ferns which today creep at our feet them towered into stately trees with trunks a foot and a half in diameter. These contributed most of all to the formation of coal.

For a long time geologists claimed that Oregon showed no fossils older than the Miocene tertiary, but later discoveries have established the fact that not only cretaceous, but also jurassic and triassic ferns have been found, and consequently older coals may be looked for.

The more modern coal of lignite character is quite common. In fact, it seems to be spread over the whole country like a blanket, detached here and there, but mostly conformable to the strata. It may be seen cropping out along the Cowlitz and Lewis Rivers in Washington, along both north and south banks of the Columbia River between Astoria and Portland, and along the Willamette and its tributaries. I have examined these strata about Newburg and up the valley both east and west of Eugene. The coal generally bears about the same thickness, from six inches to two feet, but in some places it is found to be three and a half or four feet thick. This formation of coal is evidently all of one age, and is found in the same stratified rocks, principally sandstone of a late date, but it differs in different localities as to its chemical qualities and combination, which is no doubt owing to the plants of which it was formed. There can be but little doubt that the difference in composition and quality is due to their nature and degree of chemical change in the process of bituminization in different localities in which the plants grew which formed it, for coal may be high in carbon, ash and moisture in one place, and in another locality the reverse, in the same age and formation.

Anthracite Measures in Washington.

Probably the best showing of coal now being developed in Oregon is that being opened by the Portland Coal & Development Company near North Yamhill. They have 12 men at work on a three and a half foot stratum and have run 190 feet of tunnel on the vein with four feet of bituminous shale upon which it rests. The analysis of this coal shows the following results, viz:

	Per cent.
Moisture	15.50
Volatile and Combustible Matter	28.00
Fixed Carbon	49.20
Ash	7.20

If this coal holds its high percentage of carbon and proves a good producer, as the present showing indicates, it will be a valuable contribution to Portland for domestic purposes.

A four-foot stratum is now being opened up in section 13, township 3 west and 4 north, some six miles up Scappoose Creek, on land owned by Dr. Giltner. It has a 100-foot tunnel run and the coal looks equally as good as the Yamhill coal. In fact, it is more adherent, but as I have no analysis of it I am not able to say as to its quality. Dr. C. H. Raffety and Frank Payne have found coal on their land in the Scappoose country by boring some 40 feet. This is overcapped by a heavy deposit of iron ore of good quality. The importance of the association of coal and iron in the same formation cannot be overestimated for this reason: The development of coal and iron mines is conducted in connection with each other, and the smelting furnaces are often situated at the mouth of the coal mines. It is easy to understand, therefore, why the greatest coal-producing country in the world is also the greatest iron-producing country. Nearly all the iron ore worked in Great Britain is taken from her coal measures. The occurrence of iron ore is in many respects like that of coal, for the organic matter is consumed in doing the work of changing the carbonate of iron to the oxide.

Anthracite coal is known to exist in Washington. It is found as float in streams on both slopes of the Cascades. Samples have been brought to me many times in the last 25 years, also samples of Gilsonite from the headwaters of the Cowlitz River. This, to me, is positive evidence that there is a very large and extensive deposit of anthracite coal in Washington awaiting development, which when done, will solve the iron problem on this coast and open the way for a thousand stacks calling for the employment of thousands of our people in the various industries that will follow. The iron industry in its various departments is the greatest and most important of the industries of the world, and one to which there should be more intelligent consideration given than it has received heretofore.

My theory is, if Professor Diller is correct in his conclusion, "that the jurassic and triassic beds are of unknown extent and of considerable thickness and trend throughout the Coast Range of mountains from north to south," older and better coal will be found, which to my mind is as sure, as that night follows day. Although the rocks of this period, as they approach the Columbia River, may sink to an unknown depth, they rise again to an anti-cline in the anthracite coal regions of Washington.

The Age of Oil.

A new period in the world's history is now dawning upon us. While the prehistoric ages of iron, gold and other metals have given place to the age of oil and it is somewhat significant that this new age is contemporaneous with the highest progressive development of man, nature has preserved her greatest surprise for the first of the new century and the year 1901 will thunder down the ages as the first of the incomparable age of oil.

We have made the discovery that 150 gallons of crude petroleum are equal to one ton of the best coal as a fuel; therefore, we may not feel discouraged about a coal famine in any part of the world. Our coal fields are far greater than England ever possessed, and it has been stated that the state of West Virginia alone contains more coal than England ever did, and under the present economic conditions, coal is king. In sections where coal is not found in abundance, crude petroleum may be looked for and its use and adaptations must keep pace with the lavishness of nature, for it is natural that the various uses to which oil is adapted should multiply with great rapidity. But in the development of either coal or oil, we may have no fears of its cheapness as a profitable investment for it will ever find a ready market wherever fuel is needed, and that market is now and ever will be unlimited. Oregon is as much an oil state as California or Wyoming. It cannot be otherwise, for the same conditions which formed oil or coal in one state will form it in another.

As to the particular stratum of the geological period in which oil has hitherto been found, and so may be supposed to occur in undeveloped and untried fields, there are certain local conditions to be considered which are necessary that would seem to bring oil within available reach of the surface, or to collect or store it away in subterranean reservoirs.

Along the granite uplifts of all our mountain ranges, there is a zone of foothills representing all the strata underlying the great plains; these strata are uplifted at various angles along the base of the granite range which was once the shore line upon which these various strata were laid down by the ocean.

The waves of uplifted rocks of limestone, sandstone, shales and clays represent, in parallel rotation, the various earth periods and their subdivisions and subgroups from the mesozoic to the tertiary on granite or granite-like rocks, and is where the indications of oil may be looked for.

While giving these hints and directions for prospecting for oil, I may say, as a rule, that a very careful geological examination should be made by a competent expert before any expense of sinking a well is commenced. I should be very reluctant to accept the opinion of the person who pronounces upon a locality because of its similarity to something he has seen in Pennsylvania or any other region, for even a skilled and experienced oil man from the oil fields of the East is not always a good judge of the different conditions to be found in the West. He is almost invariably influenced in his observation of the results by those to which he has been accustomed to in the East. But things and conditions are very different in the West. The oil fields of the East occur in paleozoic strata. In the West they are in mesozoic or cenozoic rocks of more recent date, and he may find both rocks and signs and other conditions entirely different from what he has been accustomed to, and find difficulty in adjusting himself and his ideas to the changed conditions. And there are many so-called authorities whose judgment is unreliable and misleading.

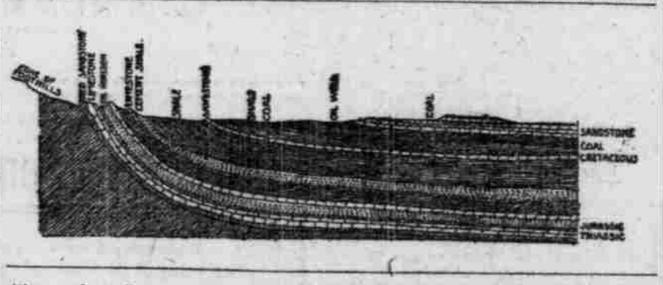
Hindrances to the Development of the Coal Fields of Oregon.

The coal fields of the Coast Range are covered by a growth of vegetation of vines and shrubs, together with a large number of fallen trees of the forest, and especially in the ravines where abundance of moisture lingers in Summer, which completely covers the slopes. The coal itself can only crop out upon the surface along the lines of rapid erosion, as in the Nehalem River, which during freshets sweeps its bed, but in smaller streams where the force of water in floods is not sufficient to sweep away the mass of logs and rubbish, the outcrops of coal are few and far between. It is there where the older coals should be looked for in Benton, Polk and Yamhill Counties. Although the Upper Nehalem coal fields is but 30 miles from Portland, it must remain undeveloped until railroad facilities are provided. For further development of the Coast Range of mountains, we must wait for new money and new blood to make the determination.

In conclusion, I will say that our geological theories may be set aside by future discoveries, for theory is only a cord on which to string facts that otherwise might be lost. Our theories may be thrown away, but facts never. The mud flats and sands of the shore will be the rocks of future hills, and the rocks of our hills, the ocean sediment of another age. Rivers have deserted their old channels and the ocean has encroached upon the land. Lakes and marshes have disappeared; volcanoes have thrown out rivers of lava. All this was necessary in the wisdom and economy of nature to prepare coal for our use, which is not only a necessity, but its development and use the measure of our civilization, and the least we can do on our part is to search for it.

J. H. FISK.

Portland.



ETHICS OF FOOTBALL.

The Game as Played Depraves the Youth and College Life.

DAYTON, Wash., Dec. 31.—(To the Editor.)—Every one familiar with our American colleges must remember how a few years ago athletics were not at all or at most were very poorly provided for by the college authorities. It must be clear to everyone that when young men are shut up in study and recitation-rooms, or in attendance upon lectures, if some means are not taken to keep up the normal amount of physical exercise, the general health will deteriorate. This fact is more fully guarded against at the present day than in the past. The result is a healthier lot of young men coming out of these institutions, and a wider field of usefulness. Since the benefits to be derived are so evident to even the casual observer, no one with any judgment would decry the tendency towards athletics.

But there is another side to the question, the danger of overdoing a good thing. So long as conservatism prevails in the selection of proper athletic exercises, and the rougher field sports are debarred, all can rejoice at the results. But today everything seems to be turning towards football, and that in its roughest form. While we can have no doubt that such sports make men daring and ready, as one college boy remarked a short time ago, to meet anything that comes up, with fear of no one, yet when we look at the casualties and remember that it is merely for sport, we are appalled.

Any sport which endangers the life and limbs of those who participate in it, can not be so wholesome as some would like to make it. Under editorial comments, in American Medicine for December 14 of this year we see the following:

"Nine killed and 176 badly inujred is the record of football mortality for the past season. Rev. Dr. McCook thinks the case is bad enough to devote a sermon against this gladiatorial sport masquerading under the name of 'athletics.' Worse than the deaths and injuries, however, he thinks are the immoral concomitants of the game as played, the gladiatorial spirit, the betting evil and the liquor drinking habits encouraged, and last, the time wasted by students. We think Dr. McCook forgot the worst thing—the vicious imitation by small colleges and by school children. We leave out of the count the encouragement of noise-making. Betting, obscenity, profanity and malignancy are the effects of football upon millions of children. We read of two rival medical colleges keeping up a fight a whole day and of having to be repeatedly separated by companies of police. This is therapeutic education with a vengeance. We know of the will of a still living rich man, by which, at his death, a university will receive a very large sum of money, but only on condition that in the future there shall be permitted no 'athletic contests' of the kind that at present disgrace both genuine education, genuine athletics and a true sportsmanlike instinct."

To the above indictment might be added other counts, which to a physician would have equally great weight in helping to form an adverse judgment as to the game. First among these might be placed the effect upon the heart of a student, whose time is mostly spent indoors, undertaking the enormous strain of an intercollegiate match game of football. Again, it is necessarily a game for accomplished athletes, those who do not need it particularly, and therefore is a waste of time; while its violence necessarily prohibits the weaker boys from participating in it.

The deception which is allowed to be practiced by the players, is another element which should condemn it in the minds of right-thinking people. A player will lie still on the ground after a play for some time pretending to have been hurt, in order to gain time, while he forces 20 odd other players to stand around waiting for him. It has been called a gentleman's game, but it appears to an outsider that a gentleman would not allow the game to be delayed on his account if he could help it. Again, the brutal determination to win even though at the expense of another's injury, is demoralizing to manhood. It cannot be held up in defense of the game that such risks are often taken in other affairs, for we must remember that the ultimate aim of college life is to make gentlemen as well as scholars. Athletics are but an incident connected with keeping up the physical organism while thus engaged, and not an end to be worshiped. Nor is the injury to the players all the evil which may grow out of such contests. The observer is carried away by the strenuousness of the game until he loses self control and joins the rabble in the cry of "kill them off," in his great desire to see his favorite side win. The insensibility of the average spectator to injuries received by any given player is marked by the desire to have said player dragged off and another substituted in order that the game may go on. The cries that one hears at a hard-fought game would almost make him believe that he were present at a bull-fight or a pugilistic contest.

I am aware that in many other outdoor sports there is danger of accidents occurring, but that is quite a different matter from deliberately entering into a sport which turns upon the probability of injury to some one. The injuries of baseball are purely accidental, and can not be compared with those of football. Golf has claimed its victims, and yet no one thinks of calling it a dangerous game as compared to football, for every one knows that the rules of the game do not demand a courting of danger as do those of football. Such danger as rises in the game of golf comes directly from the imbecility of the players themselves and is not incident to the game. The very fact that a defense is needed for football is prima facie evidence that it is unjustifiable among amateurs, and is dangerous.

A judge of the Superior Court recently remarked, after seeing a hotly-contested intercollegiate game, that the only difference he could see between the game as played and a prizefight was in the class of people who patronized and countenanced them. I am very much of the same opinion. Both show a certain degree of brutality, and to my way of thinking degrade both bystander and participants. I believe in athletics, and can heartily approve of any form which can show a good reason for its existence, but I must draw the line at football for divers reasons. I may not find many approvers among those who are carried away with the game, but I know that there are many of the more conservative among the common people who are with me entirely. A free discussion of the merits and demerits of such games may be of incalculable benefit to parents who have boys whom they are desirous of sending to college, and do not desire them to be broken down before they can begin the struggle for life, or to receive injuries which will last them for a lifetime.

E. H. V. P.

FALL IN ENGLISH SECURITIES

Effect of the Boer War Severely Felt in Financial Circles.

London Express.

The fall in the value of British government, railway and industrial securities during the past two years amounts in the aggregate to hundreds of millions sterling.

Consols, which, on the day preceeding the launching of the Boer ultimatum, stood at 103¾, are now in the neighborhood of 91, and other stocks have suffered even more severely.

The Bankers' Magazine takes 325 representative securities from the Stock Exchange list and shows the fluctuations from month to month. A compilation of these monthly figures demonstrates the startling fact that the net fall in the 325 selected securities between September 19, 1899, and October 19, 1901, amounted to the enormous sum of £143,946,000. And these securities, of course, only form a portion of the Stock Exchange list.

But a closer examination proves that from the British point of view the position is even more unfavorable. During the period named certain foreign government stocks and American railway securities included in the calculation rose to the extent of about £47,000,000. As a matter of fact, the decrease in market value of 14 British and Indian funds during the period named amounted to no less than £76,392,000, the fall in the month ending October 19 alone amounting to £8,534,000. Home railway stocks again show an extraordinary shrinkage in value.

The ordinary stock of 19 British railways fell between September 19, 1899 and October 19, 1901, to the extent of £49,892,000; 14 railway debenture stocks decreased in value by £13,328,000, and 13 railway preferred stocks by £14,517,000, making a total of close upon a hundred millions sterling. In brief, the aggregate fall in the 14 British and Indian funds cited, and in the 46 selected railway securities amounted to £174,129,000.

Curiously enough, while most classes of stocks and shares have declined, the shares of the 10 mines (chiefly South African) figuring in the list still show an aggregate increase of nearly £3,000,000, though in the last month of the period they fell to the extent of £3,146,000.

Shipping, canal and dock and colonial bank shares are among the few securities that have risen in value since the war began.

Growing Tariff Enlightenment.

New York Journal of Commerce.

It is an illustration of the growing liberality in considering the tariff that the two most conspicuous organs of protection East and West, the Tribune of this city and the Inter Ocean of Chicago, have declared that American sugar-growers have no need of protection from Cuban and Philippine competition. The Tribune's Washington correspondence reproduced an argument originally issued from the office of Willett & Gray, computing the cost of sugar protection to the consumers, an amount far in excess of the revenue derived by the Government, and showing how secure the domestic producers were, even if we let Cuban sugar in free. This was followed by a Washington dispatch proving that American tobacco interests had nothing to fear from the admission of Cuban tobacco and cigars at the rates of duty that were in force before the McKinley tariff, rates very much lower than those of the past 11 years. The Inter Ocean reckons the amount of sugar that can come next year from Cuba and the Philippines at not exceeding 900,000 tons, leaving at least 600,000 tons, which must be bought of foreigners. "In the light of these facts," says the Inter Ocean, "the demand of our cane and beet-growers to be protected against Cuban, and especially Philippine, competition is ridiculous." To tax Philippine sugar in accordance with the Payne bill, it says, is to make it impossible for the Philippines to prosper, and it concludes that "any way it is viewed, the Payne tariff is positively scandalous."

CHICAGO'S NEW BURDEN.

Babies Will Cost Cook County a Quarter Each in 1902.

Chicago News.

Cook County will have to pay 25 cents a head for every baby born inside its limit and whose birth is reported to the County Clerk after New Year's Day. This is on account of a law which was enacted by the last Legislature.

The object of the law was not to place a bounty on the birth of babies in Chicago, but to insure the recording of the births of the babies who may be born. The physician presiding at the birth of a child will be entitled to collect the tax. If he neglects his duty, the parent of the offspring will have the next chance at the county's quarter. This piece of sliver will be paid by the County Treasurer upon notice by the County Clerk that the birth in question has been reported to him.

"I expect this new law will cost Cook County about $15,000 next year," said President John J. Hanberg, of the County Board. "There were nearly 50,000 babies born in Chicago this year, I understand, and I expect the number will be increased next year. Cook County cannot well begrudge the money, though in the present condition of the county's finances every $15,000 counts."

Morning Piece.

(Sea of Marmora.)

A scarlet glory burned fantastically splendid
In the sky of dawn,
The sea stretched blue and stainless,
The wind blew fresh across the great spaces,
The white ship glided across the morning waters
Like a living thing rejoicing in its grace.
A sense of largeness, freedom, purity, infinity,
Breathed from all things.

And, huddled like animals in the hold of the ship,
And packed on the foredeck,
And swarming on the hatches,
And coiled in the ropes,
And seething beneath the awnings,
Hundreds and hundreds of Greek refugees
In their grimy clothes
Lay or sat or crouched.

And the miasma of their breathing
And of the odors of the night
Rose toward the radiant
And impassive heaven.

—I. Zangwill, in Lippincott's Magazine.

When you feel bad, take Hood's Sarsaparilla. It will make you decidedly better.

TRAVELERS' GUIDE.

Burlington Route

Write Me A Letter

If you are going East and want to know what the trip will cost, when you will reach your destination, where you will change cars (if a change is necessary), and why you should take the Burlington, write me a letter.

I will take pleasure in answering all the questions you care to ask.

Omaha, Chicago, Kansas City, St. Louis, Denver and everywhere beyond.

TICKET OFFICE: Cor. Third and Stark Sts. R. W. Foster, Ticket Agent.

Pacific Coast Steamship Co.

For South-Eastern Alaska
Leave Seattle 9 P. M.
Steamships COTTAGE CITY, CITY OF SEATTLE, AL-KI. Jan. 8, 11, 15, 20, 28, 30; Feb. 4, 14, 16, 19, 28; Mar. 1.
For further information obtain company's folder. The company reserves the right to change steamers, sailing dates and hours of sailing, without previous notice.
AGENTS—N. POSTON, 249 Washington st., Portland, Or.; F. W. CARLETON, N. P. R. R. Dock, Tacoma; Ticket Office, 618 First ave., Seattle. M. TALBOT, Comm'l Agt., C. W. MILLER, Asst. Gen'l Agt., Ocean Dock, Seattle; GOODALL, PERKINS & CO., Gen'l Agents, San Francisco.

WHITE COLLAR LINE
STR. TAHOMA, DALLES ROUTE.
Winter schedule—Leaves foot Alder street every Monday, Wednesday and Friday morning, 7 A. M. Leaves The Dalles every Tuesday, Thursday and Saturday morning, 7 A. M.
Stops at all way landings for both freight and passengers.
ASTORIA ROUTE.
STR. BAILEY GATZERT (Alder-st. Dock.) Leaves Portland daily every morning at 7 o'clock, except Sunday. Returning, leaves Astoria every night at 7 o'clock, except Sunday. Oregon phone Main 351. Columbia phone 351.

Downing, Hopkins & Co.
ESTABLISHED 1893.
WHEAT AND STOCK BROKERS
Room 4, Ground Floor Chamber of Commerce

SHORT LINE TO CHICAGO
FOUR FINE FAST TRAINS TO CHICAGO.
THE NORTH WESTERN LINE
Although one of the Longest Lines in the World,
The North-Western Line is the Shortest,
with Finest Trains, Minneapolis, St. Paul, Duluth to Chicago.
Call or write for information to W. H. MEAD, Gen'l Agt., 248 Alder St., Portland, Or.

TRAVELERS' GUIDE.

O. R. & N.
UNION PACIFIC
OREGON SHORT LINE
AND UNION PACIFIC
THREE TRAINS DAILY FOR ALL POINTS EAST

UNION DEPOT.	Leave.	Arrive.
CHICAGO-PORTLAND SPECIAL. For the East via Huntington.	9:00 A. M. Daily.	4:30 P. M. Daily.
SPOKANE FLYER. For Eastern Washington, Walla Walla, Lewiston, Coeur d'Alene and Gt. Northern Points.	6:15 P. M. Daily.	7:00 A. M. Daily.
ATLANTIC EXPRESS. For the East via Huntington.	8:50 P. M. Daily.	8:10 A. M. Daily.
OCEAN AND RIVER SCHEDULE.		
FOR SAN FRANCISCO. SS. Columbia—Jan. 7, 17, 27. SS. Geo. W. Elder—Jan. 2, 12, 22.	From Ainsworth Dock. 8:00 P. M.	5:00 P. M.
FOR ASTORIA and way points, connecting with str. for Ilwaco and North Beach, str. Hassalo. Ash-street Dock.	8:00 P. M. Daily ex. Sunday. Sat. 10 P. M.	5:00 P. M. Daily. ex. Sun.
FOR CORVALLIS and way points, str. RUTH, Ash-street Dock. (Water permitting.)	6:45 A. M. Mon., Wed., Fri.	6:00 P.M. Tues., Thurs., Sat.
FOR DAYTON, Oregon City and Yamhill River points, str. Elmore, Ash-street Dock. (Water permitting.)	7:00 A. M. Tues., Thurs., Sat.	3:00 P. M. Mon., Wed., Fri.

TICKET OFFICE, Third and Washington. Telephone, Main 712.

PORTLAND & ASIATIC STEAMSHIP CO.
For Yokohama and Hong Kong, calling at Kobe, Nagasaki and Shanghai, taking freight via connecting steamers for Manila, Port Arthur and Vladivostock.
INDRAVELLI SAILS JAN. 28.
For rates and full information call on or address officials or agents of O. R. & N. Co.

EAST VIA SOUTH
SOUTHERN PACIFIC COMPANY. SUNSET OGDEN & SHASTA ROUTES

Leave	Depot Fifth and I Streets.	Arrive
*8:30 P. M.	OVERLAND EXPRESS TRAINS, for Salem, Roseburg, Ashland, Sacramento, Ogden, San Francisco, Mojave, Los Angeles, El Paso, New Orleans and the East. At Woodburn (daily except Sunday), morning train connects with train for Mt. Angel, Silverton, Brownsville, Springfield, and Natron, and Albany Local for Mt. Angel and Silverton.	*7:45 A. M.
*8:30 A. M.		*7:00 P. M.
*4:00 P. M.	Albany passenger ...	*10:10 A. M.
*7:30 A. M.	Corvallis passenger.	*5:50 P. M.
‖4:50 P. M.	Sheridan passenger.	‖8:25 A. M.

*Daily. ‖Daily except Sunday.

Rebate tickets on sale between Portland, Sacramento and San Francisco. Net rates $17.50 first class and $14 second class. Second class includes sleeper; first class does not.
Rates and ticket to Eastern points and Europe. Also JAPAN, CHINA, HONOLULU and AUSTRALIA. Can be obtained from V. A. Schilling, Ticket Agent, 254 cor. Washington and Third.

TAMHILL DIVISION.
Passenger Depot, foot of Jefferson street.
Leave for Oswego daily at 7:20, *9:40 A. M.; 12:30, 1:55, 3:25, 4:40, 6:25, 8:30, 11:30 P. M.; and 9:00 A. M. on Sundays only. Arrive at Portland daily at *6:35, 8:30, *10:50 A. M.; 1:35, 3:10, 4:20, 6:15, 7:40, 10:00 P. M.; 12:40 A. M. daily, except Monday, 8:30 and 10:05 A. M. on Sundays only.
Leave for Dallas daily, except Sunday, at 5:05 P. M. Arrive at Portland at 9:30 A. M.
Passenger train leaves Dallas for Airlie Mondays, Wednesdays and Fridays at *3:30 P. M. Returns Tuesdays, Thursday and Saturdays. *Except Sunday.

R. KOEHLER, Manager. R. B. MILLER, Gen. Frt. & Pass. Agt.

NORTHERN PACIFIC
TIME CARD OF TRAINS
PORTLAND

	Leaves.	Arrives.
Overland Express	2:00 P. M.	7:00 A. M.
Twin City, St. Louis & Kan. City Special	11:30 P. M.	7:45 P. M.
Puget Sound Limited, for South Bend, Gray's Harbor, Olympia, Tacoma and Seattle	8:35 A. M.	5:20 P. M.

Two trains daily to Spokane, Butte, Helena, Minneapolis, St. Paul and the East.
A. D. CHARLTON, Asst. General Pass. Agt.,
255 Morrison street. Portland, Or.

THE GREAT NORTHERN
Ticket Office 122 Third St. Phone 680

LEAVE		ARRIVE
No. 4 6:00 P. M.	The Flyer, daily to and from St. Paul, Minneapolis, Duluth, Chicago and all points East.	No. 3 7:00 A. M.

Through Palace and Tourist Sleepers, Dining and Buffet Smoking-Library Cars.
JAPAN - AMERICAN LINE
STEAMSHIP TOSA MARU
For Japan, China and all Asiatic points will leave Seattle
About December 31st.

Astoria & Columbia River Railroad Co.

LEAVES	Depot Fifth and I Streets.	ARRIVES
8:00 A. M.	For Maygers, Rainier, Clatskanie, Westport, Clifton, Astoria, Warrenton, Flavel, Hammond, Fort Stevens, Gearhart Pk., Seaside, Astoria and Seashore Express. Daily.	11:10 A. M.
7:00 P. M.	Astoria Express. Daily.	9:40 P. M.

Ticket office 255 Morrison st. and Union Depot.
J. C. MAYO, Gen. Pass. Agt., Astoria, Or.

Salem, Albany, Corvallis, Oregon City and Dayton.
Steamer Pomona, for Corvallis, leaves 6:45 A. M. Tuesday, Thursday and Saturday.
Steamer Altona, for Dayton, leaves 7 A. M. Monday, Wednesday and Friday.
Steamer Leona, for Independence, Monday, Wednesday and Friday, 6:45.
OREGON CITY TRANSPORTATION CO., Office and dock, foot Taylor st. Phone 40.

THE PALATIAL
OREGONIAN BUILDING

Not a dark office in the building; absolutely fireproof; electric lights and artesian water; perfect sanitation and thorough ventilation. Elevators run day and night.

	Rooms.
AINSLIE, DR. GEORGE, Physician	413-414
ANDERSON, GUSTAV, Attorney-at-Law	612
ASSOCIATED PRESS, E. L. Powell, Mngr.	806
AUSTEN, F. C., Manager for Oregon and Washington Bankers' Life Association of Des Moines, Ia.	502-503
BANKERS' LIFE ASSOCIATION, OF DES MOINES, IA., F. C. Austen, Mgr.	502-503
BEALS, EDWARD A., Forecast Official U. S. Weather Bureau	819
BENJAMIN, R. W., Dentist	314
BINSWANGER, OTTO S., Physician and Surgeon	407-408
BROCK, WILBUR F., Circulator Oregonian	501
BROWN, MYRA, M. D.	413-414
BRUERE, DR. G. E., Physician	412-413-414
BUSTEED, RICHARD	803
CAMPBELL, WM. M., Medical Referee Equitable Life	700
CANNING, M. J.	602-603
CAUKIN, G. E., District Agent Travelers' Insurance Company	718
CARDWELL, DR. J. R.	506
CHURCHILL, MRS. E. J.	716-717
COFFEY, DR. R. C., Surgeon	405-406
COLUMBIA TELEPHONE COMPANY	604-605-606-607-613-614-615
CORNELIUS, C. W., Phys. and Surgeon	206
COLLIER, P. F., Publisher; S. P. McGuire, Manager	415
DAY, J. G., & I. N.	313
DICKSON, DR. J. F., Physician	713-714
DWYER, JOE E., Tobaccos	403
EDITORIAL ROOMS	Eighth Floor
EVENING TELEGRAM	325 Alder Street
EQUITABLE LIFE ASSURANCE SOCIETY; L. Samuel, Mgr.; G. S. Smith, Cashier	306
FENTON, J. D., Physician and Surgeon	509-10
FENTON, DR. HICKS C., Eye and Ear	511
FENTON, MATTHEW F., Dentist	509
GALVANI, W. H., Engineer and Draughtsman	600
GAVIN, A., President Oregon Camera Club	214-215-216-217
GEARY, DR. E. P., Phys. and Surgeon	408
GEARY & COFFEY, Physicians and Surgeons	404-405-406
GIESY, A. J., Physician and Surgeon	709-710
GILBERT, DR. J. ALLEN, Physician	401-402
GILLESPY, SHERWOOD, General Agent Mutual Life Ins. Co.	404-405-406
GOLDMAN, WILLIAM, Manager Manhattan Life Ins. Co., of New York	209-210
GRANT, FRANK S., Attorney-at-Law	617
GRISWOLD & PHEGLEY, Tailors	131 Sixth Street
HAMMAM BATHS, Turkish and Russian	300-301-302
HAMMOND, A. B.	310
HOLLISTER, DR. O. C., Physician and Surgeon	504-505
IDLEMAN, C. M., Attorney-at-Law	416-17-18
JOHNSON, W. C.	315-316-317
KADY, MARK T., Supervisor of Agents Mutual Reserve Fund Life Assn.	604-605
LITTLEFIELD, H. R., Phys. and Sur.	206
MACKAY, DR. A. E., Phys. and Surg.	711-712
MANHATTAN LIFE INSURANCE CO. of New York; W. Goldman, Manager	209-210
MARSH, DR. R. J., Phys. and Surgeon	404-406
MARTIN, J. L. & CO., Timber Lands	601
McCOY, NEWTON, Attorney-at-Law	715
McFADEN, MISS IDA E., Stenographer	201
McGINN, HENRY E., Attorney-at-Law	311-12
McKENZIE, DR. P. L., Phys. and Sur.	512-13
METT, HENRY	218
MILLER, DR. HERBERT C., Dentist and Oral Surgeon	608-609
MOSSMAN, DR. E. P., Dentist	513-514
MUTUAL RESERVE FUND LIFE ASSN; Mark T. Kady, Supervisor of Agents	604-605
McELROY, DR. J. G., Phys. & Sur.	701-702-703
McFARLAND, E. B., Secretary Columbia Telephone Company	606
McGUIRE, S. P., Manager P. F. Collier, Publisher	415
MUTUAL LIFE INSURANCE CO., of New York; Sherwood Gillespy, Gen. Agt.	404-5-6
NICHOLAS, HORACE B., Attorney-at-Law	715
NILES, M. L., Cashier Manhattan Life Insurance Company of New York	209
OLSEN, J. F., State Agent Tontine Savings Association, Minneapolis	211
OREGON CAMERA CLUB	214-215-216-217
OREGON INFIRMARY OF OSTEOPATHY	409-410
OREGONIAN BARBER SHOP; Rudolph Marsch, Prop.	129 Sixth street
OREGONIAN EDUCATIONAL BUREAU; J. F. Strauhal, Manager	200
PORTLAND EYE AND EAR INFIRMARY,	Ground Floor, 133 Sixth street
QUIMBY, L. P. W., Game and Forestry Warden	515
REAVIS, DR. J. L., Dentist	606-607
REED, WALTER, Optician	133 Sixth street
RICKENBACH, DR. J. F., Eye, Ear, Nose and Throat	701-702
ROSENDALE, O. M., Metallurgist and Mining Engineer	516
RYAN, J. B., Attorney-at-Law	513