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·AN·ILLUSTRATED·WESTERN·MAGAZINE·
·CONTENTS·

	Page.		Page.
Salmon Fishing on the Columbia.....	519	Northwestern News and Information	561
The Shidmore Fountain	532	Black Cod Banks Discovered—Coast Defenses of British	
Washington County's Chief Towns..	533	Columbia—Seven Devils Copper District—Irrigation	
The Holmes Business College.....	533	in the Gallatin Valley, Montana—The Cuttle Fish of	
A City of Roses.....	533	Puget Sound—Baker County Mineral District—Gold	
Responsibility of Railroad Managers	534	Quartz in the Cascades—Billings and Big Horn Basin	
A Growing City.....	534	—Baker City's Growth—Salmon Eggs for Oregon	
Fruit Lands of Chehalem.....	534	Streams—Lake Tahoe—Washington & Idaho R. R.—	
Fruit Industry of the Northwest.....	537	Mining on the Yukon—Skagit River Mines—The Ba-	
Only An Army' Affair.....	542	nana Tree—Tacoma's New Hotel—Quartz on Texada	
Thistle Down	546	Island—Berax Mine in Oregon—Rocky Mountain	
Hunting the Fur Seal.....	547	Scenery—A Chicago Hotel—Progress of the Oregon	
Minerals of Linn County.....	551	Pacific—Real Estate in Tacoma—A Complete Estab-	
Green River Hot Springs.....	552	lishment—Montana Dividends for Eight Months—	
An Extensive Lumber Enterprise.....	552	Furnishing Goods Emporium—Big Horn Tunnel and	
History of the Saw Mill.....	555	Bridge—A Jewelry Palace—Railroad in Southeastern	
How Greenbacks are Canceled.....	558	Oregon—Chicago & Northwestern—Smelter at Tacoma.	
Thoughts and Facts for Women.....	559		
Time for Reading—How Keep Up—"Shut In" Ones—		October.....	570
Thoroughly Progressive—General Oversight—Brief			
Notes.			

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Any number of the magazine, including supplement, will be mailed upon receipt of twenty-five cents, except the January number. The January supplement will be sent only when twenty-five cents extra are remitted. The leading articles and illustrations in the various numbers already issued this year, are as follows:

JANUARY.

Supplement—"Entrance to the Columbia River," a beautiful oleograph in eight colors.
Contents—Illustrations and description of United States Life Saving Service, and engravings of scenery.

FEBRUARY.

Supplement—"Shoshone Falls," of Snake river, in tints.
Contents—Engravings and descriptions of East Portland, Albina and Newberg.

MARCH.

Supplement—"Mount Tacoma," in tints.
Contents—Engravings and description of the city of Tacoma, and the opening chapters of Tom Norwood, a thrilling story of the civil war.

APRIL.

Supplement—"The Olympic Range, from Seattle Harbor," in colors.
Contents—Engravings and description of the city of Seattle.

MAY.

Supplement—"North Pacific Industrial Exposition," in colors.
Contents—Large colored view of the city of Portland; also many other engravings, and a comprehensive article on the city and its surroundings.

JUNE.

Supplement—"Chehalem Valley, Oregon," in colors.
Contents—Illustrations and descriptions of Hillsboro, Forest Grove and Albany.

JULY.

Supplement—"Roseburg and Umpqua Valley," in colors.
Contents—Illustrations and descriptions of Yamhill and Douglas counties, Oregon.

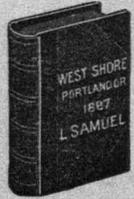
AUGUST.

Supplement—"Works of Oregon Iron & Steel Company," in tints.
Contents—Illustrations and descriptions of manufacturing industries of Portland.

SEPTEMBER.

CONTENTS—Illustrations of Beautiful Homes of Portland.

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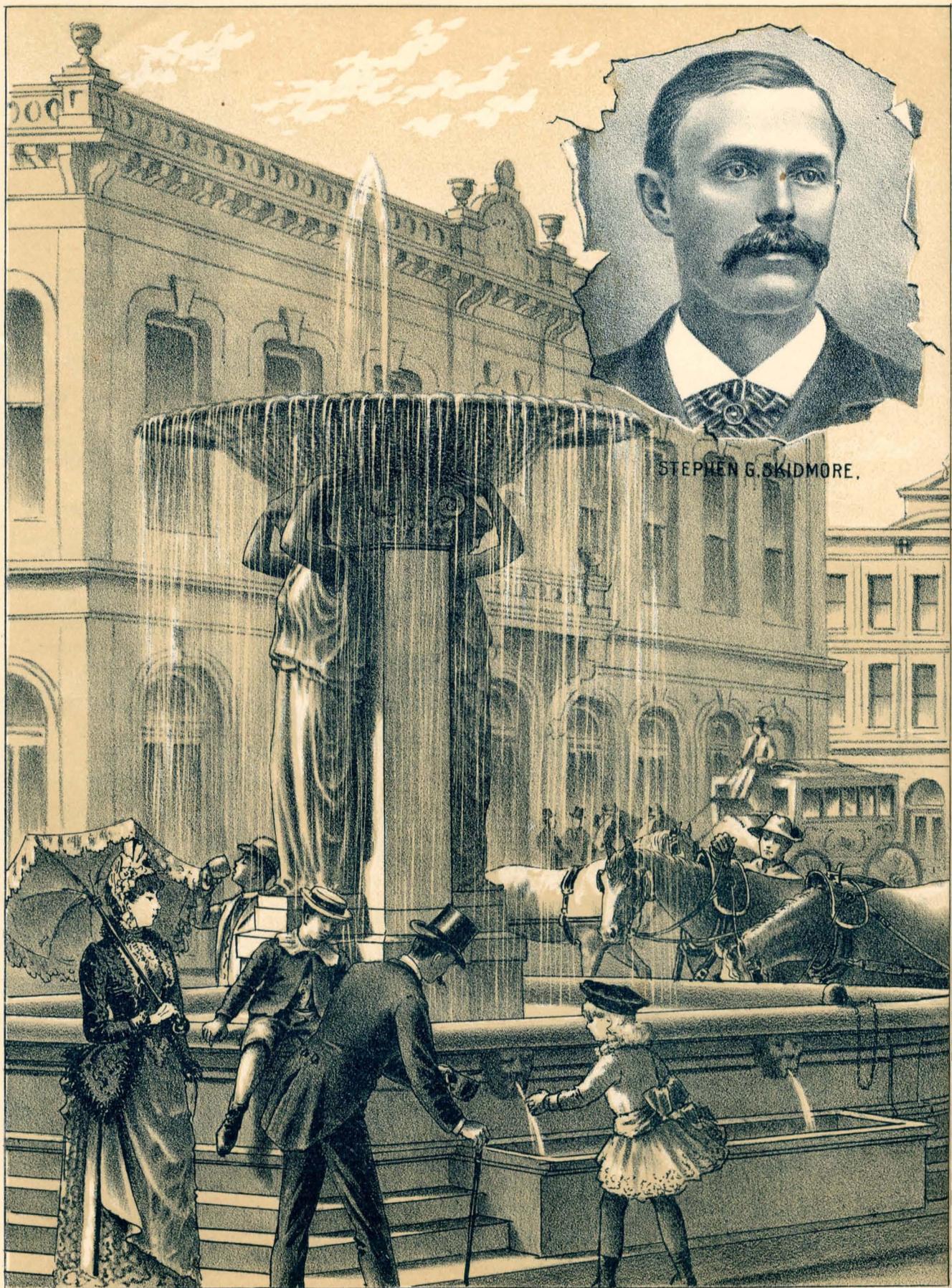
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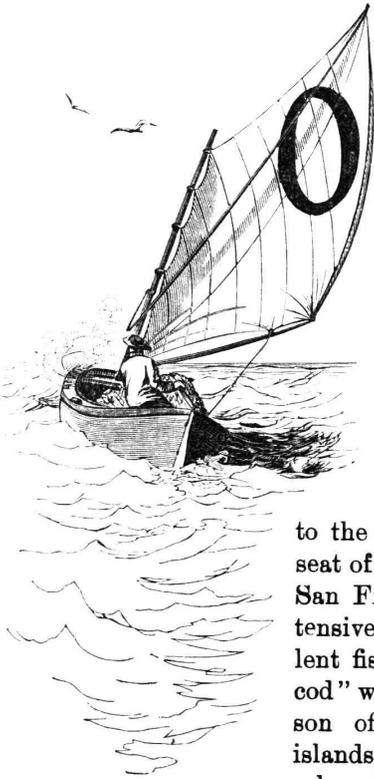
THE WEST SHORE.

FOURTEENTH YEAR.

OCTOBER, 1888.

NUMBER 10.

SALMON FISHING ON THE COLUMBIA RIVER.



NE of the great industries of the Pacific coast is that of preserving fish by salting, smoking and canning, as well as that of extracting oil. Leading in importance is the salmon, followed by the cod, halibut, dog fish and other smaller varieties. The cod

fishing is confined to the Alaskan banks, the seat of the industry being San Francisco, though extensive banks of the excellent fish known as "black cod" were located this season off Queen Charlotte islands, by a Victoria vessel, and many fish caught

and brought to market. The halibut industry is just beginning, the fish being caught off Vancouver and Queen Charlotte islands by vessels making their headquarters in Puget sound. Oil is made from the livers of dog fish, at Skidegate, on Queen Charlotte islands, and on the mainland the oolachan, or candle fish, is pressed into oil or dried. All other forms of fishing industry combined do not equal, in extent and value, that of the salmon, which is carried on along nearly every important stream entering the Pacific, from the Sacramento, in California, to the Yukon, in Alaska. Canning is the usual form of preservation, though large quantities are salted and smoked for the market, and by the Indians dried in the sun for winter food.

Leading all other streams in the quantity and value of its pack, is the Columbia, followed in order of importance by the Sacramento and Fraser. Of late years the Alaska pack has been coming to the front, and the indications point to that region as the seat of the most extensive salmon canning interests in the world in a few years, because of the multitudes of salmon that run in its waters, and the low cost of conducting the business. At other points in Oregon besides the Columbia, salmon canning is carried on, such as Ccquille river, Coos bay, Yaquina bay and Tillamook bay; and in Washington, Gray's harbor and Puget sound add their quota to the total output. In British Columbia, various rivers and inlets north of Fraser river combined pack a greater number of cases than Fraser river itself. The total pack of the present season on the Columbia was three hundred and sixty thousand cases, being little more than one-half that of 1883, the highest previously made, which reached a total of six hundred and twenty-nine thousand cases. The total of British Columbia for the present season was one hundred and fifty-six thousand five hundred cases, of which Fraser river furnished forty-one thousand six hundred. As the season at other points is not yet closed, the totals can not be given.

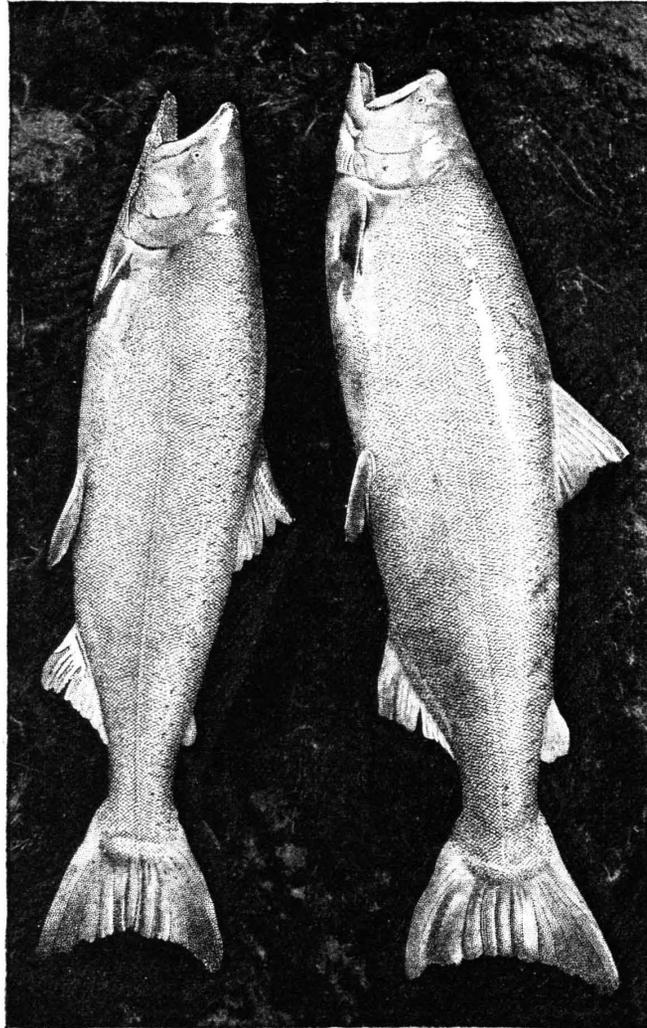
A great many distinct varieties of salmon are found in Pacific waters, some of which are of such a superior quality as to enhance the reputation of that favorite fish, while others are of no commercial value. By far the best flavored and best adapted to canning is the one which has rendered the Columbia river brands the leading ones in the markets of the world. Happily, too, its distribution is great, and its numbers apparently unlimited, as it runs in countless throngs in the Sacramento, Columbia, Puget sound rivers and streams of British Columbia, Alaska, Kamtchatka and Asia. This is the Quinnet, the largest of the salmon family, reaching a maximum size of ninety pounds, and averaging from sixteen to twenty-

seven pounds on the various streams at the age of four years. The larger fish are those of more mature years, who have survived one spawning season, for it is a curious fact that nearly every salmon, both male and female, dies shortly after the act of spawning is completed. Were this not so, huge salmon would be more frequently caught, and, also, they would increase so rapidly as to literally fill the sea. The Quin-nat, whose scientific designations are *salmo quinnat* and *onchorynchus chonicha*, is known in various localities by different titles. On the Sacramento it is called "California salmon," and on the Columbia it is called "Chinook," or "Royal Chinook," a name similar in idea to that of "King salmon," given it on the Yukon, where it also bears the Russian title of "Chowecha," or "Tchawytcha." In Fraser river it is designated by the Indian title of "Sah-kwey," and on Puget sound it called "Columbia river salmon," or "Tye" (chief).

Although the salmon procreates in fresh water, and there spends about one and one-half years of its life, it is a salt water fish, and gets its growth in the unknown depths of the ocean. In fact, only in the deep sea does it wax fat and grow, for the period of its life in the rivers, upon its return to them for spawning purposes, is one of deterioration and final death, during which period, quite often extending to seven months, it takes no food whatever. To this general rule there is an exception only in a few unimportant varieties. Besides the chinook salmon, there are nine distinct varieties in the Columbia, only three of which, the Blue Back (average weight five pounds), the Steel Head (five pounds), and the Weak Toothed (twelve pounds), have any commercial value, none of which approach the Chinook in quality, value or quantity. It is to the habits of this great fish and the methods of catching and marketing it, that this

article is especially devoted. Ordinarily the history of an animal should begin at its birth, but it seems better to take the Quinnat as he enters the river on his pilgrimage inland, and follow him, or his numerous progeny, until again lost in the limitless sea. Biologists agree that the Chinook is four years of age when progenital promptings send him from his ocean home to the fresh waters of the interior. Where he has spent the period of his absence from his native waters, during which he has grown from a little sam-

let six inches long to a powerful fish weighing about twenty pounds, is a question not yet settled. Deep sea fishing has not revealed the ocean home of the salmon, but his movements in fresh water have been carefully observed, and have demonstrated the fact that in the sea only does he eat and grow. In March the advance guard of Chinooks makes its appearance at the mouth of the Columbia, and seems to be in no haste to ascend the stream, spending several weeks along the border line of fresh and salt water. When, at last, they commence their long journey, often extending inland more than a thousand miles, they cease to take food, and from that time until their death, six or seven months later, abstain from all nourishment. To this peculiarity is attributed the fact of their death, for the intense exertion required to surmount the obstacles



FEMALE. 40 LBS. CHINOOK SALMON. MALE. 45 LBS.

encountered in their long journey up the river, and the injuries received by contact with rocks, so enfeeble and mangle them that they have not sufficient energy to attempt the return journey to salt water, in which element only can they find restoration. That this is a fact, and that millions of salmon die yearly, their festering carcasses strewing the banks of the rivers and creeks near the headwaters of the larger streams, has been settled beyond dispute by the careful observations of expert pisciculturists and others

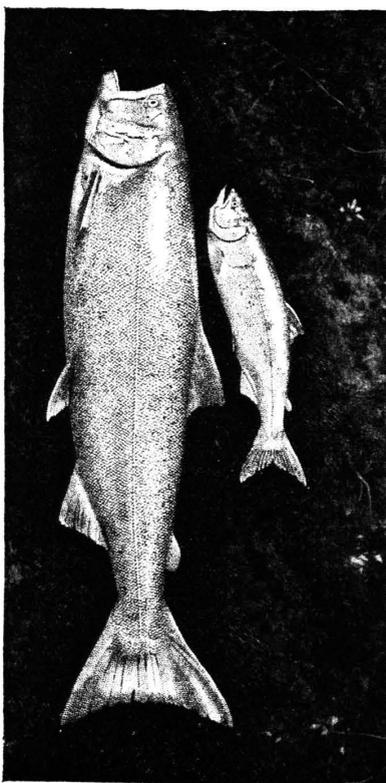
interested in the question. Only a few, which, entering the river late in the season, do not have time to progress far inland before compelled to extrude their spawn, and are thus in condition to return to salt water to recuperate, are exceptions to this general rule. The latter are thus enabled to attain a larger growth before they again enter the river, and it is they who furnish the sixty to ninety-pounders occasionally caught by the fishermen.

In his journey toward the spawning grounds the salmon brooks no obstacle. With his head constantly turned up stream, he presses forward, leaping cascades and falls, and rushing through rapids, with a strength and dexterity surpassing that of any other fish. Such falls as those of the Willamette, at Oregon City, are, of course, insurmountable, as, also, the Salmon falls, on Snake river. The former has been rendered passable by an iron fish ladder constructed by the state.

Mr. Livingston Stone, the gentleman who has been in charge of the United States fish commissioner's operations on the Pacific coast for many years, thus gives a history of this period of the salmon's life. His observations were made at the government fishery on McCloud river, in California, but the facts gathered are as true on the Columbia as there.

"From the moment the salmon enters the river, which it is sure to seek once in one or two years, its progress is one of interest. It first proceeds at its leisure to the head of tide water. Here it stops awhile and seems to play about between the fresh and salt water. Whether it shrinks from encountering the sudden change from salt water to fresh, which is probably the cause of its dallying, or for other causes, it usually spends two weeks or more hovering about the border line between sea water and river water. When it has overcome its apparent repugnance to making the change to fresh water, it makes a rapid charge up the river for the clear, gravally streams which its instinct, or sixth sense, tells it to seek. Now, paradoxical or unreasonable as it may seem, it stops eating. If it is caught a short distance above the head of the tide, the undigested remains of what it ate in the salt sea water are sometimes found in its stomach, but after that, nothing, absolutely nothing, is ever found inside of the California salmon to show

that it has eaten a particle of food in fresh water. As a proof of this statement, I may mention that out of many thousand specimens that have been examined, no food has been found in the stomachs of any. After the salmon cross over the line into the fresh water above them, they begin a strange and almost inexplicable journey. In the case, at least, of the salmon that go up the McCloud river, they begin a journey which is a long fast and ends only in death. If they could be credited with a knowledge of what lies before them, none of the martyrs of Christendom could claim greater merit than these devoted salmon, that march unflinchingly to inevitable death. From the time the salmon leave the borderland, so to speak, of



FEMALE SALMON WITH YOUNG MALE.

tide water, they pursue their upward course towards the source of the river with an inflexible pertinacity. Nothing can now check their career, except an obstacle positively insurmountable, and nothing whatever can induce them to turn back. They steadily pursue their way through the deeper and stiller water of the lower portions of the rivers. They dash furiously up the rapids, halting awhile usually before they enter them to recruit their strength, and continue to rush on and on through the swiftest, shallowest and roughest waters until they reach suitable places for depositing their spawn. The earliest runs, that is, those that enter the rivers first, usually go farthest up the stream. Those that come next seem to take their places below them, and so on down the river, so that there is a series of sets of spawning fishes, extending from the head of the river down as far as suitable spawning grounds are to be found. If the

salmon, on their way up the river meet with anything that frightens them, like a bridge, for instance, they usually stop and cautiously examine it until they are satisfied that they can risk the venture, and then all together, as if by a given signal, they make a swift rush past it. When they come to a fall they show more perseverance than Robert Bruce's famous spider, for they try innumerable times to jump it, and never give it up until they have found it to be a hopeless case and are completely worn out with the exertion.

"I said nothing can turn them back; when thoroughly frightened and panicked, however, they act like stampeded cattle and can be driven down the riv-

er in droves. The Indians take advantage of this weakness in one of their methods of capturing them. They build a trap nearly across a river that is not too deep for the purpose, and then great numbers of them, wading into the stream a mile or two above the traps, form a line across the river, and with sticks, poles and branches of trees, use their utmost exertions to frighten the salmon, till at last the fish, too astounded and panic-stricken to know what they are about, turn around, and, heading down the stream, rush with all their speed into the traps that are waiting for them. In their course up the river it does not discourage them if the water is shallow. They

ter along as they please, and probably spend a great deal of time between the ocean and the fresh water line; but when their eggs are nearly ripe, as is the case with the later runs, they advance as if they had no time to lose, as, indeed, they have not, and hasten, apparently at the top of their speed, to their spawning destinations. This is illustrated by the fact that it is six or seven months before the early runs of the Sacramento salmon, which enter the Golden Gate in November and December, reach the sources of the river at Mount Shasta, four hundred miles from the river's mouth, while the later runs, which reach the Rio Vista about the 1st of August, arrive at the McCloud



DIP NET FISHING AT THE DALLES OF THE COLUMBIA.—SEE PAGE 528.

will push on where the water does not cover their backs, and crowd together in doing so, until, as some one has jokingly remarked, they hardly leave room for the water.

“ Their rate of progress up the river varies between very wide limits. The earlier runs are the longest time on their way up the river. The latest runs make the journey most quickly. The fish seem to regulate their speed according to the forwardness of their eggs. When their eggs are very small, or almost wholly undeveloped, as is the case with the earliest runs—that is, those that enter the mouths of the rivers first—they seem to be in no hurry, but loi-

river, two hundred and fifty miles distant, in ten or twelve days. When they reach the vicinity of their spawning grounds they seem to rest for two or three weeks in deep holes or eddies of the river, until they are just ready to build their nests, and then they emerge from their holes and literally cover the rapids for miles, in the clear and shallow waters of which they can be seen from the river banks by hundreds. They now, comparatively speaking, lose their fear of danger, and will not leave the places they have selected unless very closely approached, and then they will persistently return again and again, unless actually driven off and kept off. Here comes in once more

very noticeably the marvel of their living without food, for they now, for many days, stem the force of powerful currents every moment, day and night, not only without partaking of any food, but, in many instances, without having taken any for months. A copious rain starts a movement along the whole line from the river sources to tide water, except where the fish are actually engaged in spawning, and during the rain the river currents seem to be full of salmon eagerly striving to reach higher portions of the stream.

"After the salmon have occupied the rapids a short time, they proceed to build their nests and deposit their eggs. They scoop away the gravel from a

they hover about the vicinity of their spawning ground, growing weaker, more emaciated and diseased every day, until death comes to their relief.

"Having briefly traced the salmon's career from the ocean to the final stages of its journey and its life, let us look for a moment at the various changes which gradually transform it from the healthy and magnificent creature of the ocean to the pitiable, emaciated object calmly awaiting its final summons at the river's source. When the salmon come into the rivers from the ocean they are royal creatures, wearing a beautiful silvery coat, and possessing rare symmetry and immense vitality and muscular vigor. As long



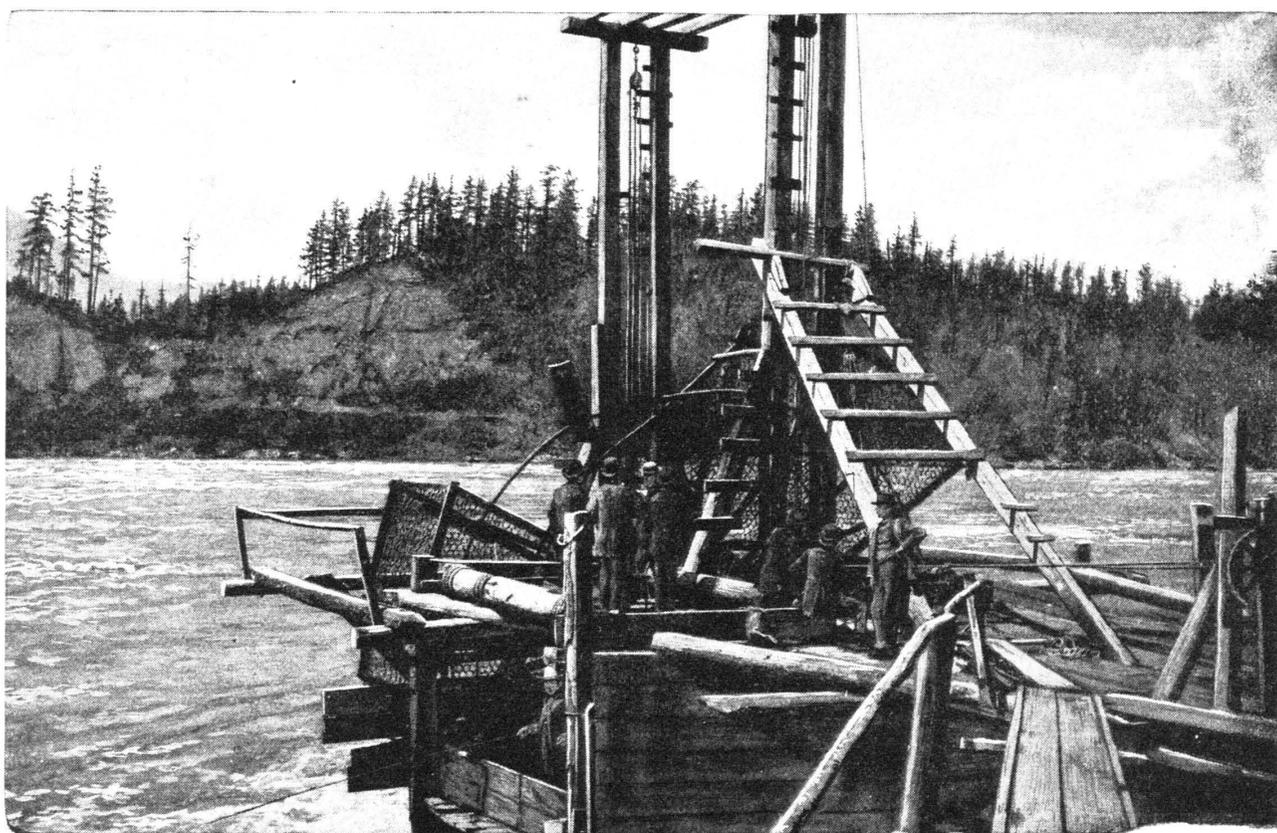
DIP NET FISHING—FILLING SACK ON SQUAW'S BACK.—SEE PAGE 528.

selected spot with their noses and sweep it off with their tails, until they have made clear a spot several feet in diameter, usually about circular in shape, and depressed toward the center, not unlike a common hen's nest in form. The eggs and milt having been deposited, the nest is covered over again with gravel by the parent fish, which uses its nose and tail as before to remove the gravel. This being done, they seem, at least on the upper tributaries, to act as if they realized that their life work was ended. They do not hasten back to the ocean, where, if they reached it, they would regain their pristine health and vigor, but

they stay in tide water there is salt enough in it to keep up their appetites, and they are usually sufficiently successful in their foraging to hold their own. But the moment they cross the line into the fresh water of the rivers above them they lose their appetite, they take no more food, and from that day they fall off in symmetry, beauty and vitality. This physical deterioration always bears a constant ratio to the proximity of their time of spawning, and regularly increases as this time approaches. As this spawning period occurs at different periods at different locations, no specific time can be named for their succes-

sive stages of deterioration, but taking the salmon breeding station of the United States fish commission, on the McCloud river, as a point of observation, it is noticed here that the salmon which pass the station in March and April are very much like the tide water fish. In May and June they are still in their prime. In July they change rapidly for the worse, and by the end of that month their silvery look is gone and they are of an olive-green color. The males are deeper and the females are broader. Their scales are nearly absorbed into the skin, which has become smooth and slimy. The heads of the females have not changed much, but the heads of the males have

and fins fray off; a white and loathsome fungus grows over all parts of them, frequently destroying their eye-sight; and swarms of suckers—the carrion-birds among fishes—wait about them to feed upon their lifeless bodies when they die. For some unknown and strange reason, the salmon in the higher tributaries do not hasten back to the salt water, which would clean their bodies of the parasites and fungus and restore their appetite, and with it their health and vigor; but they linger, with a strange indifference to their fate, around the spots where they have deposited their eggs, waiting patiently for the only possible relief from their wretchedness, which is death.”



STATIONARY FISH WHEEL AT THE CASCADES OF THE COLUMBIA.—SEE PAGE 529.

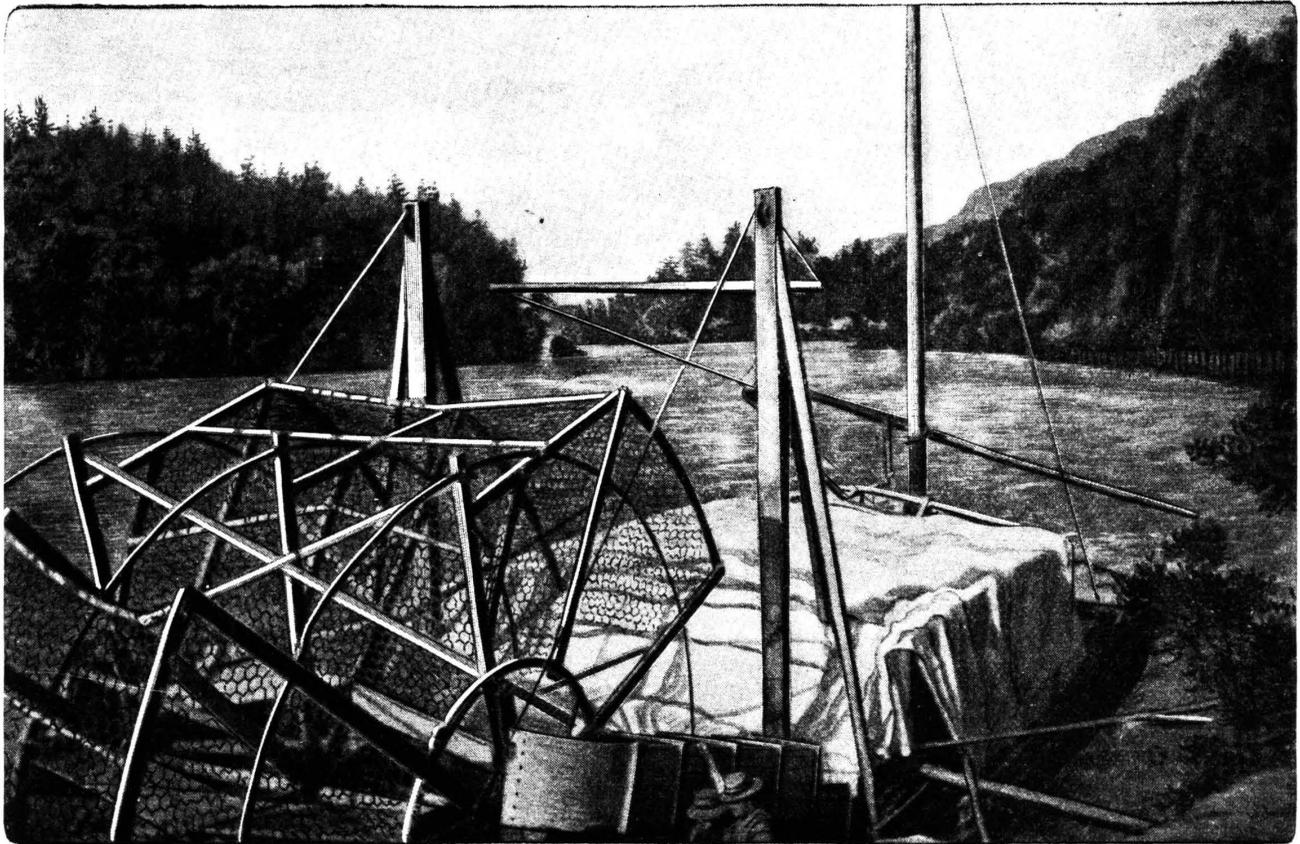
become more or less pointed, their jaws have developed rows of large white teeth, and the whole expression of the face has become ferocious and repulsive in the extreme. They are now fast losing their marks of nobility, with which nature has so richly endowed them in their broad ocean domains. They begin to spawn at the McCloud station the latter part of August, and from that time to the end, which soon comes, their downward progress is rapid. They grow less comely in appearance, more slimy to the touch, more unsymmetrical in form; parasites collect by thousands in their gills and under their fins; their tails

Mr. Stone thus speaks of the hatching process and the infancy of the fish:

“The salmon begins life as a bird does, in an egg. When the egg first leaves the parent fish it is about one-fourth of an inch in diameter, and of an orange tint. In a few days there can be seen in the egg a fine, dark line, which is the first visible beginning of the future salmon. In nineteen days, in water at fifty-five degrees Fahrenheit, the black pigment of the eye begins to show through the translucent shell. In thirty-five days, in the same water, the young salmon is hatched. When it first emerges from the

shell it is about an inch long, and carries under its body a little round sack, the yolk of the egg it came from, on which it lives by absorption for about a month longer, till its mouth is sufficiently completed to take food and its other organs to dispose of the food it takes. When first hatched, it is a clumsy looking and awkwardly moving object, being about as graceful and efficient in its attempts to swim like a fish as a human beginner's attempts are to ride a bicycle. After it has lived in its sack a week or two, it develops a disposition to dive and hide under something, which it does with a pertinacity which is both

larger fishes above. So, like the early Christians in the Catacombs, it spends a large portion, if not all, of its early life in or close by the under-world where it was born. As it gets larger, it ventures out and takes its chances for life in the world of waters above it, usually, I think, going up some brook or keeping near some rocks, or close in shore, where it can retreat to a place of safety when alarmed. It feeds now voraciously on whatever it can find in the way of smaller fishes and insects, and other animal food in the water, and in a few months, probably not over six or seven, it joins the host of its comrades, of about the



A SCOW FISH WHEEL ANCHORED TO THE BANK.—SEE PAGE 529.

characteristic of the full-grown salmon and prophetic of the tenacity of purpose it will show in ascending its breeding rivers to spawn. This irresistible instinct to dive and hide takes it still deeper under the gravel and rocks in the bed of the river which formed its birth-place, and it stays here in the crevices of the rocks and gravel as snug as possible until the sack of food which nature started it in life with is gone and it is obliged to work for a living or starve.

“It would not be safe now for the little, helpless creature to venture out of the rocks and gravel where it was born, for it would undoubtedly pay for its rashness by becoming food, while yet alone, for the

same size, which are preparing to go to sea, and forming a school, which without doubt gathers myriads of recruits as it proceeds, it hastens with all its might down the stream. It is now a beautiful, silvery fish, from four to six inches long, and in a few days finds itself in the midst of the allurements and dangers of the great unknown ocean which it is so eager to seek.”

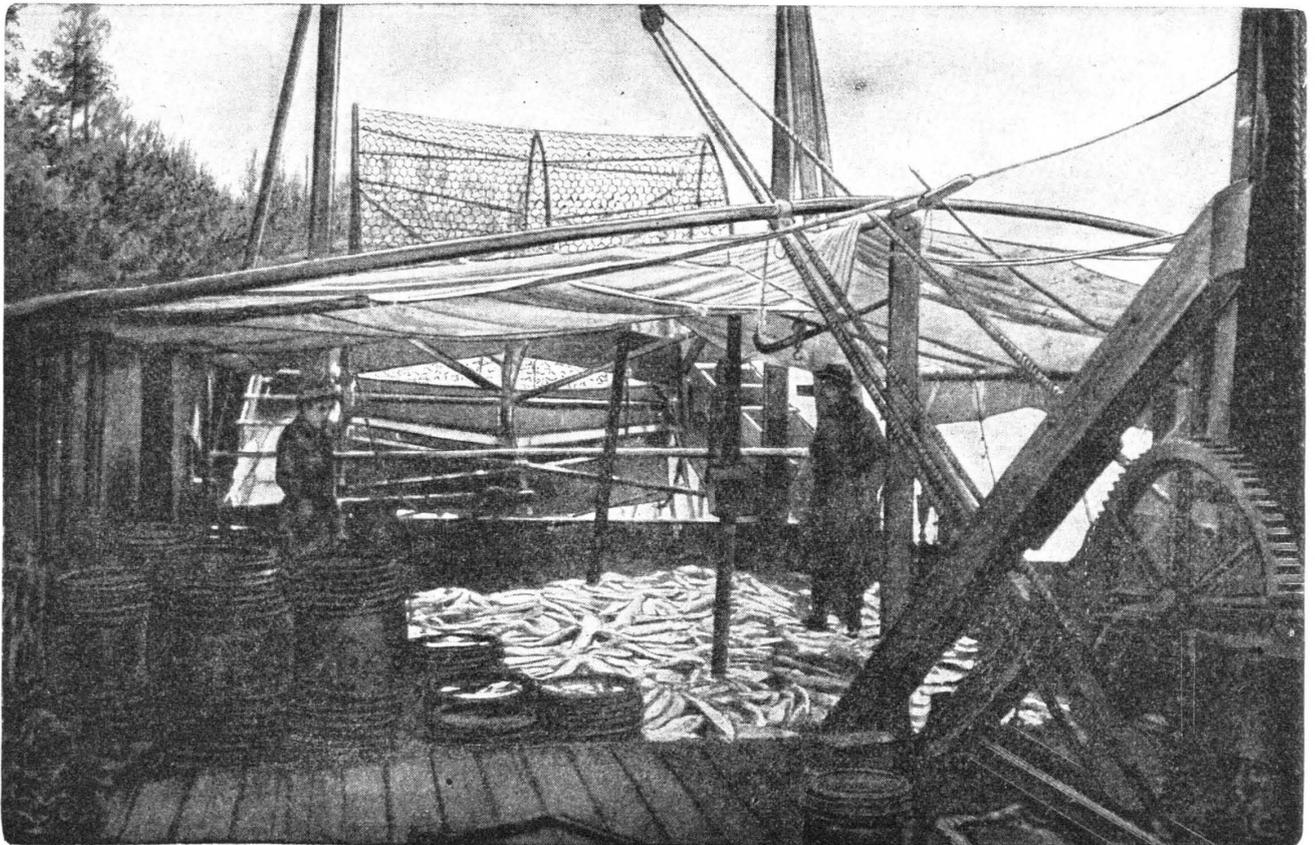
Mr. G. W. Williams gives the following interesting details as the result of his observations through a series of years on the Columbia and Snake rivers and tributaries of those streams:

“The spawning grounds of the Chinook are the Snake river, as far as Shoshone falls, and its tributa-

ries, the Snake river just above and below Bruno rapids being their favorite place. They gather in deep holes below rapid places in a stream, and go on the bar of the rapid place only in the night, for the first few days, for the purpose of digging holes for their nests, which they do with their tails and ventral fins, always throwing the gravel down stream, causing a little mound, to keep the eggs from being carried away by the current. After the first few days they all go to the bar in pairs, and remain day and night, unless frightened away by an enemy. The female takes her position above the nest, and with a wrig-

grows weaker, until, unable longer to stem the current, it drifts away and soon dies.

"In water of the same temperature as the Snake river, the eggs hatch in about seventy days, those spawned the middle of August being hatched by the last week of October or first of November. By the last of the following January the little samlet has grown to the length of two or three inches, and by the last of March, when it disappears from the Upper Snake, it has reached the length of four or five inches, and takes bait as voraciously as the trout, which it has sometimes been mistaken for on account of some



DECK OF A SCOW FISH WHEEL — SEE PAGE 529.

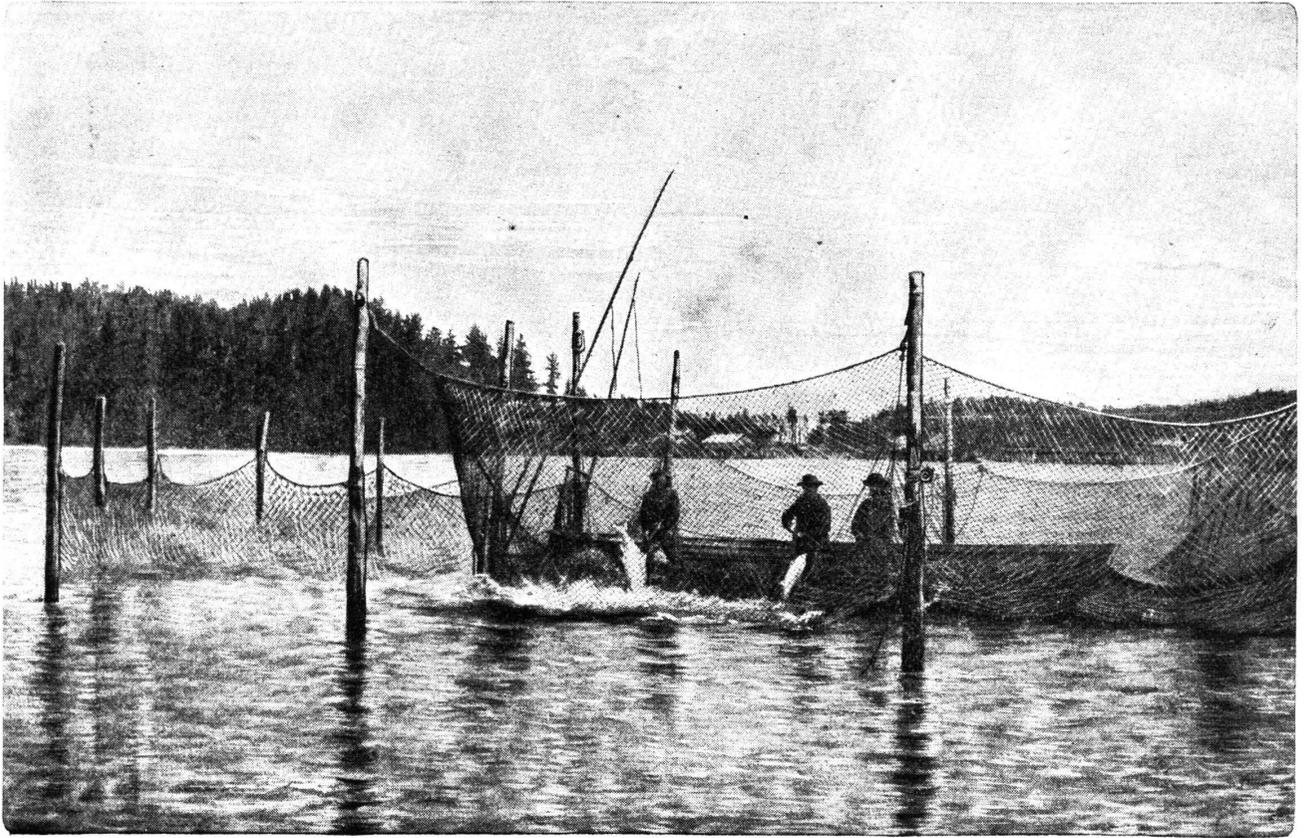
gling motion moves up stream, striking the ground and at the same time extruding a number of eggs. The mate immediately follows with exactly the same motions and deposits the milt, a portion of which fertilizes each egg, which then sinks into the gravel. This process is repeated until the female has deposited from six thousand to seven thousand eggs. The parent then carefully covers them, apparently knowing that within a few days they will be deprived of their natural protectors; for, after spawning, the Chinook salmon gradually turns to almost a black color, then becomes blind, then covered with white spots, its flesh turns white, its teeth grow long, and it gradually

resemblances. The shoals descend the stream, drifting close to shore, a little more slowly than the current, with heads always up stream, stopping often for days in one place. By calculating their rate of movement, it is concluded that they pass the cascades on their way down stream about one year after their parents pass up, and are from six to seven inches long, and that they enter the salt water in less than one year after they are spawned, not to return to fresh water until they are full grown. I have never caught a female Chinook of less than fifteen pounds weight."

What is the history of the salmon from the time it enters the sea until it returns as a full grown fish,

probably four years of age, is absolutely unknown; but that he goes somewhere and eats something that agrees with him, is evident from his superb condition when he again enters the river, and that he does not return until full grown is also proved by the fact that no small ones are caught. There is only one apparent exception to this rule, and that is in the case of a small male Chinook, weighing about two and one-half pounds, which is frequently seen in company with a full grown female in the act of spawning. Mr. Williams considers it a hybrid, especially as no females of that size are ever seen; but the observations

appear to be packed almost as closely as they would be if shoveled into a basket with a scoop. A few years ago a statement was telegraphed to the eastern papers that a stage had been capsized by salmon while endeavoring to ford Rogue river. This statement was literally true, and the impossibility of crossing the smaller streams when a run of salmon is passing is well known to residents of this locality, but it created a storm of incredulous and humorous comment, one illustrated paper publishing a picture of a stage attacked by fish, one ferocious fellow having climbed over the front wheel and seized the driver by the ear.



POUND NETS IN BAKER'S BAY.—SEE PAGE 530.

of others in other streams, especially on the Rhine, would seem to indicate that this is a regular Chinook salmon but partially grown. (See engraving on page 521).

How many Chinook salmon enter the Columbia river each year, there is no means of ascertaining. Fully two millions are caught by the fishermen every year, and yet they reach the spawning grounds in countless numbers. When they get into shallow water in the smaller streams, they sometimes present the appearance of a solid mass of fish with a thin veneering of water on their backs. I have a photograph of a stream in British Columbia, in which the salmon ap-

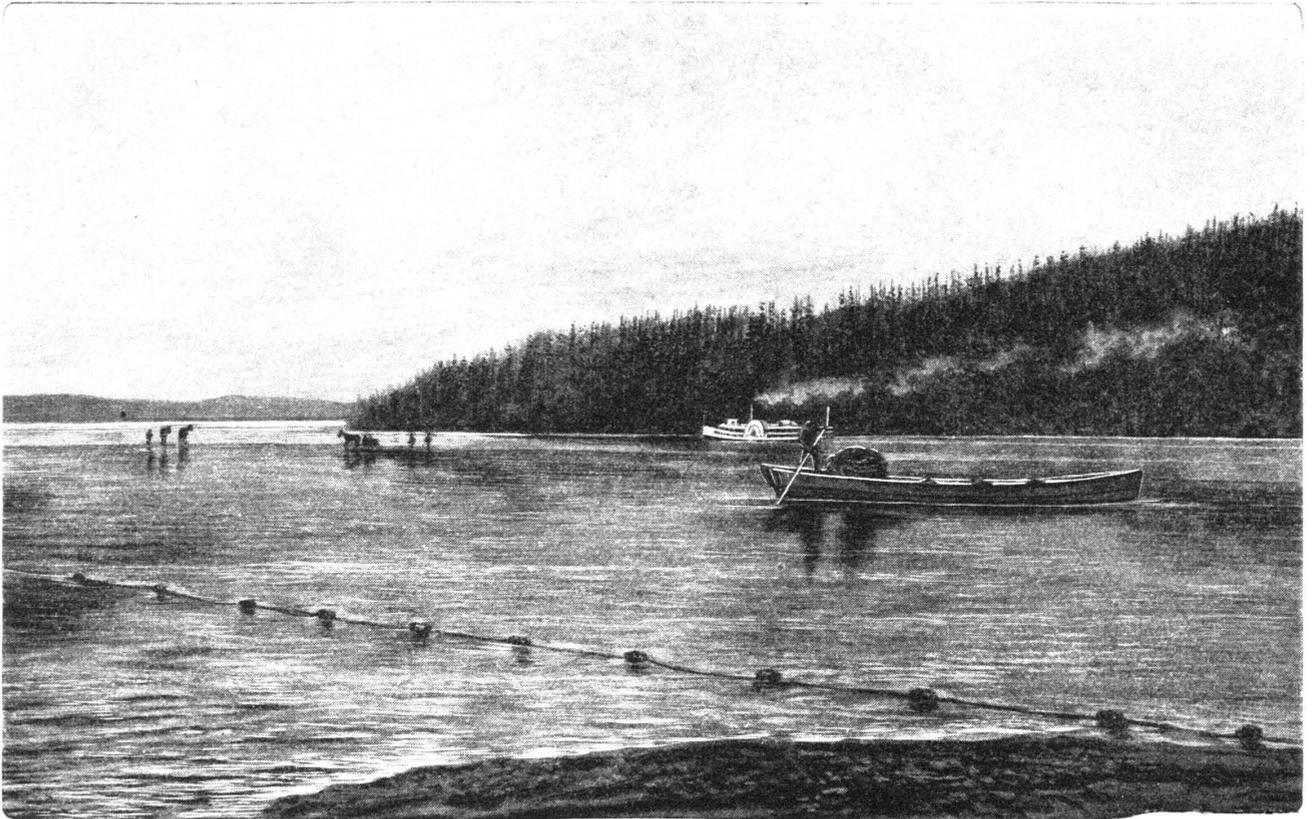
pear to be packed almost as closely as they would be if shoveled into a basket with a scoop. Great as are their numbers in our streams, they are probably no greater than they formerly were in streams in which they are now almost extinct. Two general causes tend to the production of this result, excessive fishing and contamination of the water. By artificial propagation the former may be neutralized, but the pollution of the water by vessels, saw mills and sewerage is an irremediable injury, as clean water is essential to the existence of young fish. As a salmon stream, the Sacramento has been almost ruined by the hydraulic mining industry. Columbia river is noted for the great volume and purity of its waters, and will remain a salmon stream for many

years, with the aid of artificial propagation. At present there is a hatchery on the Clackamas, a tributary of the Willamette, which is a favorite spawning ground of the Chinook. It was constructed by the state, and was operated this year by the government. Fully ten million young fry will be hatched and put in the water there this season. The Quinnot salmon has been a favored object of artificial culture. It was among the first of the fishes to receive attention from Professor Baird, the United States commissioner of fish and fisheries, who in 1872 deputed Mr. Stone to go to the Pacific coast to collect and distribute its eggs. Since that time over fifty million Quin-

not salmon have been distributed over the world, or hatched for the benefit of the Sacramento river. Professor Baird has in some instances sent them as far as Denmark, Germany, Russia, New Zealand, and Australia.

Varied and peculiar are the methods of fishing employed on the Columbia. Familiar to all is that picture made years ago, in which the noble savage, with spear poised in hand, stands in the water at the base of a cascade, up which scores of salmon are leaping. This scene may yet be witnessed on the Columbia, at Kettle falls and other points, where Indians assemble every summer to catch and dry fish

for their winter's food. A picturesque scene, indeed, is this camp of aborigines, by day or night. Another primitive method is that of dip-netting, which is carried on by the Indians at the dalles and cascades, as shown in the engravings on pages 522 and 523. Upon a rude scaffolding built so as to project a short distance over the channel at a point where there is a "runway" for the fish, with water of a less velocity than farther out in the stream, stands the Indian fisherman, grasping a long pole, at the end of which is an ordinary dip net. With a long sweep of his arm he thrusts the net into the water and quickly passes it down stream, the opening ready to enclose any luck-



SEINING SALMON ON THE COLUMBIA RIVER.—SEE PAGE 530.

less fish it may encounter. If unsuccessful, he immediately makes another dip, keeping it up until he either catches a fish or ceases for a few minutes to rest. In this manner the natives catch fish for their own use, as well as for sale at the canneries. In either case the squaws are used as beasts of burden, as those intended for the family larder are taken by those silent workers to a convenient spot, are split open and cleaned, and then laid out or hung up in the sun to dry, while the cannery fish are put into a large gunny sack, which is held in place on the squaw's back by a strap around the forehead (see engraving on page 523) and are thus conveyed to the packing

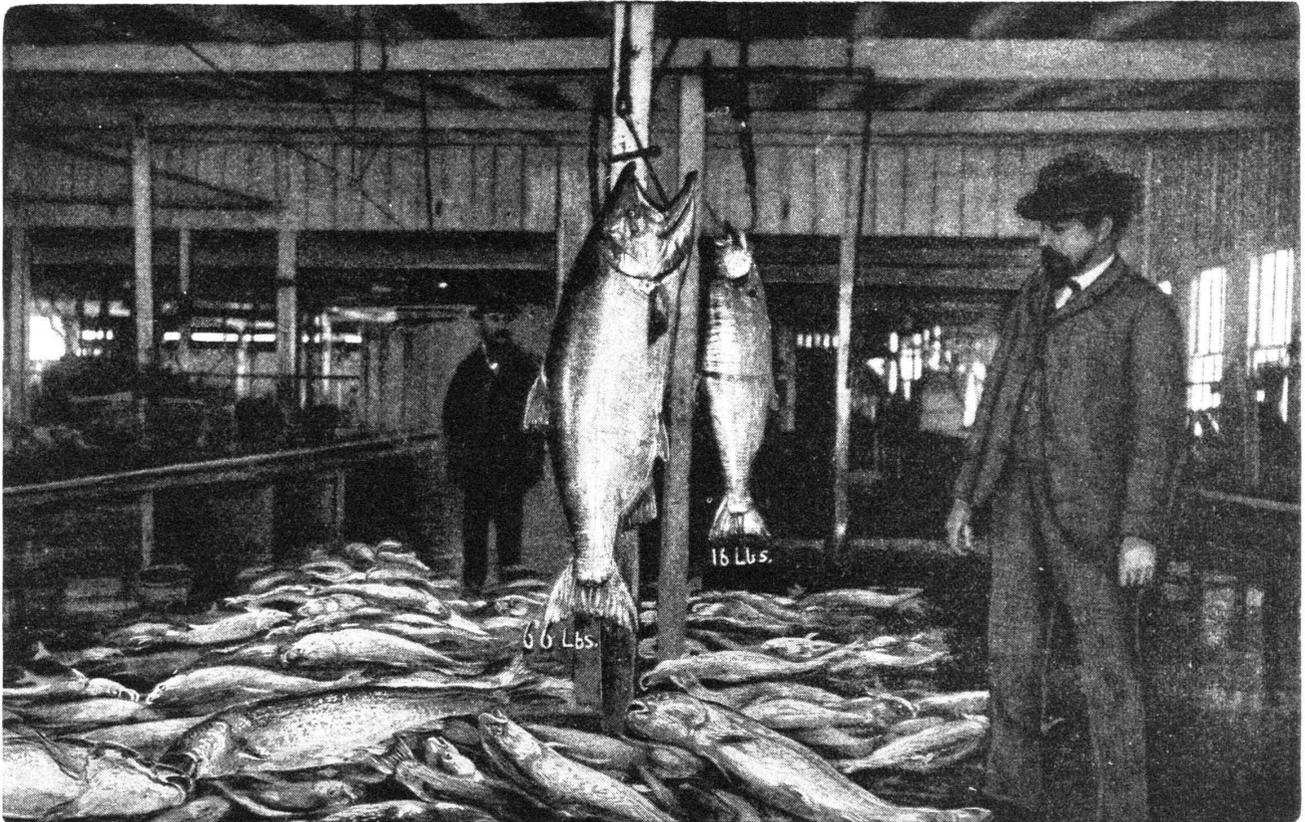
less fish it may encounter. If unsuccessful, he immediately makes another dip, keeping it up until he either catches a fish or ceases for a few minutes to rest. In this manner the natives catch fish for their own use, as well as for sale at the canneries. In either case the squaws are used as beasts of burden, as those intended for the family larder are taken by those silent workers to a convenient spot, are split open and cleaned, and then laid out or hung up in the sun to dry, while the cannery fish are put into a large gunny sack, which is held in place on the squaw's back by a strap around the forehead (see engraving on page 523) and are thus conveyed to the packing

house. I have seen an Indian dip a hundred times unsuccessfully, and then catch two or three fish in the next half dozen efforts. A great many dips can be made in an hour, and the quantity caught in this way is surprising. At the dalles twenty-two thousand pounds, fully a thousand fish, have been caught by four nets, and that number of nets have taken eight hundred thousand pounds in one season.

A decided improvement upon this primitive method is the fish wheel, which is nothing but a series of nets arranged on the periphery of a wheel in such a way that one of the nets is always in the water, and

overcome by attaching the wheels to scows and anchoring them in suitable places, the location being changed as the varying stage of the water renders it desirable to do so. Both of these styles are shown in the engravings on pages 524, 525 and 526. A fish wheel has caught as high as fifty thousand pounds in one day, but an average of twenty thousand pounds is a good catch. Owing to the rise and fall of water being very great in these narrow portions of the river, the wheels can not operate the entire season, but must lie idle during the period of extremely high or low water.

At the mouth of the Columbia, and for more than



RECEIVING BIN IN A SALMON CANNERY.—SEE PAGE 531.

which is kept in constant operation by the current. The opening of the net is made of considerable length and as wide as possible, and the bottoms are inclined inward in such a way that when the net rises from the water and approaches the top of the wheel, the fish slide from it by gravitation into a trough and thence into a box on the shore. The wheel is automatic in every particular, and runs day and night. It is the acme of dip nets, and catches nearly every fish that ventures into the channel where it operates. There are only a few points where the runways, or trails, of the fish come close alongside of rocky points, which can serve as a base for the wheel. This difficulty is

fifty miles up the stream, the methods just described are not practicable, but nets, seines and traps are used. First in importance is the gill net, operated from a boat. No less than sixteen hundred of these are in use on the river, the majority of them just inside the bar. Two men operate together, one of them being the fisherman and the other his boat puller. A net is usually eighteen hundred feet long and twenty to thirty feet wide, with wooden floats on the upper edge and metal sinkers on the lower, the meshes being four and one-half inches, large enough to permit the small fish to pass through, while the large ones are caught by the gills. With great care the net is

payed out into the water so as not to foul it, and then is permitted to float some distance with the tide or current, when it is again hauled into the boat and the fish removed. It seems almost impossible for fish to successfully run this gauntlet of nets, aggregating five hundred and forty-five miles in length, and costing not less than \$300,000.00 a year, as they have to be renewed each season, yet that they do is proved by the great numbers that finally reach the spawning grounds. Some fishermen own their own boats and nets, worth about \$400.00, and others operate boats belonging to the canneries, the former re-

527), constitute the next most important method of fishing near the mouth of the river, the location of a majority of these being Baker's bay (see engraving on this page) lying north of the channel and bar. A trap is constructed by driving a row of piles from the shore or shoals toward the deep water where the fish are running, at the outer end the piles forming a rectangular enclosure or pound. On the piles is laid a netting of wire or twine, with a two-inch mesh, in such a manner as to prevent the passage of the fish and lead them into the pound, from which they can not escape and can be easily removed. Between the



BAKER'S BAY, SHOWING CANNERY AND DRYING RACKS FOR NETS.—SEE PAGE 531.

ceiving about one dollar each for their fish, and the latter sixty cents. Prices vary in different seasons, but this is the average. Skill and bravery are both required by the bar fishermen, and annually half a hundred of them lose their lives among the breakers. In their rivalry to get the first chance at the fish as they enter the river, they crowd down upon the very verge of the bar, and every few days a boat is swamped in the breakers. Occasionally the luckless men are rescued by the crew of the life boat at Cape Hancock, but the majority pay for their temerity with their lives.

Fish traps, or pound nets (see engraving on page

owners of the pound nets and the gill net fishermen there is constant friction, the latter deeming the pounds an infringement upon their rights to catch fish. Another method of fishing is shown in the engraving on page 528, and consists of operating the old-fashioned seine from the shore or sand bars. A seine is about eight or nine hundred feet in length, with two and one-half and three-inch meshes, and is used near the head of the estuary, above the fishing grounds of the gill nets and traps. Seine fishing presents a peculiar aspect to one passing by in a steamer. Men, horses and boats are seen moving about in the shallow water, either placing the

seine in position or dragging it in with its load of struggling fish.

Salmon are marketed in various forms. Large quantities find ready sale in the local fish stalls of Portland and other cities of this region, while thousands of pounds are annually sent to the cities of the east, carefully packed in ice in large boxes. Eastern shipments have been made but a few seasons only, as railroad rates were formerly prohibitive. The spring and early summer shipments to the east consist of genuine Chinook salmon, but the later shipments are generally Steelheads and Bluebacks, smaller and much inferior varieties. The eastern epicure should bear this fact in mind, and not judge of the merits of the boasted Columbia river salmon by the fish he finds in the eastern markets in the fall. Even the Chinooks are not good at that season, for reasons clearly stated on a previous page in speaking of the spawning habits of the salmon. Eastern shipments are made chiefly from the catch of wheels and dip nets at the cascades and dalles. Salmon are also prepared for market by salting in barrels, smoking in the same style as halibut, or canning, the latter being the greatest branch of the salmon industry. Astoria is the headquarters of the canning business, three-fourths of the canneries being located at that point, the others being located at advantageous positions along the river for many miles. Fully a million salmon were canned the present season, which is but little more than half the pack of some former seasons. Several causes exist for a great fluctuation in the total pack in various seasons, such as a low or high price in the market, disputes between fishermen and canners as to the price of fish, and a large or small run of salmon in the river. The process of canning is an interesting one, and should be witnessed by every visitor to Astoria. The immense piles of silver-scaled salmon to be seen there any day during the season are a sight to open the eyes of any one not familiar with it (see engraving on page 529). A market for canned salmon is found in every quarter of the globe, the bulk going by rail to eastern cities or by vessel direct to the ports of Europe. An engraving of a cannery on Baker's bay, showing also the racks upon which nets are spread for drying, is given on page 530.

A most important question now before the fishermen is the maintenance of an adequate supply of fish. With the mouth of the river literally blockaded by traps and more than four hundred miles of gill nets, it is a wonder that any considerable number of fish succeed in entering the stream at all. Even the few who do must run the gauntlet of seines, dip nets and wheels farther up the stream. Only ten per cent. of the salmon caught at the cascades and the dalles are of the Chinook variety, showing what havoc is made

among them near the mouth of the river. In order to protect the Chinook salmon from utter extinction, the Oregon legislature has passed various laws creating close seasons. No fish of that variety can be caught prior to the 1st of April, and fishing must cease on the 31st of July. No fishing is permitted on Sunday. Both of these regulations have been persistently violated until the past season, when they were enforced by a fish commission created by the last legislature. It is suggested that fishing near the bar be prohibited, as doubtless thousands of salmon are frightened away by the nets, and though they may finally enter the stream, it is so late in the season that they are unable to reach the spawning grounds, and their eggs are necessarily emitted into the deep water and lost. It is suggested that for two consecutive days each week during the entire year all methods of fishing be suspended by law, and that the close season be abolished. Generally, however, it is considered that artificial propagation must be looked to for the maintenance of the salmon supply, though even this would not be effective unless a sufficient number of fish were permitted to pass the nets to give the hatcheries an adequate supply of eggs. Professor Baird and his able assistants of the United States fish commission have developed the business of hatching to a most successful stage. Numerous varieties of valuable food fishes are propagated in various places, and the young fry are transported in tanks for the purpose of depositing them in rivers and lakes where they are not native. In this way bass, trout, white fish, shad, carp, cat fish, salmon and other varieties have been widely distributed in waters where they were previously unknown. A hatchery has been maintained by the commission on the McCloud river since 1873. The Oregon fish commission, the present season, fitted up an old hatchery on the Clackamas, which had formerly been operated a brief time, and turned it over to the United States commission for operation. A hundred thousand eggs are being taken there daily, and, if no accident happens, upwards of ten million young salmon will be turned loose in the river in a few weeks. What proportion will reach maturity it is impossible to estimate. The hatchery cost about \$10,000.00 when placed in running order, and the annual running expenses do not exceed \$3,000.00. With this trifling outlay, fish can be propagated which will be worth \$5,000,000.00 when caught and canned four years later, and will put \$2,250,000.00 in the pockets of fishermen. Statistics of the Sacramento river show that since the effect of propagation at the McCloud hatchery has been felt, beginning with the expiration of four years from the time of placing the first young fish in the water, the catch on that stream has been nearly doubled, and that the

number of canneries has more than trebled. Like results can be obtained on the Columbia, and to achieve them another hatchery should be established on Snake river at the point which the observations of Mr. Williams show to be the chief spawning grounds of the Chinook.

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THE SKIDMORE FOUNTAIN.

SATURDAY, September 22, 1888, there was formally presented to the citizens of Portland the first public drinking fountain erected in the city, but which, let us hope, will not long be the only one. In 1850, when Portland was still in its pioneer days, with rough board shanties for business blocks, and mud and stumps obstructing its few thoroughfares, a family arrived in the city whose name has been identified with its subsequent history, and, by means of this beautiful fountain, will continue to be for generations to come. It consisted of father, mother, two sons and a daughter, two daughters having been left in the east. The eldest son, Stephen G. Skidmore, was the one to whom we owe this beautiful, useful and lasting ornament. He was born in Illinois, in 1837, and was but thirteen years of age when he arrived in Portland. In those pioneer times nearly every resident of Oregon, young and old, was a worker. Wealth had yet to be created, and the necessity to labor was felt by all. Young Skidmore was no exception to the general rule, and manfully did whatever he could to help support the family, carrying a hod at first, and peddling milk for several years. He was finally able to go to school, and spent three years in the Portland academy. In 1856, at the age of nineteen, he began his business career as an employe in the drug house of Smith & Davis. For ten years he faithfully performed his duties, learning the business thoroughly, and then opened a store of his own at No. 123 First street. In 1873 the store was moved to its present location, No. 151 First street, the number at that time being 111. In 1869, Mr. Charles E. Sitton, who now owns the business, entered his employ, and a few years later became a partner. Mr. Skidmore was a man of close application to business, and who for nearly twenty years let nothing interfere with it. In 1872 he returned east for a visit, bringing back with him one of his sisters, who married Mr. Sitton, but died the following year. The other sister, Mrs. James Conner, came to Portland since her brother's death, and now resides here. The third, the one who came in 1850, now Mrs. Preston, lives in Vancouver. The brother, Charles, died in the fall of 1882, the father in 1860, and the mother in 1862. Mr. Skidmore's health declined gradually for several years, until, in

1882, he was compelled to abandon business and seek recuperation in travel and change of climate. In 1882 he went to Alaska, and that winter he spent in California. In the spring he returned for a few weeks, but again went to California in May, and died in San Rafael June 18, 1883. His body was brought back to Portland and buried in the family lot in the beautiful Riverview cemetery, to which, also, were transferred the remains of his father, mother, brother and sister, from their former resting place in Lone Fir. Mr. Skidmore never married. His estate of \$162,000.00 was disposed of by will. Specific bequests to his sisters and others, including \$5,000.00 for a public fountain and \$5,000.00 for the library fund, consuming \$75,000.00, the remainder, including the store, going to Mr. Sitton as residuary legatee. He was a man of strong opinions. He was deeply interested in political matters, from the standpoint of an independent republican, but never held office, except as a member of the city council. A man of the strictest integrity in business matters, he expected the same honesty in others, and was as severe with those who failed in this respect as he was generous and charitable to the unfortunate. He was very fond of music, and possessed an artistic taste, which the privations of his early life prevented him from cultivating.

When the city council was notified of Mr. Skidmore's gift, a committee of leading citizens was appointed to fulfill the donor's wishes. Bids and designs were advertised for, and that of Olin L. Warner, of New York, was accepted. The entire fountain was made under the supervision of Mr. Warner, who modeled the bronze work in his studio, having it cast by Bureau Bros., of Philadelphia, and then superintended its construction in this city. The fountain is placed at the intersection of First street with A and Vine streets, and occupies a circular area twenty-three feet in diameter, the solid granite basin being octagonal, with four exterior stone watering troughs, one on each alternate side, the intermediate sides having stone steps leading up to the basin. The stone used is dressed granite, from the Franklin quarries, of Maine. The troughs are supplied with water by streams flowing from the fountain through miniature lion heads, to four of which metal drinking cups are attached by chains. The upper part of the structure consists of a bronze basin about eight feet in diameter, resting upon a central granite shaft and upon bronze caryatides upon either side. The upper basin, which is essentially Grecian in form, is fluted underneath, and the lip is lightly ornamented. The caryatides are female figures of a purely classic type, and stand with the head inclined forward and arms bent upward and backward, the upper basin resting

upon the upturned palms of the open hands. The drapery consists of a thin tunic, clasped on the shoulders and falling in light folds. On each of the four sides of the large stone basin is an inscription cut in the granite in capital letters. On the south side, which is the most prominent as facing up First street, is the following:

"Stephen G. Skidmore, a citizen of Portland, who died June XVIII, A. D. MDCCLXXXIII, gave this fountain to bless and beautify his adopted home."

On the west side is inscribed the following:

"Good citizens are the riches of a city."

On the north side is inscribed:

"Erected A. D. MDCCLXXXVIII. Committee for the City of Portland: John Gates, mayor; Thomas L. Eliot, Henry Failing, William M. Wadhams, C. E. S. Wood, Charles E. Sitton. Olin L. Warner, sculptor; J. M. Wells, architect."

On the east side is simply the year of erection:

"MDCCLXXXVIII."

The ceremonies of unveiling were simple, but impressive. A large number of citizens collected in the open space about the fountain at the hour of 3:00 o'clock, at which time Rev. T. L. Eliot, one of the committee, called the assemblage to order and introduced Rev. George H. Atkinson, who offered up an invocation. Mr. C. E. S. Wood, on behalf of the committee, then delivered an able address, at the conclusion of which he presented the fountain to the city through its official representatives, the council. Mr. Sitton then drew from the upright portion the veiling which had covered it, revealing the beautiful and classic structure and statues Mr. Wood had so eloquently described. In the absence of Mayor De Lashmutt, Hon. William H. Adams made a fitting speech of acceptance. The water was then turned on by Mr. Tyler Woodward, president of the council. It spouts up from a jet in the center of the upper basin, from which it overflows almost in a thin veil of water surrounding the bronze figures, into the huge granite basin at their feet. The effect is very beautiful, and the constant flow of the water keeps it fresh and cool. On another page is given an engraving of this beautiful fountain, whose sparkling waters will refresh the lips of man and his faithful servant, the horse, for many generations to come.

WASHINGTON COUNTY'S CHIEF TOWNS.

HILLSBORO and Forest Grove are the chief towns of Washington county. They are about the same size, are situated only six miles apart, and both are enterprising business places. Hillsboro is

important because it is the county seat, and Forest Grove is recognized as an educational center of considerable note. In addition to these chief features, both towns have manufacturing and mercantile interests, that draw largely from the surrounding country and make them centers of trade.

A very successful county fair was held at Hillsboro this fall, and it afforded a very distinct view of the rapid progress Washington county is making in its development and the adjustment of its industries to the modern standard of profit. A very satisfactory sentiment of local pride is observable in Hillsboro, in the beautifying of public and private property, that is so inviting to outsiders.

A good deal of building has been done this season in Forest Grove. Quite a number of neat residences have been built, and the capacity for manufacturing increased. The business of all kinds transacted this season in Forest Grove exceeds that of any previous year, and the future promises a gratifying increase.

THE HOLMES BUSINESS COLLEGE.

THE value of a business education is becoming more universally recognized every year, and even the leading universities of the country have been compelled to provide a course of instruction in practical business methods. The best results are produced by business colleges which are devoted solely to that work, and of this class of institutions Portland possesses one of the best in the Union. The Holmes Business College is located in the Abington building, one of Portland's new and elegant business blocks. It is in session every day and evening in the year. Students have the choice of one or all of the following departments: Commercial, short hand, type writing, penmanship and English branches. Catalogue and college journal will be sent upon application. Address Holmes Business College, Portland, Oregon.

A CITY OF ROSES.

THE stranger who visits Roseburg, the seat of government of Douglas county, Oregon, for the first time during the flower season, is likely to receive the impression that the town takes its name from the roses that bloom so luxuriantly there, instead of from its founder, Mr. Aaron Rose. Door yards and flower gardens are radiant with the brilliant hues of the many varieties of roses, which yield their perfume so abundantly, and even the public streets are adorned with these magnificent blossoms. Other flowers exist in abundance, and with richness ri-

valing that of the rose queen. And these make very suitable settings for the neat and homelike dwellings of the town.

Yes, Roseburg is a pretty city. The towering hills which surround it lend a grandeur to the scenery, and the busy town, nestling in the valley, on the bank of the South Umpqua river, has a bright and enterprising appearance. The styles of architecture indicate something of the refined tastes of the people. The public buildings are all modern and substantially constructed, and the grounds are tastefully decorated. Roseburg is reaping the benefits which its inviting appearance and its fine location for business secure to it. The growth of this season has materially changed its general aspect. It is fast assuming metropolitan customs, and is continually increasing in prominence, socially and industrially.

RESPONSIBILITY OF RAILROAD MANAGERS.

IN the September number of THE WEST SHORE, attention was called to many serious and inexcusable accidents on the lines of the Oregon Railway & Navigation Company. The same carelessness prevailed the past month. Briefly stated, the chief accidents consist of a freight train plunging through a burned bridge near Hood river, wrecking the engine and six cars and seriously injuring the engineer; and a train thrown from the track by running into a cow, while coming down the Blue mountains at a high rate of speed. In both instances the good luck of the company saved it from most distressing calamities. Forest fires had been raging near the scene of the burned bridge for several days, but the company's officials took no steps to be certain that its bridges were not damaged. Instead of keeping inspectors along the exposed portions of their road, they sent out their trains and trusted to luck. Luck stood by them well, for had it been a passenger train, instead of a freight, which plunged through the bridge, the consequences would have been most horrible. For the carelessness of employes the managers of the road are responsible. A competent manager always has competent assistants. He will have no other, and whenever employes are careless in looking after the safety of passengers, the seat of difficulty is certain to be found in the persons to whom they are responsible for their conduct. The directors of the O. R. & N. Co., and especially those who reside in Oregon, are doing all they can to make it a first class road, but the management of details is beyond their control, except in the selection of responsible heads of departments. Only a few days ago, Mr. John Picard, a well known business man of Walla Walla, was

ejected from the train at Troutdale, because he had failed to have his round trip ticket countersigned. Mr. Picard had purchased his ticket and was using it in good faith, and should not have been subjected to such an indignity upon a mere technicality. The officials who instruct the employes of the road to commit such outrages will learn that they are not following a policy that will result in profit to the company.

A GROWING CITY.

THOSE who predicted a season of unusual advancement for McMinnville this year are not disappointed with the city's work. The securing of the Yamhill county seat marked the beginning of the business activity, and the building of the new court house, a large new school house, and many other structures, has made, perhaps, the busiest season in that line the town ever saw, with no prospect of a decline for some time to come. The work of rebuilding on the district recently swept by fire is progressing rapidly. This means a good deal. It shows that the town has substantial backing in profitable resources, and that those best acquainted with it have confidence in its growth. It shows that the people are not slow to make provisions for business which naturally flows to a county seat, and when a city situated as McMinnville is, in the heart of a rich agricultural country, shows such substantial progress, it indicates a very healthy state of affairs. The large quantity of grain handled this fall is not among the least of favorable symptoms of industrial expansion the city manifests.

FRUIT LANDS OF CHEHALEM.

THOUSANDS of fruit trees have been set out this year in the Chehalem valley, and preparations are in progress for putting out as many more next season. It will be but very few years before the fruit of this charming valley will be widely known for its abundance and fine quality. Orcharding in this valley is young yet, but the results thus far obtained are unusually promising. The work is being done in accordance with modern ideas of fruit culture, and the product is of high grade. Close attention is given the fruit. Orcharding is made a study, and the results confirm the wisdom of careful culture. The benches of the hills, in addition to other lands, are being utilized for orchards, and these locations are unsurpassed for fruit growing. A great many people avail themselves of the opportunity to improve small tracts, and the valley is rapidly becoming occupied in every corner. The Chehalem valley is, indeed, the great fruit growing region of Oregon.

FRUIT INDUSTRY OF THE NORTHWEST.

THOUGH the Pacific northwest is a comparatively new country, its industrial history is quite checkered. The earliest settlers were attracted hither by the game and fish, which made this a lucrative field for the hunter and trapper, and a little later, for the fisherman. The remarkable fertility of the soil and mild climate brought many from the bleak hills and plains of the east to practice husbandry. Then the gold fever swept up the coast, and at one time the excitement over the gold discoveries in California threatened to depopulate Oregon; but the fact that the mines had created a market for Oregon products, and that stores of precious metals were found at home, soon checked the exodus and turned the attention of the people to the development of our own resources. Various branches of industry have had their periods of boom and decadence as they were influenced by different agencies, and these fluctuations were wide and frequent when the country was separated from the rest of the world by barriers that made inter-communication, at best, expensive and difficult.

The fruit industry of Oregon has had as wild a career as any other. The climate was so manifestly adapted to the production of fruit, that the earliest farmers set out orchards, and soon raised an abundance of apples. Only the Willamette valley figured in the Oregon product at that time, and the demand for fruit which existed in the mining sections, even of the present fruit land of California, made an eager market for all the fruit that could be produced. The great staple, the apple, constituted almost entirely the fruit crop of the valley, and in 1855 the average price per bushel of forty-five pounds, paid for apples, was \$13.00, the limits being \$11.00 and \$16.00. These were the prices paid to the producer. Of course, the cost of transportation was exorbitant, but at the mines the apples frequently sold for from seventy-five cents to a dollar a pound, and the net profit which Oregon dealers realized on the apple crop of the season mentioned above was \$3.33 $\frac{1}{3}$ per bushel. The Oregon apple crop went all along down the coast to the mines of California and Mexico. After the first mining spasm, when industries began to recover their balance, the people of California commenced raising the fruit for their own mines, and, owing to the imperfect transportation arrangements then existing, Oregon could not enter into successful competition with the home grown product at the south. Gradually the prices fell from \$15.00 a bushel on the trees to \$1.50, and the orchardists became despondent because their occupation was gone. California then having the largest market, fruit raising was stimulated there until that became a great fruit producing

state, and the only demand on Oregon from that quarter was for a few late apples.

With the decline of prices, the orchards became neglected, and the fruit growers of Oregon turned their attention to other things. The depreciation was so great that at one time apples were of no commercial value whatever in the Oregon market, and the fruit was allowed to drop from the trees, and what the hogs did not devour was permitted to decay on the ground. Trees went unpruned and became moss-grown and almost barren. Many orchards that had yielded prolifically were thus unproductive, and the trees died from neglect and abuse. This state of affairs existed for a number of years. During the decade immediately preceding 1880, the fruit business of Oregon was at low ebb, but with the prospect of reliable markets, and the general adjustment which the industrial affairs of the country had undergone, the fruit business after that date improved, and its progress has been continuous. This growth is on a permanent basis, because the markets that have been opened to Oregon fruit are capacious and growing, and we can not be excluded from active competition for patronage.

Of course, the profitableness of any occupation depends greatly on the conditions in which it is prosecuted. Perhaps none more keenly realize this fact than the industrious and hopeful orchardists of those regions which quite impartially have fair crops and utter failures. A careful selection of trees and of orchard sites, painstaking and systematic culture from harvest to harvest, eternal vigilance for insect enemies, all these are often entirely futile in sections claiming importance for their fruit production, and in spite of the nurture which experience has shown to be best, the trees will not yield a merchantable product. These occurrences are too common over a large section of the United States. Experiments with seedlings that surely shall have been acclimated, and with hardy Russian trees, to get varieties that will withstand the rigorous climate of the eastern states, consume energies that might produce handsome results where so many natural difficulties were not to be overcome, as is the case in Oregon.

The climate of Oregon constitutes its chief attraction to fruit growers. The equable temperature permits orchardists to choose their varieties of trees with impunity, so far as hardiness is concerned, for the most sensitive fruit plants and trees of the temperate zone flourish in this climate. In connection with the temperature, the peculiarity of the moisture of Oregon, especially of the western portion of the state, tends to prevent the operation of insect pests, which is an important consideration affecting both the life of trees and the quality of the product. These cli-

matic conditions, together with the character of the soil and surface characteristics, make Oregon naturally adapted to the production of choice fruits. It was these considerations that appealed so strongly to the early settlers and induced them to plant orchards and raise fruit for the remarkable market which then demanded their product. And, as is usual in localities highly favored by nature, there was no exertion, or almost none, to improve the fruit crop and reduce orcharding to anything like a systematic industry. When those fabulous prices for apples prevailed, the buyer had to gather the fruit himself, and merely for lack of enterprise on the part of the producer the industry languished for years. If the trees, without cultivation, produced good crops, and buyers willing to do the harvesting came along at the proper time, the business was profitable; but the farmers seldom expended much labor on their fruit. The harvest was often abundant without any cultivation having been bestowed on the crop. Fruit was regarded as a sort of spontaneous production, and the attention of agriculturists was devoted to those crops which would not grow without artificial aid.

During the past few years, orchardists of Oregon have been awakening to a realization of the opportunities they possess for developing a vast industry. With the increase of population and the extension of transportation facilities to reliable markets, a new incentive to fruit growing was created, but mainly to the infusion of new ideas and more correct appreciation of the merits of the business does orcharding owe its present favorable aspect. It has recovered from the decadence into which it lapsed after the early boom, and is rapidly gaining the attention which its importance deserves. While the apple was formerly all the fruit that Oregon produced to any considerable extent, the new orchards yield a variety suited to this climate. In no part of the world can better apples, plums, prunes, pears and cherries be produced than in Oregon. Other cultivated fruits, such as peaches, quinces, blackberries, raspberries, gooseberries, currants, grapes and strawberries, also yield abundantly and of fine quality.

The fruit growing interests of Oregon are chiefly situated west of the Cascade mountains, in the valleys of the Willamette, Umpqua and Rogue rivers. Of this western section of the state, there is a difference in producing capacity between the northern and southern portions. The grape and peach are most influenced by the difference in climate of these localities, the Willamette valley being usually admitted not to produce as good grapes as the Umpqua and Rogue river valleys to the south; but whether thorough culture would not be productive of as good results in the northern as in the southern portion re-

mains to be demonstrated. Undoubtedly the raisin grapes can be produced to better advantage in the dryer valleys to the southward, but of the remainder of the catalogue of Oregon fruits nearly all grow equally well in the various localities of western Oregon. The "big red apples" of Yamhill county perhaps have the widest reputation at present of any Oregon fruit, but the Bartlett pear of this state is also famous, and the other fruits are gradually becoming well known in the markets of the western and middle states. Formerly the principal orchards of the Willamette valley were in lower Marion and Clackamas counties and Washington and Yamhill, and some in Linn county. Now every county in the state grows fruit, and every county in Western Oregon produces abundantly for market.

In the order of their present importance, the principal orchard fruits of Oregon are apples, pears, cherries, prunes, plums, peaches and quinces. Large quantities of choice grapes and fine berries are also grown, but they are chiefly of local importance, except the strawberries, which are shipped to markets throughout the northwest. Of the apples, those in greatest favor are the Baldwin, King, Spitzenburg, Red Cheek Pippin, Winesap, Yellow Newton Pippin, Red Astrachan, Northern Spy, Roxbury Russett, and Gravenstein. There is no necessity for selecting the iron clad varieties, for the climate here will permit the tenderest to flourish, and the selections are made with reference to the demands of the market. Of pears, the Bartlett is far in the lead, and other varieties grown are the Fall Butter, Winter Nellis and Anjou. Of cherries, the Royal Ann, or Napoleon Bigereau, and Black Republican, a seedling of this country, lead, but the Black Tartarian and Kentish cherries yield well and are particularly desirable for canning purposes. The leading varieties of prunes raised in Oregon are the Italian (*Fallenberg*), and the French (*Petite d'Agen*), and the Gross, or Pond's Seedling. The former two constitute the great bulk of the prune production of the state, as, in fact, they do of the whole Pacific coast, though the Italian prune of California is a very inferior fruit. The Peach plum is at the head of that kind of fruit, and the Oregon growth is not surpassed elsewhere in the world. It is suitable for shipping green or for canning or drying. The Yellow Egg ranks next as a plum for canning, and the Washington, Columbia and Jefferson are of about equal importance for general purposes. In peaches, the Early Crawford is the most popular, but is closely followed by the Amsden and Hale's Early. The Early Crawford is the prevailing peach of the Willamette valley.

Almost all the grapes of California can be successfully grown in Southern Oregon, not excepting

the raisin grapes. In the Willamette valley the Concord is of chief prominence, but the Delaware and Royal Muscatine obtain a good deal of attention. The production of quinces is yet in its infancy, but the prospect promises a rapid increase in their cultivation and improvement.

The great thing which fruit growers are but beginning to realize, is that thorough cultivation is absolutely essential to the full development of the fruit growing interests. The climate and soil of Oregon are all that orchardists could desire, and a sort of product can be secured from orchards left to shift for themselves; but to secure the best results, and to bring the fruit business of Oregon into successful competition in all respects with the carefully improved and tended product of other fruit raising regions, systematic and intelligent culture is imperative. In this age of progress and active competition in all lines of industry, the fruit grower, just as much as the wheat grower or manufacturer, must place on the market the very best article he is able to produce. There is always a demand for the best, but nobody wants the poorest. The fruit men of Oregon are coming to a realizing sense of the position they occupy in respect to their competitors. They have been, and are, favored by natural conditions. There has been a mistake in assuming that these naturally favorable conditions would relieve the grower of the burden of cultivation. While there is not the necessity that exists in less favored regions for constantly providing protection from the elements and devastating insects, thorough culture is demanded to produce the fruit that must lead in the market. Nothing can be substituted for cultivation, and the more systematic, thorough and painstaking it is, the more perfect will the product be.

In passing through the agricultural portions of the state, the traveler can not fail to note the improvement in orcharding that is evident on every hand. The fruit grower of the old boom time would not recognize the methods that are employed in the orchards of the new northwest to-day. The orchards are now young, and most of them comprise several varieties of fruit, whereas the apple was formerly almost the exclusive crop. Calculations are now made for the best means of marketing the product, as well as growing it.

One of the disadvantages which the northwest has been laboring under in the development of its fruit interests, is the lack of concentration of effort. Nearly every farmer has an orchard, and may harvest several hundred bushels of several kinds of fruit. No single farmer can ship fruit by the car load, consequently he is debarred from competition in distant markets on the same terms as his competitor who can

load a car or a train and send his fruit directly to market without the necessity of rehandling or submitting it to the profits of half a dozen middle-men. It has been almost impracticable to gather, even at large shipping stations, fruit in sufficient quantities to warrant the special shipping arrangements which might be secured if the forces of the fruit growers were not so scattered. This season there has been a marked change in this respect, and the transportation companies, as well as the producers, are laboring to secure for Oregon fruit the consideration which its merits deserve. The fruit men lack organization, and have suffered from that lack.

One fact quite noticeable in the present operations of orchardists is the tendency to make prunes their chief crop. It is believed that Oregon prunes are the best the world produces. They are altogether beyond comparison with the European product, and even California does not claim to be able to grow as good prunes as Oregon. They bring much the highest price in the market. The Italian prune is the best, and it is being extensively planted in Oregon. Of only secondary importance is the French prune, which is also a valuable fruit. The trees are prolific bearers and the fruit of the very finest quality, and the difference between the cost of production and the selling price, as compared with other fruits, makes prune raising the most profitable. A good market for a good prune may always be depended upon. The curculio, which makes it next to impossible to raise prunes east of the Rockies, does not work in Oregon; and the codlin moth, another destructive fruit pest, rarely does any harm here. The cause of this is attributed to the moist and comparatively cool climate of the Pacific slope. A country having a mild climate, favorable to the growth of fruit and still unfavorable to fruit's greatest enemies, would certainly seem to offer the best possible opportunities for fruit growers.

In the cultivation of orchards, where the modern plan has been established, there are various methods employed, with different degrees of thoroughness. Among the most successful promologists, the practice of raising any other crop on ground occupied by orchards is deemed unwise. Not even is grass, or weeds, allowed to grow on the ground. Shallow plowing is recommended, and thorough pulverizing of the surface soil, so it will act as a sort of mulch about the trees, protecting the roots from the usual two months of rainless weather in summer. A judicious use of fertilizers is also recommended for orchards. There are, as yet, comparatively few orchardists who practice this method of cultivation, but there is a more general admission of its merits. When it is realized that a crop of wheat or potatoes or grass extracts

from the soil certain elements which fruit trees must also have, it is clear that it is poor economy to exhaust the soil by growing annual crops, and then expect paying results from the fruits raised on the same land. There has also been a tendency to crowd trees in orchards, which is, in a measure, being remedied in later settings.

In 1885 the North Pacific Fruit Growers' Association was organized. It was composed of fruit dealers and growers, and the object in view was the promotion of the fruit growing and curing industry, by disseminating useful information regarding the business and supporting it in all ways compatible with such an organization. This association performed useful service, but it was proved to be insufficient to accomplish all the purposes in view, and a new incorporation has just been completed styled the Oregon State Horticultural Society, a legally constituted association, clothed with authority to do business, and looking to the eventual establishment of such a fruit union as now exists in California and some other fruit growing regions. Concerted action of this kind is one of the prime necessities of the case. The interest which it will stimulate in the business will be a valuable consideration, and it is safe to assume that the fruit growing of the northwest will receive more substantial benefit from the coöperation of such an organization as this than it possibly could from individual enterprise. It is also a means of education to the fruit men, and the features of mutual advantage which it presents ought to induce horticulturists in general to identify themselves with its operations.

The market for Oregon fruit is constantly extending. This may be largely attributed to the enterprise of commission men and dealers, for the grower himself does not attempt to sell directly to distant markets. The consumption of Oregon and Washington Territory is considerable, and the markets of Idaho and Montana belong, from their location, to Oregon growers. Idaho, Montana and Dakota will always need fruit from sections that do not have their rugged climate to interfere with its production, and Oregon can certainly enter those markets on as fair terms as any other state. One thing that operates somewhat to the disadvantage of Oregon in the eastern market, is the fact that its fruit is not so early as that of the more tropical California, and this condition will probably always exist. But the shipping season is by no means over when the Oregon fruit is ready for market, and with proper management we may enter the eastern market for an important slice of the patronage if not the very first to bid. For this purpose, of course, it is essential that special provision be made for long-distance shipments; that suitable cars be provided and run through in spe-

cial trains. But it is not possible to do this when the consignments have to be picked up, a few bushels at a station, and consolidated by the transportation companies. The demand for fruit, however, is great in territory immediately tributary to the Oregon orchards, and this demand will increase with the settlement and development of the country. Foreign countries are bidding for Oregon fruit, and the prospects are that the foreign trade will soon become important to fruit growers. A large consignment of apples was recently sent from Portland to Australia, and Asia also furnishes a market for Oregon apples, which really have no rival in any market that can be reached with a reasonable expenditure for transportation.

In addition to the rapidly-increasing facilities for the handling and marketing of green fruit, establishments for preserving fruit are exerting a great influence on the business. Fruit canneries and dryers are essential to the full development of the industry, and such industries are being established at the fruit centers of Western Oregon. Several canneries now in successful operation use immense quantities of green fruit, and the preserved product commands a ready market. A considerable portion of the fruit crop is also dried, and finds a ready sale in that form. One of the largest fruit dryers on the Pacific coast, having a daily capacity of five hundred bushels, was recently put in operation at Salem, and is proved a complete success. There are smaller dryers at work in various localities, and a number of others projected. It is realized that in the present condition of fruit growing, means for preserving such as can not be disposed of green are a great aid to the producer, enabling him to utilize his entire product. And one of the prime considerations, after all, is the prevention of the waste, regarding which the farmers are so proverbially careless. The annual waste of fruit in the orchards of Oregon would yield a handsome profit if it were utilized in season and the waste thereby prevented. Hundreds of bushels of choice plums, prunes and apples are lost, simply from lack of proper harvesting. Fruit culture must be clean and timely or it is useless. Slovenly work in the orchard will not pay.

Of course the proper marketable condition for the prune is in the dried state. It is dried whole without the removal of the pit. Some dryers dip their product in a sweet liquid, which imparts a glossy appearance, and by many is said to improve the fruit; but the advisability of dipping is a subject upon which dryers are not fully agreed. In appearance and flavor and general excellence the Oregon dried prune is not equalled by any grown elsewhere in the world. Plums are dried both whole and pitted, in

the latter case being opened so as to expose the tempting pulp to view. Apples and pears are pared, sliced and cored by machinery before being dried. The process of curing, known as crystalization, is not yet employed in Oregon to any considerable extent, it being a rather costly process and by no means necessary to secure a market for our fruit. As the business develops, however, it is probable that the most improved methods will be applied to the curing of fruit as well as to its production.

In view of their adaptability to fruit raising, the rich farming lands of the Willamette, Umpqua and Rogue river valleys are coming to be too valuable to be used only for producing the coarser farm products. An ordinary family can make a good living on five to ten acres of ground in fruit. One hundred to one hundred and sixty trees are set on an acre, and in from three to five years after setting the trees the orchard will begin to yield profitable results. Apple and cherry trees will ordinarily come in bearing condition soonest, but the slowest pears and prunes, if reasonably cared for, will pay handsomely in eight years after the trees are planted. It is a very conservative estimate to place the value of the fruit from an acre of ground at \$200.00 a year; indeed, these figures are often more than quadrupled. The expense of cultivation and harvesting is trifling compared with any other farm product of the same value. Expensive machinery is not necessary, nor the manual labor required in the production of grain or most other annual farm crops, and the absolute certainty of a fair yield removes fruit raising from the list of uncertainties that often perplex the general farmer. Many thousands of trees are being set this fall throughout Western Oregon, though the principal increase of activity is in the Willamette valley, and a competent authority predicts that within two years the lands in this valley will be gauged by their fruit growing capacity instead of their wheat producing power, which is now the criterion. The fruits that ordinarily sell for lower prices yield in proportionate

abundance, so that in making a rough general estimate of the value of the product it is not misleading in regard to the particular varieties. It is probably unnecessary to state that changes of prices in different seasons and the assiduity with which the business is prosecuted, affect the financial result. If the fruit grower can also have his dryer, he may increase his profits, and by raising a variety with the object of curing, he can operate the dryer from the earliest cherry time to the latest prune harvest. If the grower does not cure his own product he will find it to his advantage to have, for example, five hundred trees of one good variety rather than one hundred each of five different kinds.

While from the force of its natural advantages Oregon must lead the northwest in the growing of fruit, there are sections of Washington Territory, notably the Yakima valley and the Walla Walla country, that produce excellent fruit, as does also a limited portion of Idaho. There has been more advancement in fruit culture this year than in any previous season throughout the orcharding sections of the northwest, and it is no prophecy to say that within five years our fruits will be a definite quantity in all important markets, and will be sought for because of their excellence. Fully twenty-five per cent. more fruit has been handled by Portland dealers this season than ever before, notwithstanding the fact that a greater proportion of the crop than formerly has been shipped in bulk by growers and outside dealers. This indicates that the crop is at least one-third greater this year, and a continued increase may be looked for yearly. The prospect is certainly very encouraging, and the fact that the business can not be overdone is gratifying to contemplate. Perhaps the principal cause of the remarkable increase in production from year to year is that the new orchards set when the new era opened are just coming into bearing condition; but the vast number of trees now being put out indicate that there will scarcely be a decline, even in the ratio of increase, for many years to come.

J. L. MORTIMER.

ONLY AN ARMY AFFAIR.

IN the summer of the year 1887, two young men were seated in the car of the 2:30 a. m. train from San Francisco to Santa Cruz. Each bore himself with military erectness and each wore the uniform of the United States army, though to casual observers this was scarcely noticeable, as their long regulation overcoats concealed the most conspicuous signs of their calling, and in the dim light of the lowered lamps their forage caps escaped comment. They had received orders in San Francisco to report at the Sunday morning inspection, to the officer in command of the military encampment at Santa Cruz; and for this reason each had donned his uniform and had taken the earliest morning train in order to reach the encampment at the stated time.

When they had met, over an hour before, it was with the hearty hand-shake and frank look into each other's eyes West Point graduates usually greet each other. Whether this good fellowship comes of genial regard, or from a remembrance of many mutual misdeeds, these young protégés of Uncle Sam's rarely divulge; but one could see, at a glance, the friendship existing between these two young officers, whose very slimness showed how short was the time since they had doffed the straight jacket uniform of a cadet.

But now the first surprised greetings were over, and the elder of the two, Lieutenant Fellows, had been giving his companion a detailed account of his life for the past year, for he had graduated one class ahead of Lieutenant Ainslie, and had been stationed at the Presidio, where he had managed to do some good military duty and captivate the hearts of the San Francisco belles; but on this subject he was commendably silent. Suddenly the train came to a standstill, with a jar which wakened the few sleeping passengers. Looking out in the dim morning light, no station could be seen, and Lieutenant Fellows, rising, suggested a reconnoitre. They found, upon inquiry, that one of the large redwood trees, which abound in this district, had fallen across the track, and they at once decided to walk to Santa Cruz, rather than risk a long delay. Following the road, they were soon walking briskly, and the keen morning air rang with many a laugh as they recounted their experiences at West Point or recalled some joke upon fellow cadet or professor; and when the belated train passed them with a mocking whistle, they did not regret their decision. Before they realized that several hours had passed, they were standing upon the wide porch of the large summer hotel. A lovely scene presented itself to their eyes—a broad avenue shaded by tall trees, numerous small cottages in neat rows, and a few handsome ones nestled among the

evergreens and shrubs, a tennis court not yet occupied, and children with their white-capped nurses played upon the lawn and teased a gay green parrot, which swung, head downward, from his perch in the shade of an evergreen, and screamed, in heart-rending tones, "Cholly!" From the cottages the occupants were beginning to emerge, all apparently having one destination, the Pope House dining room. Our two young officers, having gone through the formality of registering, followed the leader and took seats near the door, where they were enabled to see the incoming tide of fashionables, among whom were many who bestowed upon Lieutenant Fellows bows and smiles of recognition. Fellows amiably proceeded to give his friend the benefit of his larger acquaintance with the people about them.

"There," he said, "are Lieutenant Barrows and his wife," indicating a tall, dark, soldierly-looking officer, with a small, fair woman, seated at a table across the room. "And there is Captain Foote, who is *epousé* with Miss Grant, the pretty girl on the right. And there comes pretty Mrs. Wallace, with her prettier daughter Elaine," as the ladies pass with a bow and smile. Now came a sound of men's hearty laughter and the tread of many feet, and as the door swung back a group of officers entered, who greeted the lieutenants cordially as they took seats at the same table.

By this time the dining room was well filled, and many bright glances were directed toward the military table, which compliment the officers returned with interest; for, though the colonel had been heard to declare that they were down for work, not play, the officers under his command found time for some desperate flirtations. The meal passed with much good-natured bantering, when the adjutant, Lieutenant Monroe, after looking at his watch, hurriedly rose, thus signifying that their time was short. They all passed out and were soon seated in a large yellow ambulance, which conveyed them back and forth from camp to hotel, and with a rumble of wheels and crack of the long whip by the soldier and driver, they were off for camp duty.

The day passed, as all long days will, and as the hour for parade drew near, Lieutenants Fellows and Ainslie were seated in their tent. As the bugle sounded, they quickly drew on their white gloves, buckled on their swords and took their places with the companies, which were drawn in line in front of the rows of white tents. The soldiers marched to the open space reserved for parades, wheeled and counter marched, with such precision of step that one of the ladies, seated in a carriage, declared it made her giddy to watch their feet. The perfect drilling of the soldiers, as shown by the skillful handling of arms

called forth the admiration of the spectators, who comprised the gay summer crowd from the hotels and the more quiet people from the town. In the complex movements of the troops it was not easy to distinguish individuals among them, but two hearts beat faster as a party of two young ladies, with their escorts, rode up and watched with interest the last fine marching of the men, then turning their horses toward the hotel, were soon out of sight.

A half hour later, as Lieutenants Fellows and Ainslie were walking under the trees, they glanced up and saw, seated upon the piazza of the hotel, two tall, well formed girls. The one in the large rocking chair had dark hair and eyes, and her face wore a look of ennui; the other, apparently younger, had lighter hair and her eyes were bright with happiness. Altogether she looked a picture of healthful girlhood as she leaned over the rail. Lieutenant Fellows sprang up the steps, and advancing, shook hands with the sisters; then turning to his companion, he said—

“Miss Prentiss, this is my friend, Lieutenant Ainslie. Miss Katharine, Lieutenant Ainslie,” and without another glance at the last two, he turned to the elder girl, who had turned a trifle pale upon seeing him.

“Marian,” he said, “I have been in a dream since I saw you at the parade. I had no idea you were here. Tell me, how came you here?”

The girl looked up at him with a face from which all sadness had flown, and answered—

“We arrived only yesterday, from San Francisco. After you left us at San Diego, Harold, poor mamma’s health grew worse, and we went to Santa Barbara, making the Arlington our headquarters; but we were on the move all the time. Papa seems to have grown so restless lately—since—”

“Since when?” asked Harold.

“Since you spoke to him at San Diego,” replied Marian. “I do not know what has come over papa.”

The piazza was deserted, except for a slender young girl, who was half seated on the railing at the farther end, and who was idly strumming on a small mandolin swung over her arm by a blue ribbon. Marian Prentiss rose and stood by Lieutenant Fellows’ side as he answered her last words.

“Marian, dear, I can tell you why your father seems so dissatisfied; it is because he sees you, his favorite child, unhappy, and yet he does not wish you to marry a lieutenant in the army. He told me, when I sought his consent to our betrothal, after our month of happiness at San Diego, that with his position and wealth, and your beauty, he had higher aims for his daughter. While I acknowledge my own unworthiness, the love which I felt for you then has onl

deepened, and though I consented, at your entreaties, to quietly wait, I have never given up the hope of making you my wife. Tell me, dearest, is your heart still mine?”

“Harold,” she replied, “as I loved you then, I love you now; but while my mother is so delicate from heart disease, I can do nothing to give her pain or grief, as I should do by acting in direct opposition to papa’s wishes. We will patiently wait and enjoy these weeks which lie before us. Now let us join the others.”

Katharine and Willard Ainslie had been standing under the evergreens talking to the parrot, and as Marian and Lieutenant Fellows joined them, a sound of scuffling issued from one of the cottages, the windows of which were open, and a boy’s childish voice, shrill with anger, called out. Then a woman’s voice remonstrated. As the door flew open, out sprang a boy with a gun in his hand, and as he sped around the corner of the house, the woman’s plaintive tones were echoed by the parrot, which hung in its favorite position and screamed, “Ah, Cholly! Now, Cholly!” in such perfect mockery that the party of young people burst into merry laughter as they moved away to the dining room.

Days and weeks passed, which were filled for the young officers by the military routine of drills, inspections, guard mountings and parades, brightened and varied by the weekly hotel hops, drives and flirtations. The sea bathing had been for some days pleasantly dangerous to the most venturesome, on account of the high waves, which broke with great force. One bright afternoon a large crowd had gathered on the beach, watching the bathers who had preferred the higher tide. The hotels had emptied themselves, and every one who possessed a vehicle or horse was driving or riding on the hard beach, while the less fortunate ones sat or stood in groups upon the warm, dry sand. The rich Mrs. DeOlderly, in her carriage, entertained a party of ladies who occupied it with her, by her witty remarks and gay badinage.

“Here are some of the Presidio pets,” she said, as a party of young ladies in black suits and bright colored caps ran down to the water.

“Presidio pets!” exclaimed stupid little Miss Carlin, “what are they?”

“Oh, haven’t you heard?” answered Mrs. DeOlderly. “That is the name given to the young ladies who affect the army.”

Just out of ear-shot of the laughter which followed this remark, Lieutenant Fellows was leaning on the wheel of Miss Prentiss’ cart, while Katharine and Lieutenant Ainslie were near on their horses.

"What road do you take to-day, sister?" asked Marian.

Kate laughed in a happy, careless way: "Along the cliffs. I think we have taken in every road about the place, but I am never tired watching the dear old ocean."

As they turned their horses' heads, Marian said, with a smile, "You must take good care of our girl, Mr. Ainslie," to which he replied only by a wave of his whip and a loving look at the girl who had grown so dear to him. So they rode away in the bright afternoon sunshine, unmindful of danger as youth ever is. As Marian and Harold Fellows watched their disappearing figures, each wondered if the same blighted hopes would be theirs, which had fallen to themselves.

Marian was startled from her sad musing by a smothered exclamation from Harold, who ran down the beach and plunged into the water, some distance from the safety ropes. Looking for the cause of his strange actions, she could only see a dark object in the water, which seemed to be rolling along the sand at the mercy of the waves. She had just lost sight of it as a large wave broke, when Lieutenant Fellows grasped it and struggled into shallow water, bearing in his arms a young woman, who did not appear to be wholly unconscious. He handed her to her friends, who had rushed with the crowd to the water's edge, and casting his eye about him, looked for the nearest means of escape. Marian, knowing his modest nature, drove hastily forward, throwing, as she did so, a large gray shawl upon the seat of the cart. In a moment he had sprung in, and before the astonished people realized what was going on, they were driving off at a brisk rate for camp.

"Harold, you dear fel'ow, how brave you are!" exclaimed Marian, in rather an unsteady voice.

"Brave," laughed Harold, who was shivering in the wind. "Why, the bravery consisted in voluntarily ruining my new blouse."

"You must not underrate yourself so," answered Marian. "But for you, the poor girl would have been drowned."

"I fancy she will be none the worse for her sand bath," said Harold, "though it might have been serious. But here we are at camp, and now *au revoir* until this evening."

Springing from the cart, which had drawn up to the entrance of the enclosure containing the military camp, he was soon lost among the white tents.

It was still early in the evening when Lieutenant Fellows and Marian were promenading upon the porch, glancing through the windows at the gay crowd within. They had been wondering at Katharine's prolonged absence, and Marian's face had a troubled

expression, when one of the clerks approached them. Calling Fellows aside, he said—

"Lieutenant, a telephone message has just been received from Torbet's stable, saying that the horse which Miss Prentiss rode this afternoon has come back riderless."

"Hush!" whispered Harold. "Not a word of this to anyone, or you may cause Mrs. Prentiss' instant death. I will get help and start in search of them immediately."

Turning to Marian, he told her in a gentle way of what he had heard, and advised her to stay with her mother. She grew very pale, but was calm and collected.

"Take me with you, Harold, please. Indeed, I would rather go," she entreated; and he, seeing that she was perfectly self possessed, consented.

Calling to the young adjutant, who had just entered the grounds, Harold briefly explained his fears, and in a moment the three were flying down the quiet street to the stable. Ordering a wagon, Harold placed some cushions and blankets in the body, and threw a long coil of rope under the seat. As soon as all was ready, Marian and Lieutenant Monroe took their seats in the wagon, while Harold mounted a horse, and with a lantern hung on the saddle, rode on ahead, taking the road of which Kate had spoken.

In the meantime, where was the happy couple who rode away that bright afternoon? They had ridden for miles along the cliff, sometimes slowly, to watch the waves dashing upon the rocks, and then again urging their horses for a mad gallop. They had laughed and jested, for they were a merry pair, and the afternoon had passed all too quickly. At last, they turned their horses' heads homeward, and then Kate noticed that her saddle had become loosened. Alighting from his horse, Lieutenant Ainslie passed his arm through the reins and was tightening the strap, when his horse became frightened—whether at a sea bird which flew close to their heads, or at the dashing of the water—but with a rear and a plunge he had gone over the bluff backward, dragging Willard, whose arm was entangled in the reins, with him. With a low cry of horror, Kate ran to the edge, and looking over, saw Willard lying upon a ledge about half way down the bluff, while the horse lay dead on the rocks, which were wet with spray. As Willard did not reply to her frantic calls, Kate's first thought was to procure assistance, and then realized that she had allowed the reins to slip from her hands. She approached the horse, talking to him in a soft voice, and held out her hand to stroke his nose, but with a toss of his head he was off, and did not stop till he was well out of reach of the anxious girl. Finding all hope gone from this quarter, her next thought

was to reach Willard, who was still lying motionless. She gathered up her short riding skirt, and carefully picking her steps, soon reached the injured man. She knelt beside him and lifted his head upon her lap, and as he gave no sign of life, she sobbed over him.

"Oh, Willard! Speak to me, that I may know you are not dead! Oh, heaven! must he die?"

Almost wild with grief, the poor girl called to him pitifully, and pressed kisses upon his insensible face. Suddenly a thought came to her, and laying his head gently upon the hard earth, she made her way down the bank to the wet rocks and dipped her handkerchief in a small pool of salt water, then passing the dead animal with a shudder, she scrambled over the rough ground, her hands bruised and torn by the sharp stones, to the ledge where Willard was lying. She bathed his white face with the cool, wet handkerchief, and to her great joy, he soon opened his eyes.

"Why, Kate!" he said, looking at her in a dazed way and half rising on his elbow, a move which sent the loose stones rattling down and which caused him to fall back upon her lap. "Why, Kate," he said, in a voice faint with pain, "what has happened?"

"Lie still, dear," she replied, "you fell over the cliff, and I fear you are badly hurt. Tell me, what can I do?" watching his face anxiously.

Willard had learned in that one move how seriously he was injured, but when Kate told him that his horse was dead and that her horse had broken from her, he thought of Mrs. Prentiss and the consequences of such a shock to her. Though his heart sank, he begged Katharine to leave him and to send word of her safety by the first traveler she should meet.

"No," said Kate, decidedly, "I will not leave you; do not ask it, Willard. Mamma retires early, and Marian will see that no rumors reach her. They will be sure to send help soon." Though she spoke hopefully, her heart grew sick at the thought of her delicate mother. And yet, how could she leave her lover alone, perhaps unconscious, upon a narrow ledge, where an unguarded movement might send him to death?

She placed her arms around him and drew his head upon her breast, hoping to protect his bruised body from dampness, for the sun had set and the evening air was chilly with the mists. Sitting thus, with their arms about each other, Willard told his love to the noble girl, and as they watched the twilight disappear, and the stars come out one by one, they talked in low tones of their love for each other. The joyousness and gaiety of the bright day had been displaced by a seriousness sweet as the quiet darkness which fell about them.

* * * * *

Was it the cry of a sea bird, or the call of a human voice? Kate raised her head and listened intently. Again she heard a distant cry—at last their weary waiting was nearly over. The hours, she knew, had been full of exquisite agony to Willard, though only by the stifled tones of his voice had he shown his suffering. For his sake, she breathed a low prayer of thankfulness. Again and again they heard the strong call, brought to them on the light breeze, and, as it grew nearer, Katharine rose and answered. Another shout, and then they heard the sound of swift hoofs. In another moment, Lieutenant Fellows, guided by Kate's warning tones, was peering over the edge of the bank.

"Kate! Ainslie!" he cried. "Are you both hurt? What has happened?" and as he swung the lantern down its rays showed them his honest, kindly face, haggard with care. Kate trembled as its light fell upon Willard's pain-drawn countenance.

"Willard is hurt," she said, speaking for both, "let us make all possible haste to get him home. I know you have thought of everything."

Harold had placed the lantern on the brink of the cliff, where its feeble flame only made the darkness seem blacker, and as they gazed up at it, Marian's beautiful, pale face gazed down upon them, so filled with pity that a sob rose in brave Katharine's throat. Few words were spoken, for it was a time for quiet action, but the orders which Lieutenant Fellows gave, in the quick, decided tones which characterized him as an efficient officer, were promptly obeyed. Marian stood at the horses' heads, while Katharine and trusty Jim, the driver, held one end of the long rope, which was first passed through the wheels of the wagon. The other end, Lieutenants Fellows and Monroe had fastened about their waists, and in this way they descended to bear their injured comrade to the wagon. Raising him tenderly in their arms, they gave the signal, and with the steady pull on the rope to aid them, soon laid Willard, who was unconscious, upon the cushions. Lieutenant Monroe mounted the horse and rode rapidly ahead to notify the military surgeon of the accident, while the rest of the sad party drove silently to the hotel.

What a night it was for them! All knowledge of the affair had been carefully kept from Mrs. Prentiss, and Kate had lain all night with her hand clasped in Marian's, listening to the footsteps which passed their door, and waiting for the message which they knew Harold would send them. Just at the first gray light of morning there was pushed under their door a slip of paper, on which was written, "Ainslie's leg is set and he is resting quietly." Then Kate turned her face to the wall and sobbed herself to sleep.

Later in the day, as Lieutenant Fellows was returning from the camp, where he had been to snatch a few hours' rest, Mr. Prentiss approached him, and, grasping his hand, said—

"Lieutenant, I have heard of your gallant conduct yesterday, in saving a young lady from the waves, and also of the part you took last night in rescuing my daughter and Lieutenant Ainslie. I can not express my gratitude, but I acknowledge the mistake I made in my former opinion of you, and I now give my hearty consent to your marriage with my eldest daughter. And," he continued, "let me be the first to congratulate you."

Fellows, completely overcome by the unexpected turn of affairs, could only press his hand, and when he could speak, disclaimed, as he always did, all merit for his brave actions. As they proceeded, Mr. Prentiss told him that he had given his consent to the immediate marriage of Kate and Willard Ainslie. Thus it came about that a quiet wedding occurred that evening and Kate took her place at her husband's bedside as a loving wife and devoted nurse.

Two months later, a family party was gathered in the small parlor of a set of quarters at the Presidio of San Francisco. A tall lamp in one corner burned dimly, but the light of the rising moon shone upon happy faces. Mr. and Mrs. Prentiss, with Marian and Lieutenant Fellows, were to depart for the east the next day. It was Marian's wish to be married in

her old Kentucky home, surrounded by the scenes of her childhood. They had been discussing the probability of all returning to California to live, when Harold spoke—

"Ainslie, I think you and I have cause to love the Golden state, for it is here we both met our wives—to be," he added in an aside, as he laid his hand on Marian's arm.

"No," answered Willard, "I did not first meet my wife here." Then seeing a look of surprise on their faces, though Katharine had drawn into a shadow and was strangely silent, he continued: "Two years ago, while a cadet at West Point, I first met my wife at a country house where I happened to be detained. During the short time that we were together I saw only a vision of light curling hair and dancing eyes. Was it any wonder that I went back to the academy with my head and heart filled with a pretty girl, whom I knew only as Kate? But," drawing her out of the shadow, "I doubt if she has remembered me as well."

"Oh, Willard!" answered Kate, "I knew you all the time, but waited to see if you would recognize me," and she laughed and blushed as her husband turned her face toward his own.

Mrs. Prentiss rose, and as the last sweet notes of a bugle sounded in the still air she extinguished the tall lamp. It was the call for "taps," and the lights were out.

LILLIE T. PARKHURST.

THISTLE DOWN.

Love is like the thistle that springs to life
By some wayside, from every careless seed;
One calls it flow'r with brilliant beauty rife,
Another idly laughs and names it weed.

But like a lusty thing, the thistle grows
From tender shoot to sturdy stalk and great,
And he who finds it in his pathway knows
It can not be uprooted—when too late.

But let him wait, but e'en so short a while,
And then, I think, will come to him the day
When he will see with but a passing smile,
The thistle's spirit borne in down away.

ELLA HIGGINSON.

HUNTING THE FUR SEAL.

WITHIN the past few weeks nearly a score of vessels have returned from Behring's sea with cargoes of seal skins, varying in number from five hundred to three thousand skins. Several of them report that while in the sea itself and while actually engaged in sealing, they were spoken by both the *Bear* and *Rush*, the two United States vessels sent there to enforce the laws against indulging in that practice, but were not molested. This fact, when taken into consideration with the indefinite postponement of the advertised auction of vessels captured and condemned last year, and which were recently advertised for sale at Port Townsend, would seem to point to a modification of the government's position. However that may be, a little information about seals and seal hunting in general may be of interest, even aside from the political aspects of the case.

In the February, March, April and May numbers of THE WEST SHORE for 1886, I related at length the history of the fur trade on the Pacific coast from the organization of the Hudson's Bay Company, in 1669, to the present time, showing its inception, development and decline to its present proportions. In this article I propose to deal simply with one phase of the industry as it exists at present—the hunting of seals in the Pacific ocean and Behring's sea. In the first place it must be remembered that there is a broad distinction between the seals of the Atlantic and Pacific. The former are covered with coarse hair and their skins are worth but about one dollar each, while the Pacific variety has a coat of thick, soft fur of nearly ten times that value. Originally the fur seal was also found in great numbers in the Antarctic regions and off Cape Horn, but the indiscriminate slaughter by sealers early in the present century exterminated them almost completely. Nothing but careful breeding and protection for a series of years can restore the sealing interests of that region. As it is now, there is but one great breeding ground in the known world, that of the Prybalov islands, in Behring's sea, and this has only been preserved and the complete annihilation of this valuable animal prevented by the restrictions the United States government has enforced during its ownership of Alaska.

When Secretary Seward purchased Alaska from Russia in 1867, paying therefor the sum of \$7,200,000.00, the wisdom of his act was almost universally questioned. Especially was the price a matter of comment, as no one could understand the significance of the odd \$200,000.00. It has recently been asserted, as the revelation of a "state secret," that when war was feared with England during a critical period of the rebellion, Lincoln and Seward secured the prom-

ise of aid from Russia, and that the latter maintained on our coasts for a number of months several of her war vessels, equipped for immediate service. Happily the storm passed over, but the expenses of Russia in this matter were a debt of honor upon the nation, which, after several years of negotiation, was settled by the cession of Alaska to the United States as a nominal consideration for the payment of this debt, which amounted exactly to the sum of \$7,200,000.00. If this be true, Russia, in order to relieve both herself and our state department from an exceedingly embarrassing position, virtually made us a present of her American possessions.

By this purchase the United States acquired exclusive jurisdiction over that portion of Behring's sea lying in Alaska, as successor to the jurisdiction previously exercised by Russia. Lying in this sea, two hundred miles north of the well known island of Ounalaska, one of the Aleutian chain which forms its southern boundary, and seven hundred miles from the mouth of the great Yukon river, are two small islands, St. Paul and St. George, known as the Prybalov islands, which are the chief breeding grounds of the seal. It soon became evident that if unrestricted hunting were permitted, the seals would be exterminated in a few years, and in 1870 congress passed an act granting exclusive privileges in Behring's sea to the Alaska Commercial Company. By the terms of this act the company pays the government an annual rental of \$55,000.00, and \$2.65 each upon every seal skin secured, no more than one hundred thousand to be taken each year. From this the annual revenue derived is upwards of \$300,000.00, and has amounted in eighteen years to more than \$5,000,000.00, while the cost of protecting the industry has been about five per cent. of that sum. The lease to the company will expire in 1890, and the question of its renewal has already occupied much attention. This I do not propose to discuss. The idea of a monopoly of any industry is repugnant to the sense of independence and equity of the American people, and on this ground an extension of the lease may be refused by congress. If this be done it is vitally essential that some protective and restrictive measures be adopted, or a few years will see the fur seal of Alaska as rare as the once numerous buffalo of the plains. As a proof of this the increase in numbers during the last fifteen years is ample. By a careful estimate, made in 1873, Henry W. Elliott computed the number of seals on the islands at three million and thirty thousand. Another estimate on the same basis, made in 1887, placed the number at six million four hundred and thirty-eight thousand seven hundred and fifty, an increase in fourteen years of more than one hundred per cent. It must be con-

sidered that the one hundred thousand skins taken annually by the company do not represent the slaughter among the animals. Fully thirty thousand skins are taken by the independent sealers whom the government has been unsuccessfully endeavoring to exclude from Behring's sea, and as these hunters are compelled to shoot the animals in open water, and do not secure one in five of those killed or mortally wounded, the thirty thousand skins taken represent fully two hundred thousand slain seals, or a total of three hundred thousand. If restrictions are removed, or even if the government is compelled to recede from its position as to exclusive jurisdiction of Behring's sea, the sealing fleet will unquestionably be largely increased in numbers, and the slaughter of animals will be so great that extermination in a few years will be certain. In that event, cheap fur will be the rule for a time, and then no fur at all.

In its habits the seal is very peculiar. The male is a polygamous animal and has his harem of wives, which he defends with a ferocity equal to that of the lion. In the month of May they put in an appearance at the islands from their winter sojourn in southern waters. First come the bulls, to select the location of their harems. They swarm over the rocks in countless thousands, each one selecting a section of the barren rock, about six or eight feet square, and defending it against all claimants. For the next few days the scene is a fearful one. Bloody combats are in progress everywhere, and the ferocity and intensity of passion displayed have not their equal in the animal world. Three weeks later the females arrive, in numbers far exceeding the males, and though their first act is that of maternity, their "pups" being born within a few hours after the mothers leave the water, they are seized upon and fought for and handled in the roughest manner imaginable. For two months the rocks literally swarm with seals, and it is during this period that the company captures its annual quota.

The methods of capture and killing are peculiar. Only non-breeding males are killed. Drivers go down to the rocks and select their victims, driving them in small herds to the slaughtering place with shouts and cries and wild gesticulations. Half a dozen men, armed with stout wooden clubs about five feet in length, then rush in among the animals and make quick work of them by knocking them on the head. Small boys follow the killers and stick the dead or stunned seals with a sharp knife. These are succeeded by older boys who rip the animals open and cut the skin around the head and flippers. The skimmers come next, and quickly strip off the hides, leaving the carcasses lying on the ground. It takes about forty days to secure the one hundred thousand skins, as many as five thousand being sometimes tak-

en in a day. The native population of the islands, all engaged in this business, is one hundred and forty-seven males and two hundred and two females.

Fully three-quarters of the seals are breeding animals, owing to the company's policy of killing only the males. This policy, however, does not extend to the independent sealers, who shoot the animals indiscriminately when they overtake them in the water. The increase is about a million "pups" a year, among whom the mortality is very great, a baby seal being a tender morsel for a shark or a killer whale. Not more than three hundred thousand can be considered the permanent increase, from which must be deducted the number killed by the company and, in recent years, the poaching sealers. A baby seal is an interesting little fellow, generally being the only son of his parents, though occasionally having to share the maternal milk with a twin brother. When born he is about a foot long and weighs about three or four pounds, while his parents weigh from three hundred to six hundred pounds. The beach is a vast "baby farm," as the mothers leave their offspring and go into the water, while hundreds of thousands of the little fellows wriggle about in the sand, keeping up a continuous bleating. They do not seem to know their own mothers, and there is no way for the mother to distinguish her offspring from among the thousands of others, save by his voice. The incessant bleating serves the purpose of identification, for when the maternal seal emerges from the water she seems to recognize the voice of her baby with as much ease as the skilled operator catches his call in the clicking pandemonium of a large telegraph office. No matter how far he may have strayed from where she left him, she goes directly to him and gives him nourishment. She wastes no caresses upon him, but again leaves him to shift for himself. It must not be inferred from this that she has no affection for her young. A maternal instinct so strong as to lead her unerringly to her own offspring must be accompanied by great mother love. It is related that a young seal was captured on an island off the California coast, and was taken in a boat to Santa Barbara, a distance of eighty miles. Shortly after the capture a large seal was observed swimming around the boat, barking and howling continuously, the little captive answering in plaintive barks. Several times during the voyage a seal was seen near the boat, and again when the anchor had been cast in Santa Barbara bay. The young seal had been tied up in a jute sack and left at liberty upon the deck, and soon responded to the older one's barking by throwing himself overboard. The man in charge of the deck at the time asserted that the old seal pounced upon the sack and tore it open with her sharp teeth, liberating the captive, which

must otherwise have gone to the bottom and been drowned.

For the first three or four months the baby seal is as black as jet, with two small white spots just back of his forearm. In October he sheds his black hair completely and assumes a beautiful steel gray coat, with a bright brown under fur, and in this garb takes to the water for his yearly migration southward. Learning to swim is a long and dangerous process. Unlike the familiar sight of a duck teaching her little ones to paddle about in the water is the swimming school of the seals. The mother pays no attention to him whatever, except to nurse him. When about two months old the little fellow makes his first venture in the water, by going down to the margin of the surf and permitting it to flow over him. If he happen to be washed into deep water he is almost certain to drown, for he can not swim; yet he opens his mouth and big brown eyes, and with half choked barks struggles manfully for the shore, often reaching it. Many are drowned in this way every season. Gradually they learn to swim, and then they spend a great deal of their time in the water. They sport about like boys, diving, floating and performing antics without number until completely exhausted, when they crawl out upon the sand and curl themselves up for a nap. After an hour's rest they again make for the water and resume their sport.

In October the seals desert the islands and start southward on their winter's "outing," and from that time until they return the following May, live almost continuously in the water. How far south they go is uncertain, but upon their return in the spring they strike the California coast far below San Francisco. In passing north they make great raids upon the salmon entering the various streams and do incalculable damage to the fishing interests. They sometimes enter the Columbia in large numbers and are hunted by the fishermen as zealously as a farmer hunts crows. Unlike sea lions they are wantonly destructive. A lion eats a great many fish, but he eats a whole fish when he catches one. On the contrary a seal will grab a fish, take one bite out of it and let it go, thus destroying or spoiling for market an immense number. More than a thousand seals have been seen at one time at the mouth of the Columbia river. Early in the season the sealing vessels leave San Francisco, Victoria and other ports, and begin their work of catching seals on their northward journey. One vessel the present season secured fourteen hundred skins on the voyage from San Francisco to Yaquina bay. In this way thousands are taken all along the coast of California, Oregon, Washington, British Columbia and Alaska, the vessels finally entering the forbidden limits of Behring's sea in May

and June, if, indeed, the skippers decide to take the chances of confiscation of both vessel and cargo if caught poaching upon the government reserve.

Hunting seals in the open sea is an arduous, and at times a dangerous business. In the morning several boats leave the vessel with a crew of two or three men, one to hunt and the other one or two to manage the boat. The vessel follows slowly in their rear, but each boat is provisioned, as occasionally thick weather sets in and prevents some of the boats from finding the vessel until the fog lifts. When a seal is observed floating or idling along on the surface, the boat is propelled as near as possible and the hunter takes careful aim at his head and shoots. If the animal be only wounded he is lost, and even if he be killed he may sink and be lost if not promptly secured and hauled into the boat. A great many are thus slaughtered every year whose skins are never added to the ship's cargo. The object in shooting the animal in the head is to not injure his hide. In the evening the boats return to the vessel and are hauled on board, some of them containing as many as thirty dead seals. Last season one of these vessels captured twelve hundred seals in ten days.

Sealing voyages are conducted somewhat on the same principle as the whaling business, the owners, hunters and crew sharing in the profits of the voyage. The ratio of interest varies somewhat, but may be approximated at one-sixteenth for the captain, one-twentieth for the mate, one-sixteenth to one-twenty-fifth for the hunters, and one-fiftieth for the crew. About one-half the value of the catch is thus divided, the remainder going to the vessel. Although there seems to be no actual difference in the value of the skins, the catch of these "outside" hunters brings a smaller price in the market than the skins of animals killed on the land. At \$8.00 per skin, a fair average price, the outside catch of thirty thousand skins is worth \$240,000.00, leaving a sufficient margin of profit to encourage sealers to invade Behring's sea, and even to pursue their hunt on land, where they are within the undisputed jurisdiction of the United States. By act of congress, no one but natives and half breeds can kill fur-bearing animals in Alaska, and even were the question of authority in the open waters of Behring's sea not considered, no independent sealers could lawfully engage in the business within five miles of land, unless native hunters were employed. There is a great deal of opposition to this law by white men who desire to engage in fur hunting in Alaska irrespective of sealing, and it is possible that congress will so amend the law as to permit them to do so.

By the Mute, who lives along the coast of the Alaska peninsula, both on the side of Behring's sea and the Arctic ocean, the seal is deemed the most im-

portant of animals. Its flesh gives him food, its oil lights his hut, and its hide affords warm clothing and a water-tight covering for his boat, or kyack, the frail structure in which he ventures upon the stormiest of seas. It must not be supposed that all seals patronize the winter resorts of the south. If they did the lot of the Mute would indeed be a sad one, for the occasional seal caught through the ice is often all that saves him from starvation during the long, dark and frigid winter. Improvidence is one of the marked characteristics of the native of those hyperborean latitudes, and it is seldom that adequate provision is made for the family larder. Every reader of Arctic literature remembers well the picture—certain to be found in any book treating of the frigid north—of a fur-muffled Eskimo standing as rigid as a bronze statue at the verge of a hole in the ice, his short-handled spear poised in his uplifted hand, while he waits patiently for the opportunity to make the thrust which may save his family from starvation. This is no fancy picture, but is often a thrilling reality. When the ice is thin, the seals often rise to the surface of the water and puncture its icy coating with their noses. Crawling through the holes upon the solid ice, they go to sleep, prepared to plunge into the water again at the first alarm. In this position they frequently fall a prey to the crafty and powerful polar bear, who stalks them as cautiously and successfully as does the human hunter. Later in the season, when the sun has again made its appearance, they come out in greater numbers and bask in the warm rays, falling then an easy prey to the hunter. Often when storms have broken up the ice, the natives stretch nets of seal thongs across the rifts, in which the seals become entangled when they rise to the surface, and are captured. The spear of the Mute consists of a short ivory shaft, carved from the tusk of a walrus, and tipped with copper or iron. A long coil of seal-hide line is attached to the spear, upon which inflated seal bladders are fastened at intervals.

It is in the summer time, when the icy bonds of winter have been loosened, and the seals throng the mouths of streams where fish abound, that the native hunter pursues his work in the most picturesque manner. Seated in his frail kyack, made by stretching a seal skin over a light, but strong, frame work of wood or ivory, with an apron gathered about his body

so as to render himself and his boat completely impervious to water, he ventures out to hunt the seal in his native element. Great skill is displayed in the management of this little craft, and indeed it is needed, for if by some chance it become capsized, the occupant, being fastened in and being heavier and less buoyant than the canoe itself, is seldom able to right it, but hangs head downward until he drowns. As he paddles gently along, the hunter imitates the crooning noise of the animal he is seeking, and as curiosity is a marked characteristic of the seal, as indeed it is of nearly all animals, human as well as brute, it is not long before the whiskered nose of an inquisitive phoca appears above the water. If armed with a spear, the hunter must use great caution or he will frighten the animal before he has an opportunity to strike; but if equipped for the hunt with a gun, as they nearly all are in these latter days, he has a better opportunity to secure his chase by shooting it in the head. Whistling is also a means used in attracting the seal, and though the native's performance on the labials is far from entertaining to the musical ear of the Caucasian, the seal seems to be charmed with it, and is enchanted by the siren notes to his death.

Our lady friends, who wear the furry coat of this pinnigrade with far more pride than does its original owner, must not think that the beautiful "seal brown" is the natural color of the fur. Far from it. Were they offered a cloak of this costly fur in its natural color, yea, though it were so long it swept the street, and so heavy that it called for the services of two doctors instead of one, as is generally the case at present, they would turn up their noses in scorn. Seal brown is a manufactured color, and all seal skins, wherever captured, are sent to London to be dyed before going upon the general market. In this business we find the most complete monopoly in the world, for the process is secret, and every sealskin must pay its tribute. This is what makes the fur so costly, for the value of a skin is increased ten times when thus prepared for conversion into a garment. Some of the finest furs in the world are prepared for market in Portland and San Francisco, but the sealskin, although caught, practically, at our very doors, must make the trip to London and back before it can be made up into the graceful garment which most enchants the feminine eye.

H. L. WELLS.

MINERALS OF LINN COUNTY.

THE mineral productions of Linn county, Oregon, are not, comparatively, of so much importance as are some other forms of industry. The agricultural and manufacturing interests are far in the lead, both in the number of people employed in them and in the value of the output, but the mining enterprises of that county are, nevertheless, not unimportant.

The minerals of Linn county are gold in quartz and placers, copper ores, galena and zinc blende. The chief mineral section is known as the Santiam mines, on the North Santiam river, in the northern part of the county. The geological formations here are porphyritic and granitic, and appear to be the same as the outcropping to the northward and southward, of a ledge on the west slope of the Cascade mountains. Quartz is abundant, and "float" is found in most of the mountain streams which join to form the North Santiam, sometimes carrying visible gold.

The Santiam mining district consists, principally, of two mining locations, one known as the White Bull and the other as the Canal Fork mine, the former of which obtained some celebrity as the producer of what are considered the finest specimens in the world of arborescent gold. These specimens are altogether beyond comparison with nugget gold. Where these specimens were produced the metal was exhausted after some thousands of dollars had been obtained. The mining work at the White Bull has been carried on very unsystematically, and the result has not been in all cases satisfactory. At different times, two stamp mills have been operated, but both were burned. Nearly all the rock from these mines assayed very high, but when the test of actual operations was applied the results were disappointing to the investors, and from this cause there was not the vigorous policy observed in prosecuting the work that secures the development.

The Canal Fork mine is in slate and granite. The vein outcrops strongly at a height of fifty feet, and carries free gold at the surface, but not to any depth. The rock from this mine has yielded as high as \$30.00 per ton when carefully milled. Beneath the surface the ore is base. In one space it consists very largely of galena, and assays as high as \$200.00 per ton of silver. Indeed, one specimen assayed about \$800.00 per ton. In general, the quartz is rose colored and carries free gold and silver with galena, copper pyrites and zinc blende, and occasionally some antimony. Probably much more than half the precious metal in the ore has been run off down the stream with the "bases," at both the Canal Fork and White Bull mines. There is a steam power mill at the Canal Fork, that is likely to be moved to where water may

be obtained, and the underground works consist of five tunnels and a forty-foot shaft. Thus far about \$20,000.00 have been expended on this mine, most of it development work, and it is now in good condition for prosecuting the work more actively than heretofore.

There are quite a number of veins in the Santiam district, other than the two mentioned above, and they are known to be rich in precious metals. Within three hundred yards of the Canal Fork mine, there is a lead, varying in width from four to five feet, rich in sulphurets bearing from \$40.00 to \$60.00 per ton. Another, a short distance from this, is heavily sulphuretted and assays as high as \$120.00 per ton; but, because these bear no free gold or silver, they have been neglected.

In the galena district a number of discoveries and locations have been made of veins of varying widths up to two feet, in quartz, heavily charged with lead, iron, copper and zinc sulphides. The galena, which is abundant, carries considerable silver. At the forks of the river, about fourteen miles above the Canal Fork, there is a galena lode four feet wide, which is rich in silver and has no accompanying minerals prejudicial to smelting. None of these claims have been developed in the least, and they are considered valuable. Some prospecting has been done at the Capital mine, on a branch of the north fork of the North Santiam, about twenty miles above Nehama. The vein is three and a half feet in thickness, and contains galena to a large extent.

These are the chief lodes now known to exist in the mineral section of Linn county. Claims have been located and abandoned, and some have produced considerable amounts of precious metals. It is likely, that if the section were thoroughly prospected, still other leads would be discovered that would add to the mineral richness of the region. Every miner who visits the Santiam mines becomes thoroughly imbued with the idea that they are rich in gold and silver, and the wonder is that they have not been more fully developed. With the operations that have thus far been conducted, it is demonstrated that large quantities of metal can be obtained in these diggings, and the improvement in machinery and facilities for handling ores will doubtless soon make themselves manifest in the development of these mines. It is certain that these rocks and placers contain richness; the only question is how to get it out most profitably.

In the mining operations of the county, as in all other industries, Albany is headquarters, and must reap the chief benefit from their further development. The Oregon Pacific line will pass through the mountains, on its way east, offering easy and cheap communication between Albany and the mines.

GREEN RIVER HOT SPRINGS.

YEAR by year the habit of taking a summer vacation becomes more general among the busy people of the northwest. Business cares and the close application necessary to secure a good foothold in a new country have in the past prevented this very largely; but now, owing partly to the growth of the country in population and partly to the increase of traveling conveniences, thousands of our workers steal a few weeks from the demands of business, and seek rest, recuperation of health and pleasure, in a change of scene and manner of living. Some take long journeys by car and steamer, some go down to the sea shore, and some, by far the wisest of them all, find some comfortable retreat in the mountains, where hunting, fishing, clear atmosphere, pure, cold water, and perchance medicinal waters for drinking and bathing, combine with grand and inspiring scenery to render life most pleasant and a restoration to health and vigor most certain. Such a place is Green River Hot Springs, on the line of the Northern Pacific, sixty-one miles east of Tacoma, and between that city and the summit of the Cascade mountains. At this point are five springs, with a temperature varying from 118° to 122°, Fahrenheit, which were discovered four years ago. Here I. G. McCain & Co. have a comfortable hotel, with good accommodations for eighty people, which, however, will soon be largely increased in size. There are, also, ten cottages for boarders. The demand for room in this now popular resort renders a large increase in the accommodations imperative before another season. Green river is beyond question the most beautiful mountain stream in the west. Rising in the Cascades, it flows down the mountains in a series of cascades and deep pools, where lurk the delicious and gamy mountain trout, and empties into White river, through which its waters reach Puget sound. In addition to trout, salmon are found in the stream in great numbers. The river derives its name from the green hue of its clear, transparent waters, brilliant in the sunlight and dark green in the shade. The mountains are full of deer, bear, mountain sheep, grouse and other game. No shooting is permitted within two hundred and fifty yards of the hotel, but the hunter and angler has not far to go to find employment for his rod and gun. The surrounding forests contain fir and cedar timber of giant proportions, and a saw mill, with a daily capacity of eight thousand feet, has been erected for the purpose of sawing lumber for the improvements constantly being made. Tourists will find this place the most delightful for a few days' rest in the whole extent of their journey through the west. This has been recognized this season by hundreds of them,

who have availed themselves of the opportunity to enjoy the pleasure and sport here afforded. Invalids, especially, find in the medicinal qualities of the water, the pure, bracing atmosphere of the mountains, the healthful food, and the sense of rest and freedom from care, just the conditions necessary for their restoration to health. The waters are a specific for rheumatism, catarrh, kidney troubles, skin and blood diseases, etc., and their virtue is attested by hundreds who have been benefited by them. A post office and telegraph station have been established at the hotel, and the sojourner there need not feel that he is completely isolated from the world, while daily trains pass the hotel to carry him away in case of urgent need. Persons desirous of securing accommodations in advance of arrival should address, by mail or telegraph, I. G. McCain & Co., Hot Springs, W. T., and a prompt response will be received.

AN EXTENSIVE LUMBER ENTERPRISE.

PUGET SOUND is noted for its extensive lumbering interests, where larger mills cut larger timber than any where else in the world, and these interests are largely centered at Tacoma, where several mills are located. The most recent addition is the mammoth mill of the Pacific Mill Company, which was recently completed with the latest modern labor-saving machinery, including a Wickes gang saw, an E. P. Allis & Co. band saw, a big circular saw, two gang edgers, two Woods planers, lath machines, ten block shingle machines of the Perkins make, and all other necessary machinery. Together with twenty-five acres of water front the mill cost \$200,000.00, and turns out two hundred thousand feet of sawed lumber daily. The building is sixty by four hundred and eight feet and is roofed and sided with corrugated iron. In connection with the mill are some of the most extensive logging operations on Puget sound. The Satsop Railroad Co., which is one of the directors of the company, owns several hundred millions of timber at Skelton, on the Big Skookum, Mason county, and has a daily output of two hundred thousand feet of logs. The Skagit Railway & Lumber Co. is also interested, and owns and controls millions of feet of the best timber on Skagit river, putting one hundred thousand feet of logs into the water daily. The quality of the lumber manufactured is unsurpassed, the thin saws and band saws turning out a smooth and even article, which is rapidly giving the mill an enviable reputation. The company manufactures all dimensions of fir lumber, fine cedar lumber, laths, shingles, spars, piles and all kinds of wood manufactured on the coast. Its market is most extensive.

At the present time four ships are loading at its docks, two for California, one for Melbourne and one for Valparaiso. Having direct connection with the track of the Northern Pacific, it can ship by the car load to good advantage, and supplies large quantities by rail to points far to the eastward. In fact it can fill orders direct to any railroad town in the United States or any sea port in the world. The Pacific Mill Co. is incorporated with a capital stock of \$500,000, and has for its directors the Satsop Railroad Co., represented by C. F. White, Byron Barlow, president of the Skagit Railway & Lumber Co., Geo. E. Atkinson and W. P. Prichard. The president is J. R. McDonald, of the Satsop Railroad Co., and president of the Seattle, Lake Shore & Eastern Railroad Co., C. F. White is treasurer, and W. P. Prichard, secretary.

HISTORY OF THE SAW MILL.

I WAS much surprised on seeing in a museum, a long time ago, such things as scissors, seal rings, necklaces and pairs of compasses, that were taken from Egyptian tombs three thousand years old. But, after all, men were men three thousand years ago, and women were women. They had the wants, the needs, the vanities of men and women, and they had brains not unlike our own to supply them.

The most boastful Yankee (not that Yankees are more boastful than other people) in some of the rooms of the British museum is obliged to confess that the ancients originated a great many good notions which we moderns only improved upon. For instance, there are few tools more ancient than the saw. All the ancient nations appear to have had it—certainly the Hindoos, the Egyptians, the Greeks and the Romans. The saw may have existed even before there were any men on the earth. There is a creature called the saw-fly, with two saws in its tail, which it actually uses for sawing the stems, leaves and fruits wherein its eggs are to be deposited. There is also a saw-fish, the long snout of which is a saw. It is said, also, that the original inhabitants of the island of Madeira found a ready-made saw in the back bone of a fish. The Greeks had a pretty story attributing the invention of the saw to the accidental finding of the jaw bone of a snake, by one Talus, who used it to cut through a small piece of wood. Being a slave, and finding that this jaw bone eased his labor, he made a saw of iron, and thus gave mankind a new and most valuable tool.

The ancient saws differed from ours in two ways. The teeth were so arranged that the cut was made by pulling, instead of pushing; and the teeth, instead of being set one to the right and one to the left, alter-

nately, were so set that ten or a dozen in succession slanted one way, and the same number the other.

The ancients had several varieties of implements. The Greeks, for example, had cross-cut saws for two men; also saws for cutting marble into slabs. And they had a kind of tubular saw for hollowing out a marble bath tub, similar in principle to the method now employed.

Among the pictures uncovered in the buried city of Herculaneum, there is a representation of two genii sawing a piece of wood on a carpenter's bench very much like ours, and using a saw with wooden frame, similar to those now employed. Still more strange, the frame saw, tightened with a rope and stick, such as our street wood sawyers use, was probably as familiar to the Romans as it is to us.



OLD FASHIONED PIT SAWING.

A saw mill, however, by which wind, water or steam is made to do the hardest part of the work, was not known to any ancient nation. Sawing by hand, next to digging a stiff clay soil, is about the hardest work that men ordinarily have to do. It is, therefore, not surprising that our ease-loving race began to experiment a good while ago, with a view to applying the forces of nature to the performance of this toil.

A learned German professor, who has investigated the subject very thoroughly, states that the first trace of a saw mill yet discovered is in the records of the German city of Augsberg, for the year 1337. The reference is slight, and does not fix the fact with certainty. But there are two saw mills near that city,

which are known to have existed as far back as 1417, and they are still used. Before that valuable invention, all boards and planks were split with wedges, and then hewn to the requisite smoothness with the axe. The splitting of boards is still practiced in remote settlements, as I have myself seen, and it is recorded of Peter the Great, of Russia, that he had much difficulty in inducing the timber cutters of his empire to discontinue the method. At length, he issued an edict forbidding the exportation of split planks. Even in Norway, covered with forests as it was, there was not one saw mill before 1530.

Nowhere in Europe, it appears, was the introduction of the saw mill so long resisted as in England. In 1663, a Hollander erected one near London, but it

explained the advantages and economy of saw mills, then the Society of Arts gave the scheme of building one their approval, and, finally, the mill was actually built, by an engineer who had studied the saw mills of Holland and Norway.

No sooner was the mill complete, than the sawyers assembled in great force and tore it to pieces. The government compensated the owner for his loss, as was just. Some of the rioters, also, were convicted and imprisoned. A new mill was then built, which was allowed to work without molestation, and proved so profitable that others were soon introduced.

In no part of the world, probably, has the saw mill been more minutely and curiously developed than in Great Britain, where they have saws so fine



A SAW MILL OF THIRTY YEARS AGO.

brought upon the poor man such an outcry and opposition that he was obliged to abandon it.

The sawing of timber by hand furnished occupation, at that time and long after, to a large number of strong men. In every town there were saw pits, as they were called, for the convenience of the sawyers, one of whom stood at the bottom of the pit and the other on the log. We can easily imagine, that when every beam, plank and board, thick or thin, had to be sawed by hand, the sawyers must have been a formidable body, both from their numbers and their strength.

After the failure of the Dutchman, in 1663, there was no serious attempt to start another saw mill in England for more than a hundred years. In 1767, an English timber dealer of large capital built a saw mill to be moved by the wind. It was thought to be a great and difficult enterprise, and it attracted much public attention. Some years before an author had

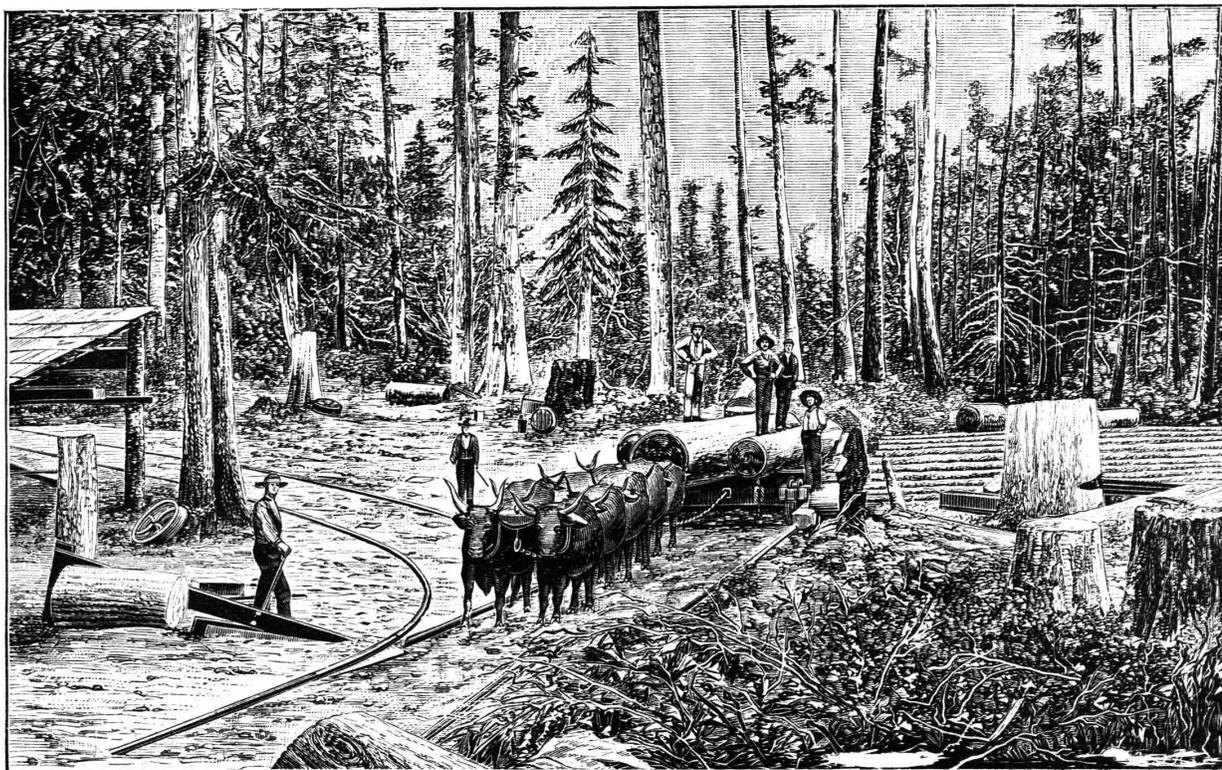
as to cut diamonds, and circular saws nine feet in diameter. They have, also, veneer saws so accurately adjusted as to cut eighteen slices of veneer from a rosewood plank an inch thick. In London they will put a log of mahogany upon the mill and cut it into slices so thin that the saw dust weighs more than the veneer. Yankees have beaten this performance. They take a piece of mahogany or rosewood, soften it by steam, and cut it into veneers with a knife, without making a grain of sawdust.

Talking of saws and saw pits reminds me that when I went to school in Westchester county, New York, there was a village near by, on the shore of Long Island sound, which was named Sawpits. It was so called because there had been saw pits in the place before the time of the steam saw mill, and the old fashioned people were well content with the name. But when New Yorkers began to build villas and cot-

tages along that coast, the name seemed homely and unsuitable. Old Sawpits long ago disappeared from the map, and if you wish to know where it stood, you must look for Portchester.

Nowhere has the saw mill been of such use as in America. It is difficult to see how this wooded country could have been peopled without its assistance. Everything dragged along slowly in a new settlement until a saw mill was built, after which progress was comparatively easy and rapid, since the settlers not only had cheap timber, but could employ their winters profitably in drawing logs to the mill, instead of burning them on the land. Usually the most ener-

of the Columbia river or Puget sound, where the conversion of the superb trees of the Pacific coast forests into lumber is carried on in a manner hitherto unequalled in the world for magnitude. There are mills on Puget sound cutting five hundred thousand feet of lumber per day, besides making enormous quantities of lath and shingles. On another page is given an engraving of one of these mammoth establishments, the Pacific mill, recently built at Tacoma. In the sound district, four hundred and thirty-four and one-half million feet of lumber were sawed in 1887, and the estimated output for the current year is the enormous quantity of five hundred million feet,



A MODERN LOGGING CAMP.

getic man in a new settlement built the saw mill, to which he often added a store, and soon took the lead in all things.

Daniel Webster tells us that his father had a saw mill after his removal to New Hampshire, at the source of the Merrimac river. Daniel, who was by no means fond of labor at any part of his life, liked nothing better in his boyhood than to attend this saw mill, because when he had put his log in position and started the saw, he had fifteen good minutes for rest or reading before the business required further attention.

One who would see the saw mill in all its glory and importance, must go into the magnificent woods

which would load a fleet of a thousand large vessels carrying the large cargo of five hundred thousand feet each. The modern saw mill, with its band, gang and huge circular saws, its block shingle and lath machines, its sawdust conductors, its immense slab-burning furnaces, its numerous mechanical appliances for handling logs, its logging railways, and its huge docks, where half a dozen great ships may be seen at one time loading lumber for the ports of three continents, is an industrial marvel which has been evolved from the pit and two-hand saw, and is but an example of what has been accomplished in modern times in every field of enterprise to which human ingenuity has been directed.

HOW GREENBACKS ARE CANCELED.

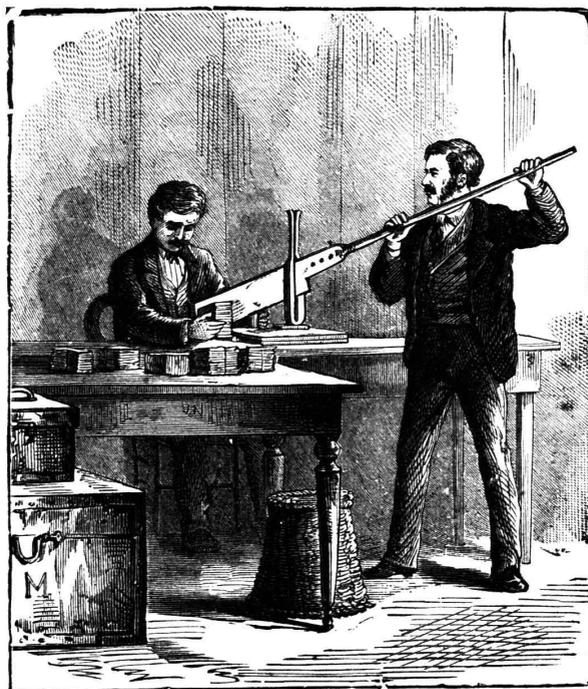
THE money received by mail for redemption at the United States treasury, comes in all sorts of damaged conditions, and has all imaginable kinds of horrible or ludicrous histories. Sometimes it has



CANCELED GREENBACKS.

been swallowed by a calf or a goat, and has been half digested. Frequently bills have been so burned that nothing remains but the charred resemblance of notes, so frail and brittle that a slight touch will change them to cinders. The identification and restoration of notes which have been burned is a difficult and interesting operation. The counter subjects each note and fragment of a note to a careful inspection in a strong light, under a powerful glass, until the issue and denomination are determined, and then pastes it on a piece of thin, tough paper, in order that it may be safely handled. Henceforth it is but a plain black piece of paper, giving no indication that it ever represented money. Entering the immense counting room a very busy scene is presented. Messengers, each accompanied by a counter, are hastening to and fro with boxes containing bundles of money carefully strapped and labeled, while a bevy of women surround a large table which they almost screen from our gaze, but which the continual "thud! thud!" that salutes our ears proclaims to be the canceling machine. Approaching, we find that the apparatus consists of two heavy horizontal steel bars, about five feet in length, working on pivots about a foot from the ends nearest to us. To the shorter end of each is attached a punch, while the other is con-

nected by a lever with a crank in the basement beneath, which is propelled by a turbine water wheel, furnished with Potomac water from one of the pipes which supply the building. The bundles of notes, each containing one hundred pieces, are passed rapidly and dextrously under the punch, which savagely and easily cuts a hole in each end, effectually canceling them. The bundles, when all have thus been punched, are returned to the box, the messenger picks it up and the counter and he hasten away to the clerk who is to make up the cash account of the division, and ascertain whether all the money received and delivered to the counters has been returned and accounted for. Just beyond the punches, a knife of formidable aspect and proportions is engaged in cutting the canceled notes in two in the middle. After a sufficient quantity of money has been counted, it is made up into lots of about one hundred thou-



CUTTING CANCELED GREENBACKS.

sand dollars of fractional currency, and proportionately larger amounts of legal tender notes, and sent in to be cut in two by this knife. The straps with which the bundles of notes are surrounded are so printed as to be also cut in two, and to show upon each half the denomination of the notes, the issue and the number enclosed. The counter's initials and the date of counting are also written upon each end, as well as a number or letter to identify the bundle, so that, if upon recounting the money, errors are discovered, they can be traced in a moment to the proper counter, date and bundle.

Thoughts and Facts for Women.

BY ADDIE DICKMAN MILLER.

TIME FOR READING.

No one can long endure constant work. There must be some rest, if cheerfulness and bodily vigor are retained. How is this time for rest spent? By the non-reader it is spent in conversation, which is well in its place, but talking can continue while the hands are occupied. A paper or a book should always be within reach when there are a few moments for resting. One item read at one time and another read at another time soon complete a paper, and one good family journal thus read is a fair stock of information, better than several simply culled to taste. Read nothing but first-class papers. Trashy reading takes the time and leaves the reader no richer. It is intellectual food that must be sought. But it is not reading, simply, that is needed; the facts must be thought and talked over to become of practical avail. The mind can think while the hands are busy—indeed, always does—and if there is not something useful to think about, that which is unprofitable or positively injurious will occupy the thinking powers. Then talk, tell what you have read at each opportunity, and add whatever valuable thoughts you may have. "The more is given, the more is had," of such information. Special journals, such as bear on the line of your daily work, or that of your family, should be read. Scarce a copy of a household journal is read without making one able to save as much time, through its suggestions, as is consumed in its reading. Where there are little ones, their friends in the literary world should not be neglected. Every possible improvement in home training is welcome to the earnest mother, and she realizes how much lighter her tasks become when she catches the enthusiasm of other mothers. Let her read these with the children, read them aloud, when suitable, then talk them over together. As soon as the children themselves are old enough, they should be encouraged to read aloud, which will be another means of accomplishing the same end. Let her who would be a typical modern woman study her circumstances, and unexpected ways to find time for reading will open up before her, which she had not before thought of.

HOW KEEP UP.

The matter of keeping pace with the great events of the times we would not urge as one of woman's rights, though it is one which every intelligent woman is anxious to retain, but we would urge, because it is a child's right, to have intelligent, progressive parents. Especially is this true of the mother, whose constant care the child is. How can the true mother rest content when she is unable to satisfy the cravings of her child's highest nature? To refer them to papa with their questions is most humiliating, when for all, or nearly all, physical wants the mother is the first source to which they apply. How soon they come to doubt mamma's knowledge! "She doesn't know. Mamma can do the mending, washing, ironing and cooking better than anybody else; but then, she doesn't know very much about our lessons, or about what is being done over the world. I know more than she does about them." How long does it take for such a child to lose confi-

dence in such a parent's judgment? "Of course," they argue, "she means all right, but she doesn't know." Not a very strange thing, after all, that they should choose to do as they please when a difference occurs. Mothers must know, if they wish to retain their rightful authority over their children. Another thing which grieves parents' hearts intensely is to see their own children fall behind in their childish endeavors. There is much more in arousing the sleeping sensibilities of the child than there is in assisting it to knowledge, for the craving intellect will take care of the latter if given an opportunity. No one can awaken the sensibilities so effectually as the mother, and she can not do it without being what she would have her child be—intellectually awake and progressive. And we would urge woman to be progressive and thoroughly informed, because it is man's right that she be so. There are duties to brother, father and husband, which, turn as she may, woman can not cancel. They must be met, else she fails in the common sphere of daughter, sister or wife. Among these is that of being well informed. Man and woman should be to each other a continued inspiration. This can not be with sleeping faculties. But granted that all things are so, how shall the average woman attain to anything like a fair knowledge of current events? So much of her time is absolutely required to-day to do work the like of which she did yesterday, and from which to-morrow can afford no relief. Shall she neglect her present duties to do something else to which she is unused? The true general sees what points must be taken, and marshals his forces for their capture, making all secondary matters accommodate themselves as best they may. It is so in life. We must compass such things as must be, though others do not receive the attention we would like to give them. Now, time for reading is one of the "must bes;" health is one of the "must bes." How shall time be given to reading without taxing the strength beyond the limits of healthful living? This question suggests some practical hints.

"SHUT IN" ONES.

Of how much there is to dishearten a confirmed invalid, no one without practical experience can form any just estimate. The distracting effect of physical pain, and the discouragement resulting because of being shut away from the great centers of human activity, which do so much to quicken the impulses toward true living, tend to rob life of its sweetness and ambitions. But it is not an uncommon thing to learn of such a person, through self forgetfulness and sterling worth of character, moulding, more largely than any other, the lives of those about her. It is related that Mrs. Phœbe E. McKell, of Chillicothe, Ohio, though an invalid for thirty years, has been, notwithstanding, a diligent student of the foremost scientific writers of the day and an interested reader of current literature. She is an able and earnest advocate of equal rights, and at seventy-eight years of age is the center of the progressive work in her community. How many of these seventy-eight years have been added to her life because of her practical broad-mindedness, we are, of course, unable to say; but certain it is that one

of the surest ways to foil disease is to neglect it because of an absorbing occupation. And what a consolation it must be to feel that, even though shut in, usefulness is not prevented. Some one has suggested that the "shut in ones" would better be re-christened the "get up and get ones," and it would become unnecessary to belong to either party. It is true that the best doctor's medicine is that prescribed by Dame Nature herself, composed of sunshine, fresh air and exercise, yet there are those for whom it would be folly to hint such a prescription. For them, a pleasing occupation is the only ameliorating circumstance. Some good cause, some work of benevolence or sisterly goodness, they may further by giving to it of their time and thought, which otherwise would be spent in entertaining their ever present companion—disease. So doing, they may brighten their own lives and help others.

THOROUGHLY PROGRESSIVE.

If the metropolis of Oregon, in one way more than another, shows her progressive spirit, it is in her public school system, which, with the school buildings, was the admiration of the large number of eastern teachers who visited the city during the past summer. It is of the practical manner in which the school board recognizes woman's instructive ability that we would speak. The wages are high, and much is required of the teachers, yet, out of the eighty-four teachers, all but six are women. Two of the eight city schools have ladies for principals—Miss A. M. Burnham has been principal of the Failing school for some time, at a salary of \$1,800.00, and Miss Ruth E. Rounds enters upon the responsible position of principal of the North school, at a salary of \$1,600.00—both of these ladies having taught a number of years in other departments of the city schools. But a signal action of the school board is the recent election of Miss Ella C. Sabin, formerly of Windsor, Wisconsin, to the position of city superintendent and principal of the high school, at a salary of \$3,000.00. Miss Sabin was a tried teacher of twelve years in the city, part of the time being spent as principal of the north school. During the twelve years, she had never been tardy nor lost a day. She had, a short time before, been elected to a professorship in the State University. The position now held by her is no sinecure—to oversee eighty-four teachers and between six and seven thousand pupils; to examine the work done from the infant class of the eighth grade to the senior class of the high school; to look after the condition of the water pipes, furnaces, sidewalks, etc.; to take charge of supplies and see that they are economically used; to take charge of book accounts; to conduct official correspondence; and to discharge the duties of principal of the high school, with the multitude of duties that word implies. However, the excellence of the school system reduces these duties to the minimum, else it would be impossible for one person to compass it all, which, at best, seems a Herculean task.

GENERAL OVERSIGHT.

One of the best read ladies I ever knew said she never rose in the morning without first planning the work of the day, giving to each task its time and place. This may be practicable to every one; but the evening before is usually the better time. If the cares are many and miscellaneous, a slate should be kept for the purpose, and the best possible outline of the work made out. Then all loss of time by mismanagement is avoided. "A place for everything and everything in its place," order, punctuality, clockwork in housework, these things must be insisted upon, and the family should no more think of breaking into this arrangement than they do of disarranging the busi-

ness of the master of the house. It is the homekeepers that give most heed to the general oversight, who have the least worry with details and most time for reading.

BRIEF NOTES.

Anna Dickenson is again before the public as a campaign speaker.

Miss May W. Whitney takes the place held by Maria Mitchell as professor of astronomy at Vassar college.

Mrs. Ellen M. Mitchell, a sister-in-law of Maria Mitchell, the astronomer, has been appointed a member of the Chicago school board.

A young woman at Beloit, Kansas, was recently paid the bounty on nine young wolves, which she had captured while herding cattle.

The Emperor of Japan has created the "Order of the Crown," to be exclusively bestowed upon women of distinguished merit.

Queen Victoria has given £70,000, the balance of the women's jubilee offering, to St. Catherine's Training Hospital, for nurses of the London poor.

Mrs. J. A. Renter, of New York, has invented a parasol frame with an adjustable cover, so arranged that it will only be necessary to own one frame, and covers may be varied at pleasure.

Miss Mary Garrett practically controls the affairs of the Baltimore & Ohio railway, of which her father was president, and is only prevented from becoming his successor because she is a woman.

The national W. C. T. U. will hold the next convention in the city of New York, the latter part of October. The New York state convention will meet in Lockport the last week in September.

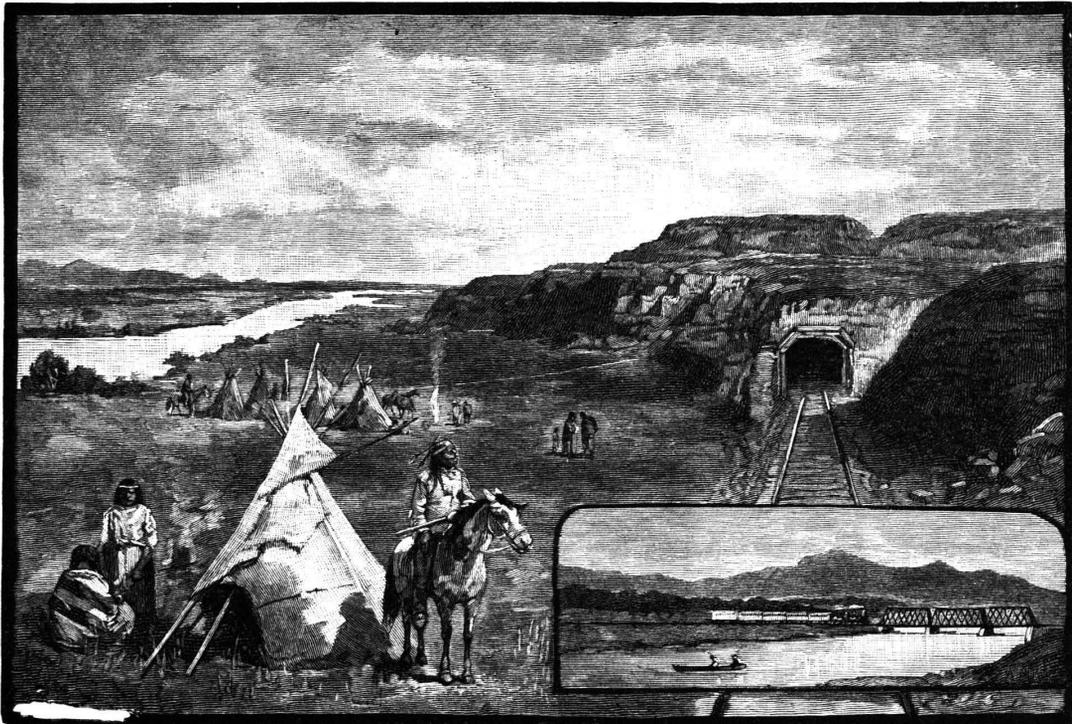
Miss Rebecca Wright, now Mrs. Rensal, who gave General Sheridan the secret information by which he won the battle of Winchester, is a clerk in the treasury department at Washington. She has among her treasures a gold watch bearing the inscription: "Presented to Rebecca L. Wright, Sept. 19, 1867, by Gen'l Phil. H. Sheridan. A memento of Sept. 19, 1864.

The school census corps of San Francisco consists of thirty-nine men and one woman, Mrs. M. D. Hartley. This is the first time, to our knowledge, that a woman has held such a position. It was tried as an experiment. The politicians said that "a woman could not do the work," and that "such an appointment would not be legal," but they were convinced of the legality, and Mrs. Hartley has proven her ability by excelling the thirty-nine men. Superintendent Anderson says that she gives perfect satisfaction in every respect, and that hereafter he is in favor of giving all the census appointments to ladies, except where it would not be agreeable for them to go. Mr. Spaulding, the chief census marshal, and Mr. Linch, first assistant marshal, expressed themselves in a similar way. Verily, woman's worth is meeting with favor in many practical ways.

Northwestern News and Information.

BLACK COD BANKS DISCOVERED.—The schooner *Theresa*, Captain Olsen (H. Saunders, Johnson street, owner), arrived in the harbor last evening, nine days out from Saunders harbor, South Skidegate channel, Queen Charlotte islands, so called in compliment to the enterprising owner. The prevailing winds being easterly and southeasterly, with calms, retarded the homeward voyage. The *Theresa* has a full cargo of black cod, having over three thousand salted fish in her tanks. The schooner is clean, trim and taut, and the fish well preserved and in good condition, free from any disagreeable smell. Some young cod, about the size of a small herring, and in appearance something like mackerel, were taken off Cape Scott. The west coast soundings show the difficulty of deep sea fish-

water about three-quarters of an hour. It took three hours to haul it in and take fish off the hooks. The hooks used were not of the proper pattern. A fifteen-pound line answered the purpose very well. The season lasts all the year round, so Captain Olsen gleaned from the Indians. The information furnished by the Indians proved invaluable in gaining a knowledge of the grounds and taking soundings, in which the *Theresa* was employed most of the time, there never having been any survey made of these waters. As the Indians took their bearings to the fishing banks by land marks, Captain Olsen took the proper bearings and noted the same in his log and diary, as a practical seaman with a thorough knowledge of northern waters. Owing to the want of "dories," and the impractica-



BIG HORN TUNNEL AND BRIDGE.—SEE PAGE 570.

ing in two hundred and fifty fathoms of water. The coast offers good anchorage, especially at Saunders harbor, being three miles long and two cables wide, and soundings of from fifteen to thirty fathoms, with sandy bottom. Tasso harbor offers the best fishing grounds, the cod being closer in shore than elsewhere. The *Theresa* arrived on the fishing grounds August 12, her mission being to discover the resort of the black cod. The banks have been explored all along the west coast of Queen Charlotte island, and the fishing grounds proven to exist along its entire length, about two miles from the shore, in from two hundred and fifty to three hundred fathoms of water. The *Theresa* was poorly provided for fishing purposes, but made the attempt with the scant appliances at command, and rigged up a trawl of three hundred hooks. On first trial it was in the

bility of anchoring in such a depth of water, Captain Olsen employed the Indians to catch the fish in their own rude, but ingenious way. Their hooks are made of "cang" wood, and the lines are furnished by nature. The strings of kelp along the coast, on being dried, make a line of any length. The spear is also greatly used by them in capturing the fish, in which they display great dexterity. Captain Olsen thinks that steam schooners would be just the thing for deep sea fishing along the coast. There is plenty of coal at Skidegate channel. There are many excellent harbors all along the coast, and nature offers materials and every facility to carry on an extensive fishing trade, in magnitude equal to that of Newfoundland. The livers were saved and left to rot, and now produce an oil void of smell or disagreeable taste, which is claimed to be as bene-

acial to disease as cod liver oil. A sample will be submitted in a few days for trial by our leading chemists. Mr. Saunders is awaiting the arrival of Captain Myers, in order to dispatch another expedition, properly fitted out for the fishing, with four or five dories, lines, etc., and a crew of white fishermen, when it is expected that some four or five trips can be made before the sealing season sets in next year, thus employing the schooners and crews all winter, instead of being laid up idle. There is a large and increasing demand for the black cod of this coast, both in California and Eastern Canadian and United States markets. Mr. Saunders talks of forming a company to carry on the fishing on an extensive scale, and as a good speculation it ought to meet with great favor from our enterprising merchants and capitalists. Owing to the want of barrels, the fish for the present will be dry salted instead of being packed in brine.

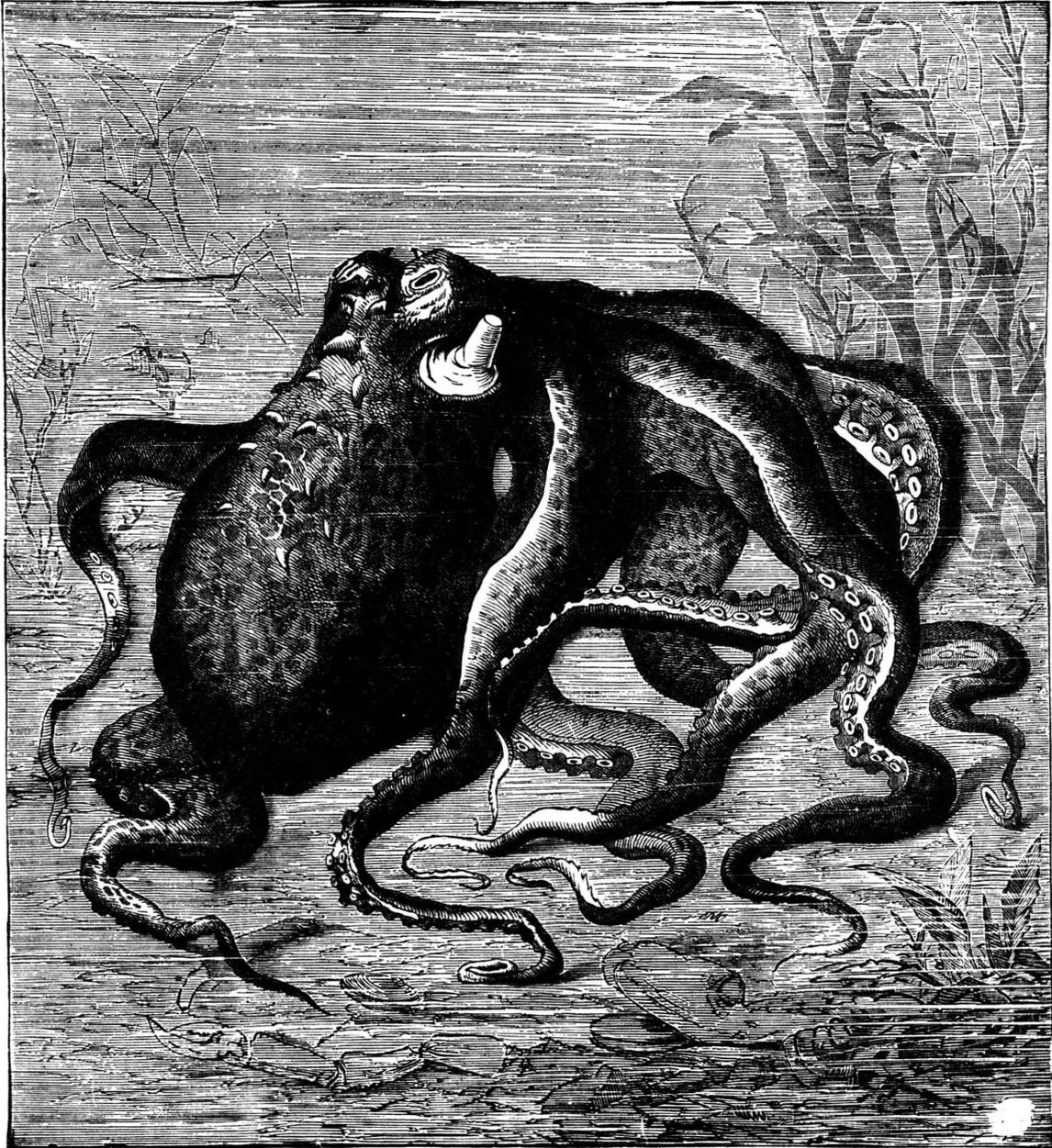
COAST DEFENSES OF BRITISH COLUMBIA.—The manner in which Great Britain proposes to fortify the entrance to the Straits of Fuca, so as to completely command them, and thus, in case of war, effectually blockade Puget sound, is thus described in the *Victoria Times*: "Hearing this morning that W. J. L. Wharton, Esq., hydrographer to the R. N., from the admiralty, White Hall, London, and F. R. S., was here in connection with the colonial defense, a *Times* reporter was immediately dispatched to Esquimalt. The circumstance of Mr. Wharton's mission not being generally known, and as admiralty undertakings are generally dark, the means of obtaining any information under the circumstances are not easy to come at. However, the man of the *Times* was equal to the occasion, and elicited the fact that H. M. ship *Caroline* will leave her moorings at Esquimalt early on Monday morning for San Juan bay, having on board the hydrographer, who is at present on a tour around the empire in connection with the colonial defense committee. San Juan bay occupies a position opposite to Cape Flattery, and offers safe anchorage to vessels of all classes, and with a breakwater against the winds from the southwest, would be one of the finest and safest harbors on the North Pacific coast. Fortifications erected on the headlands of this magnificent harbor would practically command the entrance to the straits against all powers. The distance from the harbor point to Cape Flattery is only twelve miles from land to land, within easy command of guns placed in position at San Juan bay. The total absence, it may be said, of any harbor or anchorage on the opposite side precludes the chance of any opposition from that direction, and thus would the possessors of this strategic point be enabled to command the Straits of Juan de Fuca; thereby, also, practically blockading all the sound ports. The importance of this strategic point can not be too strongly urged in any scheme for our coast defenses, and any steps taken with a view to securing so desirable an end will be watched with interest. In case of hostilities, our increasing trade in the China, Australian and other lines, also our deep sea and seal fishing fleet, would have the harbor of San Juan a safe refuge from the storms of the Pacific and the depredations of hostile cruisers. The harbor of San Juan affords good anchorage to any depth, and with the addition of a breakwater to defend it from the prevailing winter southwestern winds, would be invaluable as a harbor of refuge. Here, in case of hostilities, could convoys assemble free from the guns of the enemy and safe from the storms of the Pacific. The importance of this harbor can not be too much commented upon, and shows with what a careful eye the imperial authorities watch over the interests of the colonies. If we are to create an ocean trade with China, Japan and Australia, every point of vantage

must be taken advantage of, both in a strategic sense and that of safety from the elements. The safer the route in both senses, the more it will be patronized by the mercantile marine, and its security, as a matter of course, is of the first importance. With suitable fortifications at San Juan bay, we command the entrance of all ports on the northwestern shores of the Pacific. As a harbor of refuge against the elements, it is of the greatest importance. Captain Devereux will accompany the deputy minister of marine, W. Smith, to inspect the harbor of San Juan, with a view to the establishment of a lighthouse and the proposed breakwater, and will report to Ottawa their views and suggestions for the guidance of the dominion government. Steps are to be taken at once which may, in both features, be attributed to present complications with the neighboring republic, or to the scheme of colonial defenses. Besides, if the ocean trade of China and Japan is to be developed, we must have lighthouses and harbors of refuge along the western shores of the island of Vancouver, as, in order to gain the shortest and most expeditious route, the western shores must be skirted closely."

SEVEN DEVILS COPPER DISTRICT.—Along the Snake river, on the Idaho side, between Weiser and Lewiston, is a range of mountains known by the rather more appropriate than elegant name of Seven Devils. The range is about sixty miles in length and ten to twenty miles wide, and the principal peaks, of which there are seven, rise to an altitude of nine thousand to ten thousand feet. The formation is an eruptive granite, with extensive overflows of dolerite and feldspathic porphyries. In the porphyritic rocks near the southern terminus of the range, lenticular veins and segregated masses of silver-bearing iron ore are found, few of which, however, appear to possess great value or give encouraging evidences of being profitable producers. At the western base of the most southern peak, is the Seven Devils copper district, the most important mining section, so far as discovered, in this range of mountains. The vein can be traced with a few intermissions, for a distance of five or six miles, and shows ten or twelve fine prospects. The ore is nearly all chalcocite and bornite, except where reduced to carbonate by aqueous and atmospheric agencies. It is very clean, and a large amount of ore can be secured that will average over forty per cent. metallic copper. Four to six feet clear of this class of ore is disclosed in four or five of the prospects, accompanied by great quantities of carbonate and silicate of copper. The ore, where associated with gangue, carries garnets, calcspar and quartz, although the latter is not very general. The vein has for its foot wall the eruptive granite, while its hanging wall is a dark dolerite. Between these two formations is found more or less limestone, and the ore is usually associated with it, although in places no lime is visible, and the vein occupies the entire opening between the dolerite and the granite. Very little work has been done in the district, the deepest development being less than sixty feet, and few openings are over fifteen to twenty feet, still one can calculate upon almost one hundred thousand tons of ore practically in sight. One of the interesting deposits is that disclosed in the Peacock mine. The surface here, for an area of one hundred and fifty by three hundred and fifty feet, is covered with carbonate ore to an average thickness of about ten feet, the ore averaging about twenty per cent., and mining \$5.00 in silver and some gold. The higher grade copper ores return assays of fifteen to twenty-five ounces in silver and a little gold. Both to the north and to the south of this district are smaller veins carrying gray copper and quartz, and assaying well in the precious metals. The copper mines are owned largely by Mon-

tana parties, among whom are Ex-Governor Hauser and Albert Kleinschmidt, although some good mines are still controlled by individuals. To the northward of this district, the country for a distance of sixty miles is comparatively unprospected, and seems to present as fine a field for the intelligent and industrious prospector as can be found anywhere in this country. The same granite and eruptive rocks prevail, and innumerable fa-

there are many more such veins to be discovered in these mountains, there can be little doubt, as this is entirely virgin territory and has rarely been entered even by hunters. It is regarded very rough by the people of the northwest, but compared with the silvery San Juan, or, for that matter, with much of Colorado, it is very fair, and presents no obstacles of a serious nature.



THE CUTTLE FISH OF PUGET SOUND.—SEE PAGE 564.

vorable mineral indications are everywhere encountered. Just north of the copper district are large mountains of pyritiferous quartz porphyry, full of iron, and the gulches nearly all carry placer gold and show good float. In the Summers district, about twelve miles northeast of the copper bearing area, quartz veins in porphyry have been opened during the past season, that show some very rich silver and gold bearing rock. That

IRRIGATION IN THE GALLATIN VALLEY, MONTANA.—The incorporators of the Upper West Gallatin & Bozeman Canal Co. have transferred their franchise, and all the rights and claims under it, to the newly incorporated company known as the Gallatin Canal Company, for the consideration of the sum of \$18,000.00. The new company, composed of Albert Kleinschmidt, Walter N. Granger, J. D. McIntyre and A. J. Melisch, has ex-

ecuted a good and sufficient bond as security that the canal will be completed by July 1, 1889. The preliminaries having thus been satisfactorily arranged, there is nothing now to prevent the new company from commencing the construction of the canal at once, which we are assured the projectors will do. Several contracts have already been let, and the great enterprise will be fully under way as soon as men and teams can be secured. A large portion of the work on the ditch will be done this fall. From fifty to one hundred teams, we have been informed, are already engaged, and will be at work on the line of the canal next week. Water from the canal will be furnished the stockholders so that the cost of irrigating their land will not exceed about \$1.00 per acre. Those who are not stockholders may have to pay a trifle more than this. The cost seems quite reasonable, considering the benefits which will accrue to the farmer, in the way of bounteous crops, as a result of having sufficient water to irrigate the prolific soil. It is only occasionally that crops can be raised to advantage in Gallatin county without irrigation, hence a good supply of water is one of the essential requisites to agricultural success. As the *Register* has heretofore stated, the completion of this great enterprise will be of immense advantage to the farming community, as well as to the people of Bozeman. Thousands of acres of land, now lying unproductive in the valley, will be made to "bud and blossom as the rose," or, to be a little more practical, the products of the farming community will be very largely increased. There is already a good home market for all the produce that farmers raise in Gallatin county. There would hardly be a surplus for shipment outside of the territory if the supply were increased a hundred fold. Montana is bound to increase in population during the next decade in a ratio unparalleled in her past history. The majority of this increase will be engaged in mining and other enterprises aside from agricultural pursuits. The demand for farm products will, therefore, be greatly in excess of the supply, and this fact alone ought to insure good prices for farm products. Go on with the ditch. Let it be deep enough and wide enough to convey at least half the water that now flows in the West Gallatin. Its waters will be as fruitful a source of wealth to Bozeman and Gallatin county as the overflowing of the banks of the Nile to the inhabitants of Egypt.—*Bozeman Register*.

THE CUTTLE FISH OF PUGET SOUND.—Among the strange denizens of the deep which are found in the waters of Puget sound is the one popularly, but erroneously, called the "devil fish." The true name of this strange animal is the "cuttle fish," often called "octopus," a corruption of "octopod," the name of a member of one branch of the class. The devil fish, sea devil or angler, is an entirely different specimen, an ugly looking fellow with a huge head and mouth and a small body. The cuttle fish belongs to the great family of *mollusca*, class *cephalopoda*, branch *siphonapoda* and order *dibranchiata*, consisting of the argonaut, the octopod and the decapod. The particular fish under discussion, an engraving of which is given on page 563, is the octopod, and differs but slightly from the decapod. The cuttle fish consists chiefly of an enormous muscular stomach and long tentacular arms. In the octopod the arms, eight in number, are symmetrically arranged around the mouth and vary in length, having rows of suckers on their inner surface, with which a partial vacuum is created by the contraction of the muscular fibres. The combined power of these suckers is enormous, and when once they have been applied to an object it is almost impossible to detach them. In addition to the eight arms the decapod has two long tentacles, having suckers only at their blunted and club-like ends. The cuttle

fish has a sack of inky fluid which it emits when in danger, so discoloring the water as to prevent it being seen, thus giving it an opportunity to escape. For this peculiarity it is called "dintenfische" (ink fish) by the Germans. The fluid is brown or black and the color highly indestructible, and was formerly employed in the manufacture of sepia. Many thrilling stories are told by seamen of adventures with the cuttle fish, and fishermen often have experiences with them that are far from pleasant. The sensation of feeling one of those long, snake-like arms sliding over the edge of the boat and fastening its powerful suckers on the arm or leg of the occupant, must be horrifying to the unfortunate victim. In the grasp of this dread fish a human being is powerless, and unless he or some brave comrade promptly chop off the grasping arms, his fate is certain to be a horrible one. Pearl divers in the Gulf of California have terrible experiences with this monster, which they fear more than the dreaded shark. Sailors' yarns have made the cuttle fish a monster no less wonderful than the ancient dragon. Pictures have been made showing a vessel in its clutches, the monster being represented as having no less than a hundred arms, some of them so long as to reach to the top of the ship's masts. Absurd as this is, the animal is large enough to be an extremely unpleasant antagonist for the occupants of an ordinary boat. In Puget sound they have been caught with arms and body twelve feet in length. A fish of this size could devote two arms to the task of overtruning the craft, and two to each of three occupants. It is fortunate that they are extremely rare, or at least, that they seldom make their appearance where their presence would be undesirable.

BAKER COUNTY MINERAL DISTRICT.—There is small room to doubt that within the next twelve months the miners of Baker county will be given a better show to work their properties than they have ever had since the first pick was struck into our many paying claims. Dating from the early '60s, up to the advent of the railroad, some four years ago, the mines of this section have been worked on the most primitive methods, and when the time came that afforded them transportation for their ore, the expenses attached to such shipments have been such as to render this method of realizing on the fruits of their labor very unsatisfactory to those who were able to avail themselves of the terms offered, while for the miner in a small way there was no show whatever. The crying need of Eastern Oregon, ever since the fact has been determined that this is a paying mineral producing country, has been for some means whereby not only the miner might be aided in the work of developing his claim, but the prospector, also, might be encouraged to ferret out the hidden treasure that yet lies concealed in our hills. Every day in the week our assay offices are visited by men who have rich specimens taken from the surface of some ledge discovered by them. The certificate of the assayer is of the most gratifying and encouraging nature, and barring this one thing of development and transportation of the ore, they would be fully justified in believing that, in mining parlance, they had "struck it rich." In nine cases out of ten, however, the discoverer finds it impossible to successfully work his claim, and then follows the inevitable—he must sell. As to the amount he realizes on this method of "working" his bonanza, any miner will tell you that it is exceedingly small—seldom worth the trouble and expense incurred in finding it. The change must come, and we believe that another year will witness it. Reduction works have been established, and the investment has paid in other sections where the mineral output has been not near so great and lasting as that of Baker and Grant counties. Capitalists are beginning to turn their attention to

this matter for the money there is in it, and the inauguration of an enterprise of this kind will surely be the forerunner of a new era in the history of mining in Eastern Oregon. The natural conditions of this country warrant it, and time will demonstrate whether or not these advantages will be seized and brought to aid in the development of the largest, richest, and yet the least known, mineral belt in the state of Oregon.—*Baker City Reville.*

GOLD QUARTZ IN THE CASCADES.—Reports of the recent discovery of new mineral ledges in the Cascade mountains, in Washington Territory, have been received from several localities, the most definite of which is the following rose-hued editorial in a North Yakima paper: "The two parties of pros-

is talk of constructing a wagon road to the Nelson Springs, thus bringing the mines within twenty miles of wagon transit. The members of the parties account for their wonderful discoveries at this late stage by the fact that the high peaks between Tacoma and Adams are more bare of snow than for years, thus affording an opportunity for scientific investigation and prospecting. Residents of Yakima who are desirous of acquiring mineral wealth can not afford to rest on their oars; we can not long keep these wonderful discoveries from the knowledge of the outside world. We should not be surprised, ere a month rolls round, if thousands of miners were in North Yakima on their way to the rich and almost inexhaustible gold fields of the Tietan. Some of the ledges are said to be six feet wide, with gold all through them; and on the South fork of the Tietan



LAKE TAHOE, IN CALIFORNIA AND NEVADA.—SEE PAGE 566.

pectors that left North Yakima for the head of the Tietan have returned. The rich specimens of gold quartz shown by the different members of the parties prove that they have struck it rich. Of course, there is great reticence as to the exact locality of the find, but there is no doubt but that some of the ledges are in the Tietan basin, in and about Goose Egg mountain. It has been well known for years that the bars of the Tietan were prolific in gold. Many of them have been sluiced and worked for years past, and that metaliferous quartz vein should now be found on the head of the stream, is but a natural consequence. There is much deep seated excitement in the city over these finds, some of the rock assaying \$1,150.00 a ton. Several large parties leave North Yakima next week for the new gold fields of the Tietan. Pack horses are in demand and already there

there is described a perfect mountain of quartz, full of mineral. We do not credit that theory, but, making all due allowances, there is no doubt but that this is the greatest "find" since the discovery of the Comstock lode, in Nevada."

BILLINGS AND BIG HORN BASIN.—Messrs. Church and Tompkins, representing two leading business houses of Billings, who returned last Saturday from a tour of the Big Horn country, report some rapid development of the oil wells of that locality. Eastern capital has finally found its way into that region, and already a large amount of machinery is on the ground, necessary to develop the property which has been lying dormant for many years. This property, when developed, as has been heretofore stated in these columns, is likely to rival the noted oil

fields of Pennsylvania; besides, the Big Horn country is a region which abounds in many other valuable resources. It is known as having few equals as a stock country, and its capabilities for the production of every variety of field and garden product place it at the front in this line. At Bonanza City, a town heretofore in name only, quite a boom is in progress. The plucky printer is on the ground, and promises to send forth the *Bonanza Herald* in a few weeks, singing the praises of a country heretofore almost unknown to the civilized world. But the question now of most importance to the enterprises of that region is that of transportation of their supplies. Shipments have been made over the Fremont & Elkhorn Valley line of the Chicago & Northwestern as far as old Fort Casper, and from there transported by wagon with much difficulty. The route from Casper is over a very broken country, not to speak of the lack of water and fuel, items that are considered first by overland transportation companies when establishing new freight routes. Fort Casper, the terminus of the Fremont & Elkhorn Valley line of railway, is about the same distance from the center of the oil operations as is the city of Billings. It is a well known fact that the only natural route from any present line of railway to the Big Horn basin is from this place. It therefore remains for the people of this place to change the order of things in the matter of supplies for that locality, which can be done by establishing a freight route from here and putting on the necessary transportation. This once done, it may give additional encouragement to the two railroads projected from here south.—*Billings Gazette*.

BAKER CITY'S GROWTH.—People who arrive in Baker City these days see evidences of thrift and prosperity on every side. People who have seen the Baker City of two years ago, and now view the Baker City of to-day, note its growth at a rate unsurpassed by any other town in Oregon. Within the past twelve months the foundations of upwards of two hundred new buildings have been laid in Baker City, many of them for large and expensive brick and stone business blocks, but the greater part for residences and homes for the people. And upon these foundations buildings have been erected that would be a credit to any city. There is at present no cessation in building operations, and work will continue far into the winter. The demand for residences to rent was never greater than now, and will increase from this time on. To-day there is not a vacant house, either residence or business, in Baker City. One hundred houses would meet with ready rental if they were built. It is fair to estimate that there will be close to one hundred buildings erected here before the close of the year. The stranger may ask, "What is there to justify this growth? What is there to sustain it?" The citizen points with pride to the rich valleys surrounding Baker City, to the mountains, north, south, east and west, filled with precious metals, the quality of which is not excelled anywhere on the Pacific coast; to the extensive grazing lands, where thousands of cattle, horses and sheep are fattened to supply the markets of the world; to the vast timber belts that surround Baker City. These and more are the resources of Baker country, and that which goes to make Baker City the "Queen City of the Inland Empire." Baker City has at the present time nearly four thousand population, and with the continuance of the rapid strides in growth which she has made in the past twelve months, Baker City will have eight thousand or twelve thousand in a very short time.—*Bedrock Democrat*.

SALMON EGGS FOR OREGON STREAMS.—Arrangements have been made by the Oregon fish commissioners with Professor

Stone, of the U. S. fish commission, to procure salmon eggs from the McCloud hatchery, in California, for distribution among the streams of Oregon south of the Columbia. Under date of September 7, E. P. Thompson writes of this matter as follows: "The parties taking these eggs will have to pay freight and the expense necessary to complete the hatching, which will probably take about thirty days. Wire baskets, holding about fifteen thousand eggs each, will be necessary, and they should be ordered from San Francisco immediately so as to be on hand when needed. We will be glad to furnish size, mode of construction, etc., to a party in San Francisco or here, who will make them. Wooden troughs will have to be constructed, but as lumber is so plentiful along the coast of Oregon this can be easily done. It is at this time difficult for Professor Stone to tell how many eggs he will have for us, but he thinks from three to five million. He has just commenced taking eggs at the McCloud, and it will be thirty or forty days before any will be ready for shipment to Oregon; but all persons wanting eggs should make preparations to take care of the number they desire, and write to the Oregon commission, St. Charles hotel, Portland, requesting a certain number of salmon eggs, and for any information they may need in fitting up their hatchery. Or, what would be better, is for parties to come and visit the Clackamas hatchery, and learn what they desire to know. I think that the eggs can be shipped by steamer from San Francisco to Coos bay, if parties will make arrangements with the company to look after the eggs for them and pay advance charges. The matter of completing the hatching of the eggs is very simple, and we can give directions by letter so it can be done. I think the wire baskets will cost about \$1.25 or \$1.50 each, and there is only one kind that is suitable. We are taking about one hundred thousand salmon eggs a day at the Clackamas."

LAKE TAHOE.—This beautiful sheet of fresh water is twenty-two miles long and ten wide on an average, about three-fourths of it being in California and one-fourth in Nevada. It lies in the summit ridge of the Sierra Nevadas, at an elevation of about seven thousand feet, and has been sounded to the depth of one thousand six hundred and fifteen feet. Through glacial action in past ages, ice must have been piled to the height of three thousand four hundred feet in the valley of this lake. The water in Lake Tahoe never freezes, and is generally smooth as glass and clear as crystal, permitting trout to be seen and pebbles counted at a depth of fifty feet. Its water changes color to a beautiful emerald or indigo blue according to the depth, and when disturbed by the fierce mountain winds, its waves lash the shore with foaming fury. A neat little steamer, capable of accommodating two hundred passengers, is provided to take tourists around the lake. Glenwood is the name of the village which is the business center of this region, and the accommodations for tourists are ample and excellent. It is the business center of the whole region bordering the lake. There are two hotels, the Glenwood and Lake houses, with excellent accommodations at very reasonable rates. The name Tahoe, given to the lake, signifies, in the Indian language, "Big Water," the same as applied to the ocean. At one time the lake was called Bigler, in honor of an early governor of California, but fortunately the original and more appropriate and euphonious title has prevailed. There are many points of interest in the vicinity, notably Shakespeare rock and Cave rock. The only drive of any note is from Tahoe City to Sugar point—the cost of making roads in that region being in most instances enormous—but it reveals some of the grandest scenery on the continent.

WASHINGTON & IDAHO R. R.—The O. R. & N. Co's. extension into the Cœur d'Alene mines is being constructed under the name of the Washington & Idaho Railroad Company. Supplementary articles of incorporation were recently filed by this company, showing all the projects now entertained by the company, including the lines to the mines and to Spokane. It is proposed to build the following railroad and telegraph lines: A line from Farmington, by the most practical route, to Spokane Falls; a road from a point on the above line near the forks of Hangman creek, in a north-easterly direction across the Cœur d'Alene reservation to a point near the mouth of St. Joseph creek, on Cœur d'Alene lake, thence in a northerly direction, along the east side of the lake, to the Cœur d'Alene river, thence in an easterly direction to the Cœur d'Alene mission, thence in a south-easterly direction along the South fork of the Cœur d'Alene to Wardner; a line to commence at or near Spangle, in a north-easterly direction to a point on Cœur d'Alene lake five miles north of the mouth of Cœur d'Alene river; a line from the town of Milo, Idaho, along the South fork of Cœur d'Alene river, to the town of Mullan, Idaho; a line from Mullan, in an easterly direction, to a connection with the line from Farmington to Spokane Falls, at a point twelve miles north of Farmington; a line from a point near the junction of the North and South forks of the Cœur d'Alene river, thence along the North fork and Pritchard creek to the town of Murray, Idaho, with a branch line from a point at or near the mouth of Beaver creek, up said creek to its source; a line from or near the mouth of Nine Mile creek in a northerly direction along said creek to its source.

MINING ON THE YUKON.—From reports of several miners who came down on the *Idaho* on her last trip, it would seem

that it is a waste of time and energy for miners to go to the Yukon placers. These miners, the first to return this season, report mining on Forty Mile creek as fair, though many places are worked out. The most paid yet by any one claim in the Yukon region was on Hamilton bar, where \$1,200.00 were taken out by sluicing in three days' running, night and day shift. Many miners have made nothing. Wages were \$8.00 to \$10.00 per day, flour \$17.00 per barrel, and beans and bacon thirty cents per pound. A reported strike on Beaver creek drew many old hands from Forty mile creek, and about seventy-five recent arrivals, who, however, were disappointed. Gold existed on the creek, but not in paying quantities. About a hundred of these miners went down to Saint Michael's hoping to secure passage by the revenue steamers or whaling vessels to San Francisco. Very few men are mining on Stewart river, and they with poor results. About a hundred men will winter on Forty mile creek. Three men died on the creek last winter of scurvy. Two men were drowned in the White Horse canyon, Yukon river, during the spring. An Indian killed a white prospector at a point far down the river, and white miners on the way to St. Michael's stopped at the village, demanded a young Indian, and after being assured of his guilt, hanged him. The Indians, as a general thing, are peaceable. It would seem that the results of the brief season in that region, even to the lucky

few, do not compensate for the hardships and expense, while the great majority of miners there have nothing whatever to show for their season's work.

SKAGIT RIVER MINES.—An eminent assayer from the mining regions of Colorado and California, who recently made a trip of some weeks through the Skagit river country in Washington Territory, speaks of the minerals of that region as fol-



THE BANANA TREE.—SEE PAGE 568.

lows: "I found ledges of excellent iron ore running from fifteen to fifty feet wide, and the croppings extending three thousand feet in length. I secured samples of this ore and reduced it, and find they run from forty to seventy per cent. metallic iron. The ledges are situated on the mountain and dip toward the river, affording every facility for cheap mining. The country is well timbered with pine and fir sufficient for all mining purposes. I found magnetic, hematite and carbonate ores. They are situated in a schist, and are properly a chloride. They are all below the coal measures, of which I found several of excellent quality, some being a very good coking coal carrying seventy per cent. of fixed carbon. Both coal and iron dip well for the most economical mining, some of the ledges cropping out within a stone's throw of the river, with a slope that would run it down to the very water. The transportation would thus be at a minimum of cost. I can see nothing to interfere with the cheap manufacture of good coke and merchantable pig iron. The LaConner mine is a tremendous body of coal, and the LaConner iron mine is also a fine property. I know of no country that affords such a fine field for the prospector as the Skagit. In every gulch I entered I found strong indications from the sandstone and slate of underlying mineral. Specimens of copper I found on every hand, and as for quartz, I traveled over miles of it."

THE BANANA TREE.—Visitors to the Mechanics' Fair have much admired two handsome young banana trees on exhibition in the botanical gardens. Bananas are a common sight in Portland at all seasons of the year, coming from Central America and the Sandwich islands, but the tree itself is something the great mass of people never saw. The engraving on page 567 gives a splendid idea of the appearance of a large tree with a bunch of bananas depending from it. The banana is a variety of the plantain family, and is a native of the tropics. It is largely used for food, as well as for exportation. With the exception of two or three palms, it would not be easy to name in the whole vegetable kingdom any plant which is applied to a greater number of uses than the plantain. The stem of the plantain, or banana, is from fifteen to twenty feet high, though there are varieties having a stem of only six feet. The leaves are very large, the blade being sometimes ten feet long and three feet broad, undivided, of a beautiful shining green. The plant is propagated by suckers, and a sucker attains maturity in about eight months or a year after being planted. The stem is cut down after fruiting, but the plantation does not require renewal for fifteen or twenty years. It has been cultivated successfully in hot houses. More than a hundred bananas often grow on a single stem, and so closely do they grow together that often tarantulas, the deadly insect of the tropics, are brought to the north concealed among them, and are found by the dealers when unpacking the fruit. The writer has seen several of these in the offices of Portland commission merchants. The banana grows more in favor each year, and no place is too remote for its exportation.

TACOMA'S NEW HOTEL.—Accompanying this number of THE WEST SHORE is a large engraving of Hotel Fife, the elegant hotel recently completed in Tacoma. The hotel was erected by W. H. Fife, one of the leading business men of the city, and cost \$125,000.00. The ground upon which it stands is worth \$125,000.00 more, and the entire property could be sold for \$300,000.00. Realizing the demand for such an enterprise, Mr. Fife began the construction of this immense and elegant building in August, 1887, and completed it in July, 1888. The structure has a frontage of one hundred and fifteen feet on Pa-

cific avenue, one hundred and fifteen feet on Railroad street, and one hundred feet on Ninth street. It is solid and substantial, consisting of heavy brick walls, upon a foundation of granite, the walls of the first two stories being twenty-one inches thick, and of the last three seventeen inches. The first floor on the Pacific avenue side is occupied by a bank and four large stores. Besides these and the lobby, dining room and barber shop, the building contains one hundred and twenty-six rooms, elegantly furnished, and supplied with all the modern conveniences of gas, water, electric bells, etc., etc. A large elevator and two broad stairways give easy access to the upper floors and ample means of egress in case of fire. Fire hose is kept on every floor. The entire building is heated by steam. Hotel Fife is conducted on the European plan, a first-class restaurant being kept in the hotel. With its five massive stories looming up above the surrounding buildings, it presents an imposing appearance, and is the largest building yet erected in Washington Territory.

QUARTZ ON TEXADA ISLAND.—Valuable ledges of silver, copper and iron ore are reported as having been discovered on Texada island, lying in the Gulf of Georgia, between Vancouver island and the main land of British Columbia. Rich iron ore has been mined there for many years, and is used by the Irondale smelter to mix with the local ore of Puget sound, but this is the first reported discovery of other metals. The ledges are located on the side of the island opposite Nanaimo. Several ledges were discovered and prospected for a distance of over a mile, with every indication of extending for miles further; in fact, the discoverers are of the opinion that the upper end of the island is one mass of minerals. The ledges will pay from the surface, and they are but a few yards from deep water, where large vessels can lie and take in cargoes of ore at the lowest possible expense. The discoverers have already recorded ten claims of the size allowed by law. Specimens of this ore have been sent to San Francisco for assay, and the returns are of the most favorable character. Some of the ore was also sent to the government assay office, but no returns have yet been received. Local experts pronounce the samples rich, one large piece being almost pure copper.

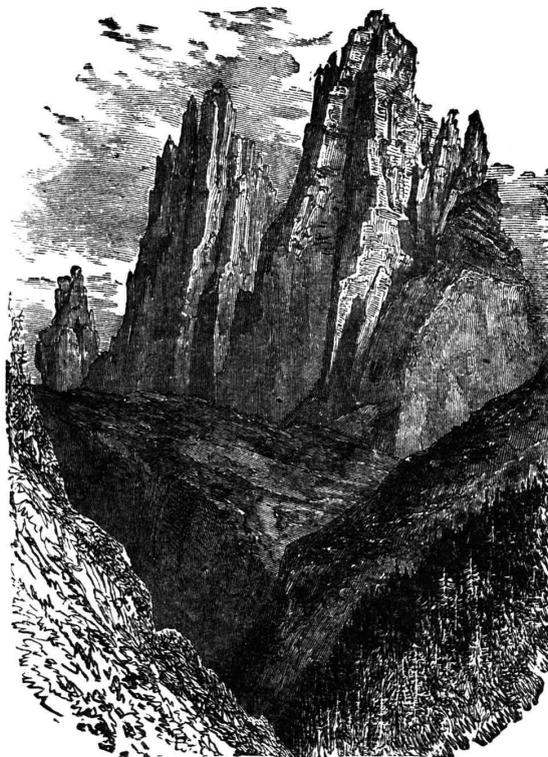
BORAX MINE IN OREGON.—One of the most important discoveries yet made in Oregon is that of immense borax deposits in Curry county. This deposit is on the Bay of Lomar ranch. It is of volcanic origin, and occurs in boulders of all sizes up to a ton in weight, imbedded in volcanic mud. The area of the deposit is half a mile in length and two hundred yards in width, with a depth of thirty feet. The bay forms a portion of a ranch of twelve hundred acres, and is half a mile wide, with good anchorage, and is protected from storms on both the northwest and southwest. The first shipment was made to San Francisco in September, by the steamer *Newsboy*. A town site will be laid out, a wharf built, and active mining operations at once begun. Chemists pronounce this superior to any borate of lime previously known, and as it lies within a stone's throw of the shore, where water three fathoms deep is only three hundred yards distant, the expense of getting it to market is reduced to the minimum. The borax deposits of California, Nevada, Chili, Thibet, Asia Minor and Italy, are severely handicapped by their position in the interior, and the expense of getting their product to market. A valuable industry ought to be speedily developed here.

ROCKY MOUNTAIN SCENERY.—One of the peculiarities of Rocky mountain scenery is the tall cliffs and spires of barren

rock that are to be seen in every portion of the range, such as are shown in the engraving on this page. The more prominent of these, especially along the routes of travel have received characteristic names, suggested by their peculiar form or location. The Rocky mountains were originally named "Shining mountains" by the French explorers in the first half of the eighteenth century, because of the manner in which they reflected the sun's rays, an effect supposed to be produced by great masses of metal; but when the venturesome Verendryes paid them a visit in 1742, and discovered that barren rock and snow, and not gold, produced the shining effect, they changed the name to "Stony mountains," from which our title comes by direct descent. Though the Frenchmen found no gold in the Rockies, the Americans have, and the millions of dollars of gold, silver and copper annually dug from the rocky breast of this great range entitle it to again receive its original title of the "Shining mountains."

A CHICAGO HOTEL.—Almost as old and substantial as the great city of Chicago itself, is its leading hotel, the Sherman House, standing on the corner of Clark and Randolph streets, opposite the magnificent City Hall. It is by far the most comfortable and homelike hotel in the city, and is a special favorite with those who desire first-class accommodations and courteous attention. The hotel is more centrally located with reference to the public buildings, places of amusement, railroad depots, ticket offices, street car lines, and the leading wholesale and retail business houses, than any other in the city. It is equally desirable for the transient traveler and for those who expect to prolong their stay in the city, while, as a family hotel, it is unsurpassed. Extensive and costly improvements have recently been made, and the hotel is prepared to meet the ever increasing demand upon its accommodations. The excellence of its management keeps it at the head of Chicago's caravansaries.

PROGRESS OF THE OREGON PACIFIC.—On the contract of Searle & Dean, of the Oregon Pacific railroad, work is being pushed vigorously. They have a large force of men and are constantly increasing the number of hands employed. The O. P. company has now nearly enough steel rails in San Francisco to put the road through to Boise City, Idaho. In Yaquina they are working the machine shops to their full capacity to supply the increased demand for material at the front. At the head office in Corvallis the clerical force is largely increased. The new contractors, Messrs. O'Conner & Barr, have about one hundred and fifty men at work. Several saw mills about Mehama are getting in readiness to cut large quantities of lumber, bridge timbers and ties to be used in constructing this line eastward.



ROCKY MOUNTAIN SCENERY.—SEE PAGE 568.

REAL ESTATE IN TACOMA.—No investments in the west during the past five years have proved more profitable than those in Tacoma real estate, and the opportunity to secure property rapidly advancing in value is still as good as ever. Identified with the real estate interests of the city is the name of George W. Traver, who has handled many hundred thousands of dollars of city and country property. Long acquaintance with Mr. Traver enables us to recommend him as a strictly honorable and trustworthy gentleman, and to assure those seeking an investment, that they can deal with him with all confidence of receiving careful attention. He makes a specialty of transacting business for non-residents, and will cheerfully answer all letters of inquiry by intending investors. Mr. Traver has recently moved into an elegant office in the new Hotel Fife block, where he gives all callers a most cordial welcome and courteous attention.

A COMPLETE ESTABLISHMENT.—One of the largest and most complete grocery stores on the Pacific coast is that of Chapman & Co., at Tacoma, the firm consisting of J. P. Chapman and M. Rosenbaum. These gentlemen came from California four months since and established themselves in business and now occupy one of the large stores in the Hotel Fife. They have a splendid salesroom, twenty-five by one hundred and twenty-five feet, facing on Pacific avenue, and warehouse on Railroad street. Chapman & Co. carry a large assortment of groceries, specially for family trade, equal in quality and size to any grocery in the United States. A large assortment of superior table wines and Key West and imported cigars is constantly carried in stock. An intimate knowledge of their business, courteous attention, and careful and conscientious business methods, have made Chapman & Co. the leaders in their line of business on Puget sound.

MONTANA DIVIDENDS FOR EIGHT MONTHS.—Nearly a quarter of a million dollars increase in dividends paid by Montana mines, stands as the record for the month of August, of which \$200,000.00 was paid by the lately organized Boston & Montana Copper Co., and \$25,000.00 by the old reliable Hecla Consolidated. The totals of dividends paid by Montana properties for the first eight months of this year are as follows, amounting in the aggregate to \$2,000,000.00:

Boston & Montana Copper Co.....	\$ 200,000.00
Granite Mountain.....	1,200,000.00
Hecla.....	120,000.00
Hope.....	50,000.00
Jay Gould.....	172,000.00
Montana Limited.....	320,000.00
Original.....	3,000.00
Parrot.....	72,000.00
Total	\$2,147,000.00

FURNISHING GOODS EMPORIUM.—Lewis & Co., comprising energetic young business men from California, is the name of the firm conducting the largest business in gentlemen's furnishing goods in Tacoma. This gentlemen's emporium is, in the size, quality and assortment of stock, in the elegance of its quarters, and in the business capacity of its managers, the peer of any establishment on the Pacific coast. It occupies a large double store in Hotel Fife, and its immense stock of gentlemen's goods, including a complete line of hats, is entirely new and of the latest and most fashionable patterns. The business has been established since the completion of the hotel, but the excellence and completeness of its stock has brought it at once into great favor, and given it the unquestioned position at the head, where its energetic and intelligent managers are certain to keep it.

BIG HORN TUNNEL AND BRIDGE.—The line of the Northern Pacific, in passing down Yellowstone valley, on the south side of the stream, crosses the Big Horn river, two miles above its confluence with the Yellowstone, on a substantial iron bridge six hundred feet in length, and not far distant pierces the rocky bluffs with a tunnel eleven hundred feet long. (See engraving on page 561). It was upon one of the tributaries of the Big Horn, known as the Little Big Horn, that the gallant Custer and his brave men fell in battle with the Sioux under Sitting Bull, and in honor of this heroic officer the county in Montana through which the river flows has been given his name. The valley of the Big Horn is fertile and its enclosing hills are covered with excellent grass for stock, but as they both lie in the Crow Indian reservation they are put to but little practical use.

A JEWELRY PALACE.—In one of the large stores in the Hotel Fife block, Tacoma, is a large jewelry store that is a perfect palace in elegance and beauty. Two years ago, J. W. Vaughn came from Kansas to Tacoma and engaged in the jewelry business. The growth of the city and the wonderful increase in the volume of his business rendered larger accommodations necessary, and a few weeks ago he moved into his present commodious quarters. Mr. Vaughn carries a complete assortment of diamonds, watches, clocks, manufactured jewelry of all descriptions, silverware and elegant cutlery. He is a watchmaker by trade, and gives his personal supervision to this branch of his extensive business. Everything that can possibly be

desired in the line of jewelry and gold and silver ware can be had in the latest designs at this palatial store.

RAILROAD IN SOUTHEASTERN OREGON.—Reports of the presence of parties of railroad surveyors in Lake county, Oregon, and Modoc county, California, have been frequent of late, and much conjecture as to what company they represent is indulged in. Both the Union Pacific and the Chicago & Northwestern are credited with the work, founded upon statements of the surveyors themselves. It is possible that both of those companies are looking up a route to San Francisco from Snake river. It is also announced that the Nevada & California, which is already constructed from Reno to Honey lake, has changed its name to the Nevada, California & Oregon, and will extend its line, through the region mentioned, to the Columbia river.

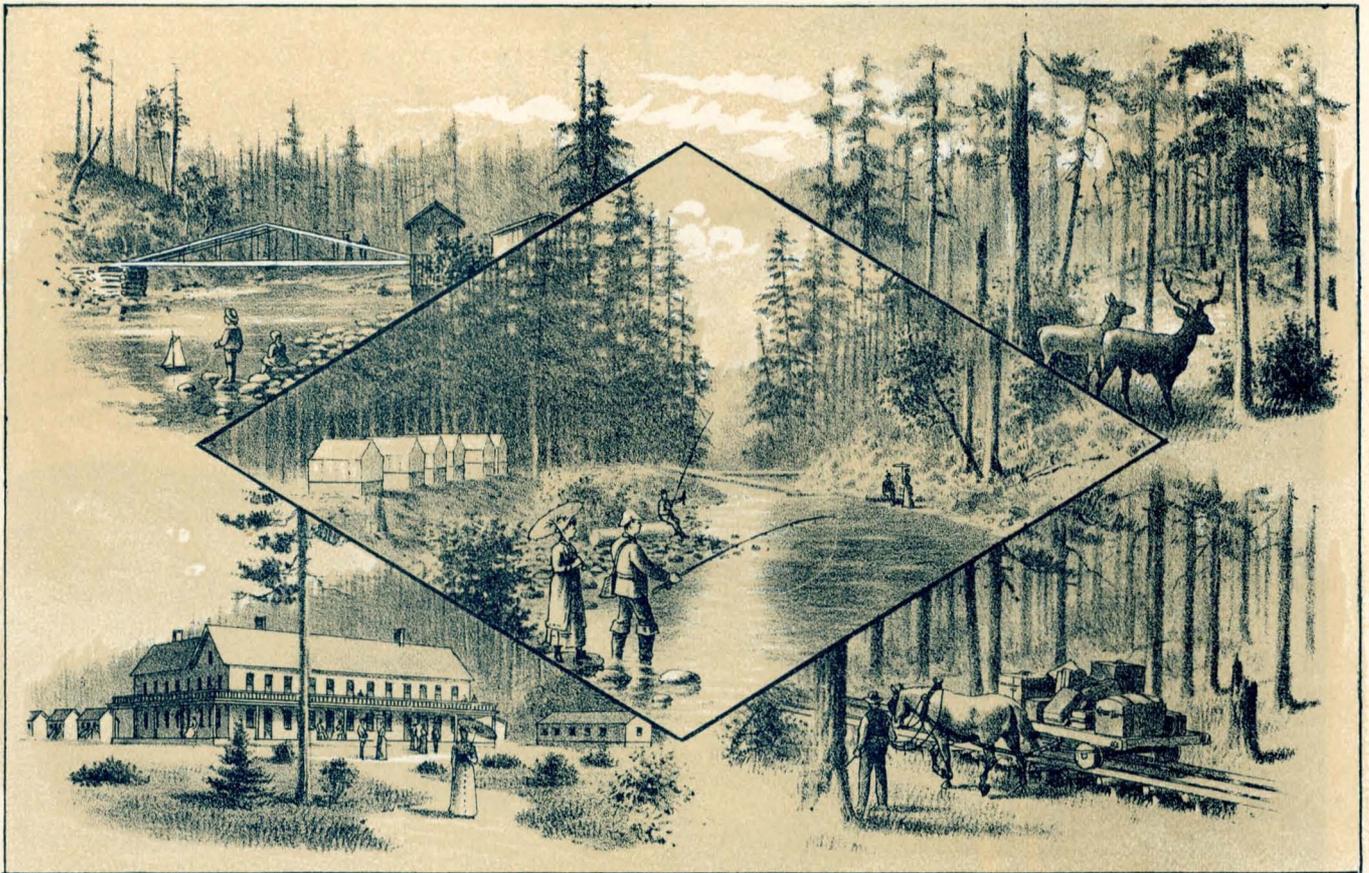
CHICAGO & NORTHWESTERN.—The best equipped and most popular line from Chicago to St. Paul, Omaha, Milwaukee, and the leading points in Northern Illinois, Wisconsin, Iowa, Southern Minnesota, Dakota and Nebraska, is the famous Chicago & Northwestern, the pioneer line of that vast region. Its cars are elegant, its road-bed solid and safe, its dining car service and sleeping car system perfect, and its management superior in every respect. Its connections with branch lines and trunk lines in every direction render it the best and quickest route for travelers, whether bound to the Pacific coast or to intermediate points. All who appreciate dispatch, ease, comfort and safety in traveling, will find them exemplified in the Chicago & Northwestern.

SMELTER AT TACOMA.—For a year past, more or less has been said of the proposed erection at Tacoma, by Denis Ryan, a St. Paul capitalist, of a huge smelter. Some time ago the Ryan Smelter Company was incorporated, but operations were postponed until the Northern Pacific had built its branch line to the Cœur d'Alene mines, now under construction. When this line is completed to Wallace, ore shipments will begin. The work of construction at Tacoma will soon be commenced, under the supervision of C. C. Perkins. The company owns mining interests at Mullan, and is building a saw mill and a one hundred ton concentrator there. Great quantities of machinery for the mill, concentrator and smelter are now in transit.

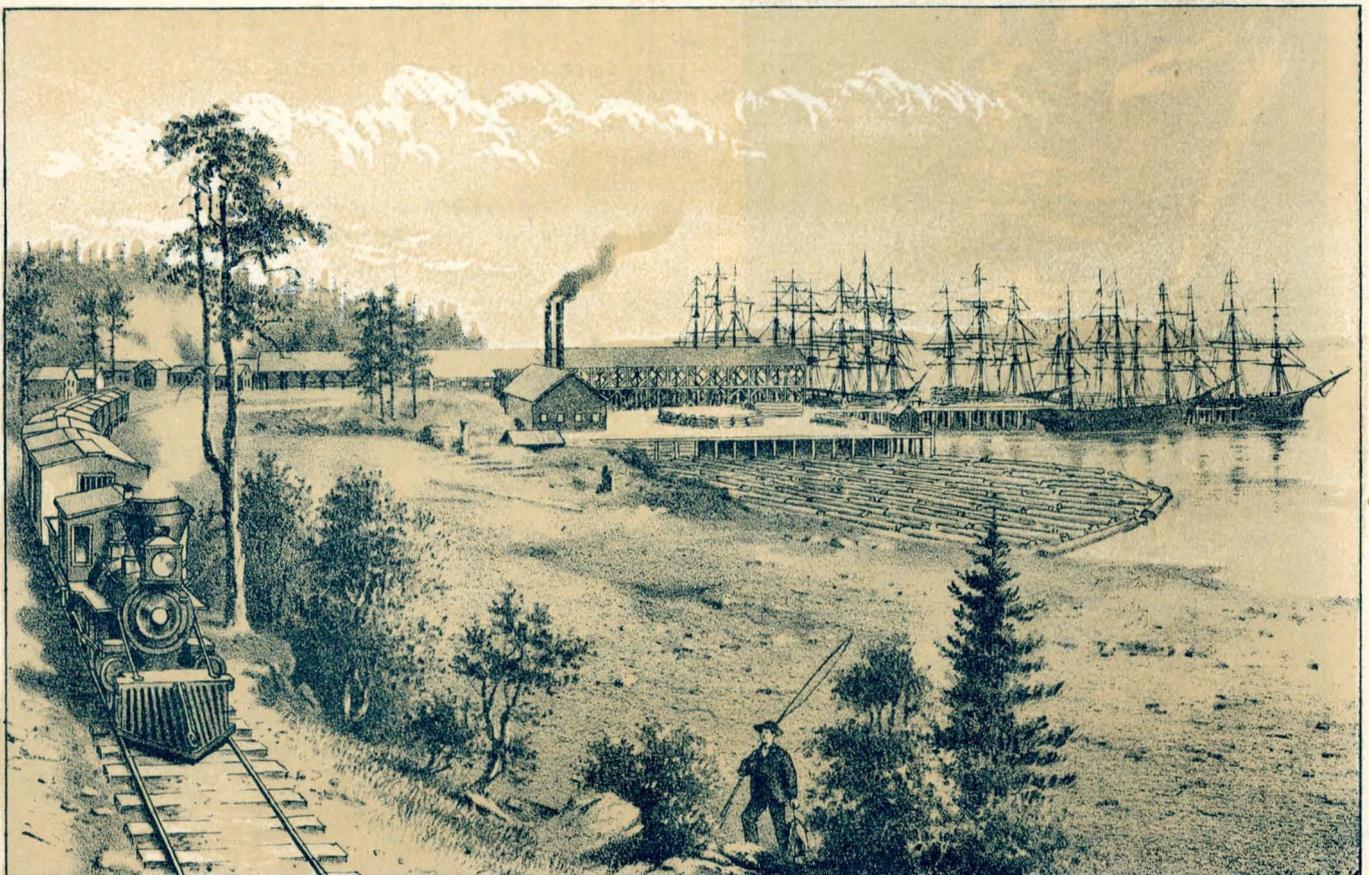
OCTOBER.

As counts the miser all his coins of gold,
Knowing that he and they too soon must part,
So count we all these bright October days,
Crowned with such wealth of beauty manifold;
'Tis pain and rapture both unto the heart.
"October, pass, with all thy brilliant ways;"
We cry, "nay, stay, we would not have thee go."
We hold thy garments with a clasp as vain
As it is close. What would we? Ah, not so
Did June, fair month, try us in her glad reign.
Better, perhaps, November's gloom and rain,
Gray skies, mist on the mountain side, fields brown,
Than 'mid such splendor strive such grief to drown—
Yet is it sweet unrest, and gentle pain.

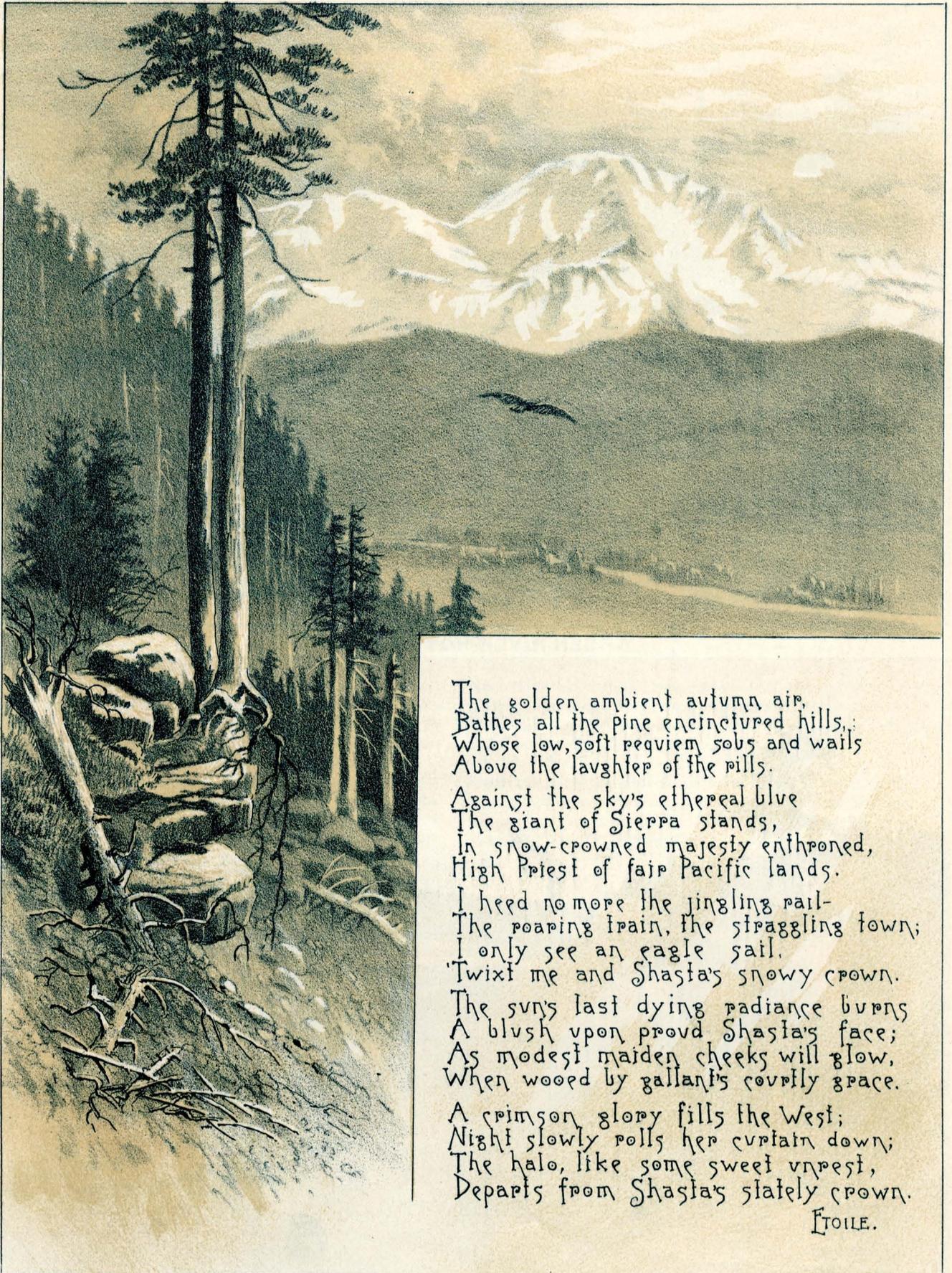
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GREEN RIVER HOT SPRINGS. W. T.



THE PACIFIC MILL, TACOMA.



The golden ambient autumn air,
Bathes all the pine encircled hills,
Whose low, soft requiem sobs and wails
Above the laughter of the rills.

Against the sky's ethereal blue
The giant of Sierra stands,
In snow-crowned majesty enthroned,
High Priest of fair Pacific lands.

I heed no more the jingling rail-
The roaring train, the straggling town;
I only see an eagle sail,
'Twixt me and Shasta's snowy crown.

The sun's last dying radiance burns
A blush upon proud Shasta's face;
As modest maiden cheeks will glow,
When wooed by gallant's courtly grace.

A crimson glory fills the West;
Night slowly rolls her curtain down;
The halo, like some sweet vnpst,
Departs from Shasta's stately crown.

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Yours respectfully,
JOHN A. CHILD, Secretary.

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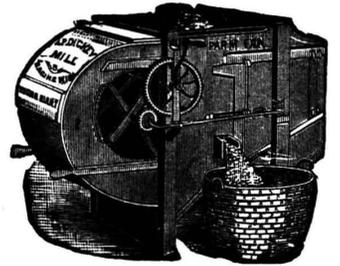
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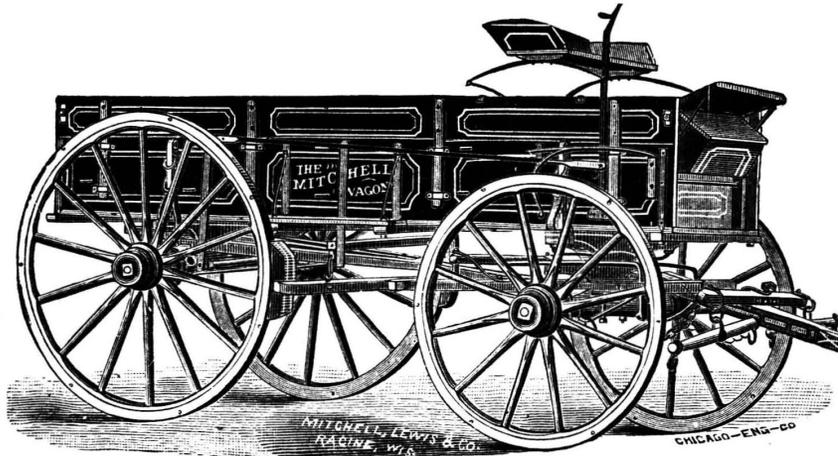
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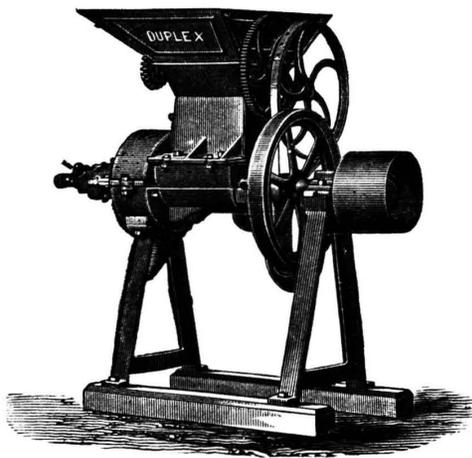
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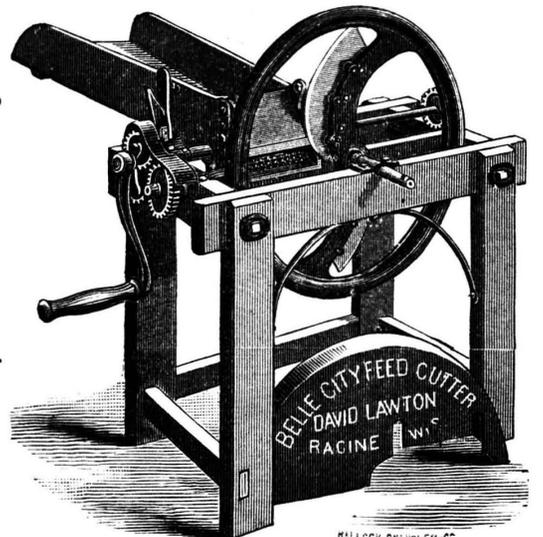
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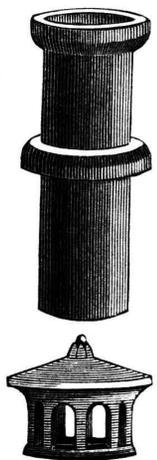
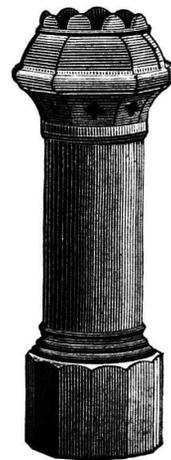
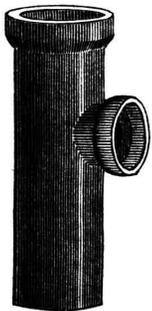
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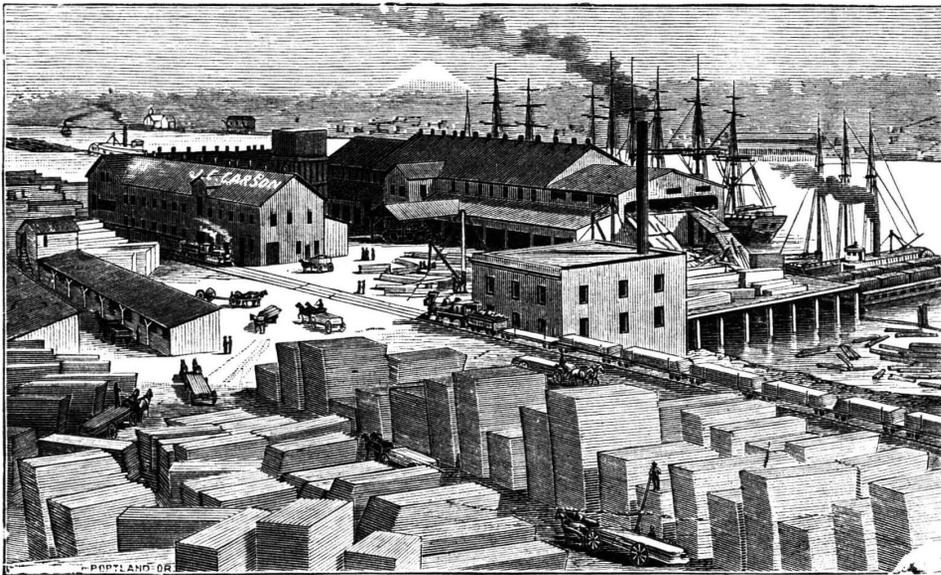
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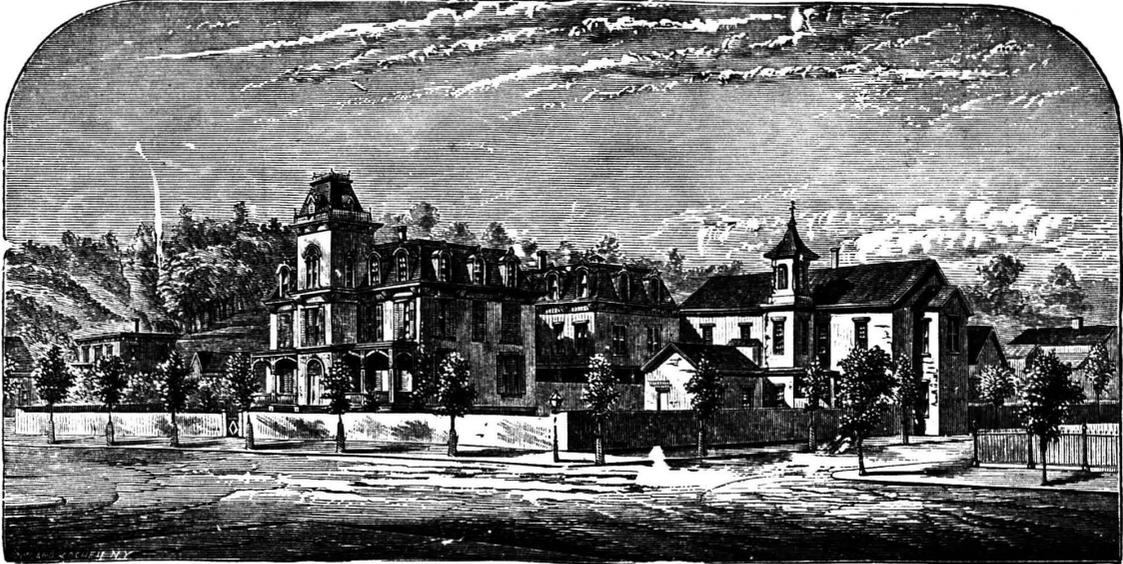
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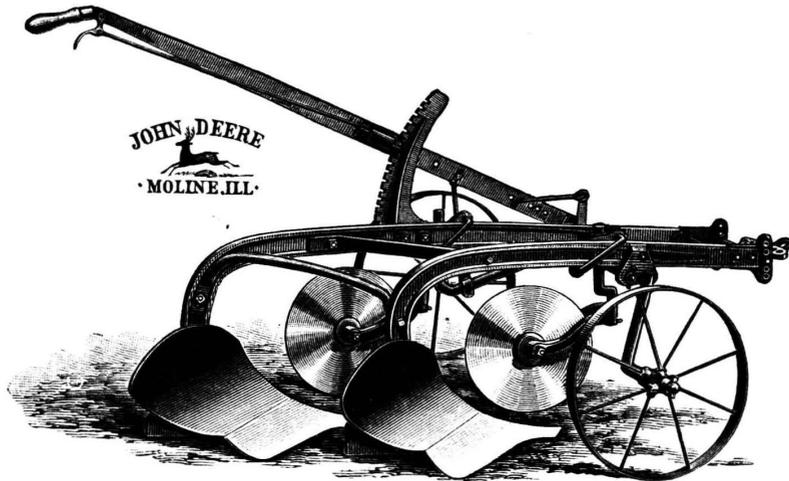
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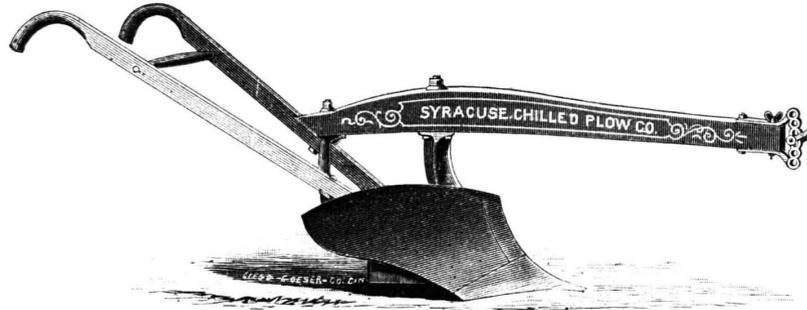
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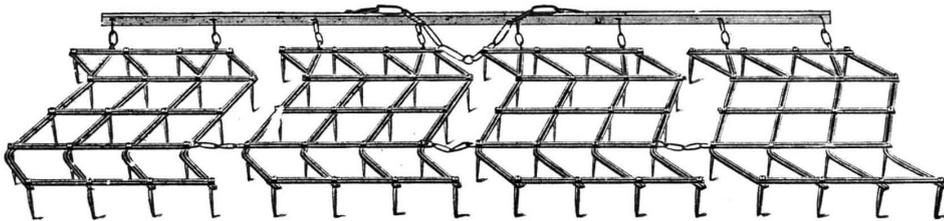
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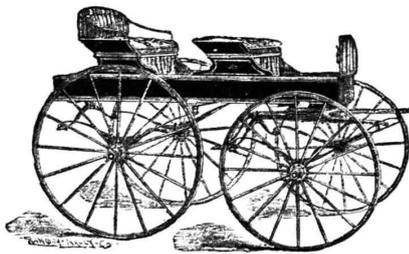
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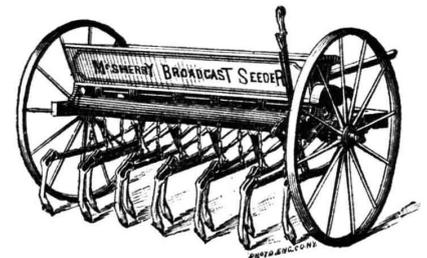
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LINN COUNTY, OREGON.

LINN COUNTY, Oregon, is situated in the center of the Willamette valley, on the east side of the river. It is about forty miles across the county from north to south boundaries, and the distance from the Willamette river, which forms its western line, to the eastern boundary is about seventy miles. The area is about twenty-four hundred square miles. As the eastern boundary line is the crest of the Cascade mountains, a considerable portion of the eastern part of the county is occupied by the foothills of those mountains and the range itself. The western part of the county, for a distance of twelve to twenty miles east of the river, is level prairie land, having but little timber, except along the streams which rise in the mountains and flow to the Willamette. In the central part of the county there is an abundance of the finest timber, white, yellow and red fir, cedar, pine, alder, oak, etc. The South Santiam river flows through the west-central part of Linn county, and along its banks, as well as on many of the smaller streams traversing the section, are farming lands of remarkable fertility, and the proximity of the timber, with the convenience of grazing lands, makes these tracts particularly desirable for farms to be used for general purposes of agriculture, rather than the prosecution of a single branch on an extensive scale. Thomas creek and Crabtree creek, the Calipooia and other streams are lined with land of this sort, admirable for small farms. The country is already quite well settled, good roads have been opened to travel, and reliable markets for all the products of the farm are within easy reach. Schools and churches are distributed over the county. The temperature is mild, rainfall moderate, and the climate is healthful and pleasant,

The Portland & Willamette Valley narrow gauge railway extends through the east-central part of the county, and the main line of the Oregon & California through the western portion. Regular boats on the Willamette river also afford a means of transportation. The Oregon Pacific, already in operation from the ocean at Yaquina bay, through the valley as far as Albany, is under construction eastward, and will give an outlet to the most interior section of the county. Thus Linn has as good railroad communication with the outside world as any county in the west. The towns of Scio, Lebanon, Brownsville, Soda-ville, Sweet Home and others in the interior, on or near the railroad, are centers of farming communities, which cover the whole country more or less closely. The region is settled by an industrious and thrifty class of people, who, as they become acquainted with the versatility of the country, are developing many branches of industry with profit. Harrisburg, in the southwestern part of the county, is located on the Oregon & California railway, and is a thriving town of one thousand inhabitants.

The total population of Linn county, according to the census of 1880, was twelve thousand seven hundred and eleven. Since that date there has been a marked growth in the county; many immigrants from the east have settled there and are working important changes in the character of the improvement carried on. Modern methods of agriculture are being introduced, and machinery to meet the demands of the period for the farms is taking the place of the crude and more laborious means that have been employed. The fertile soil and mild climate combine to produce better crops than are ever raised east. Good strawberries are frequently picked in October. Yields of from thirty to forty-eight bushels of wheat per acre are not uncommon, and this is not in small garden patches, but in fields of from twenty to eighty acres. The peaches and berries grow to immense size, a local paper chronicling peaches

eleven inches, and strawberries from six to eight and three-fourths inches, in circumference, while the flavor is unexcelled and keeping qualities as good as the average. The farmers have associations for their advancement and to secure their interests.

The stability of the resources of Linn county and their degree of development make it a promising field for establishing manufacturing institutions of various kinds. There is abundant water power and it is easily controlled. The supply of valuable timber is accessible for those factories requiring wood in their work. Farm products—grain, wool, fruit, live stock, etc.—are raised in large quantities, and would be the better if stimulated by factories at home. The shipping facilities, which enter largely into the calculations of manufacturers in considering the advantages which any locality possesses for particular investments, are favorable in nearly every part of Linn county, with its three railroads and a navigable river.

Albany is the county seat and the principal city of that section, and for this reason it has an especially attractive location for manufactories which rely principally on agricultural products for their raw materials. The channels of trade always converge, in a greater or less degree, at the point which, from any cause, has developed the greatest prosperity or achieved the highest prominence. The benefits which are derived from the concentration of patronage depend largely upon the size of the territory drawn from and the thoroughness of its development. Albany is a railroad center, and also has the advantage of the Willamette river at its door. The matchless water power provided by the canal from the Calipooia is of primary importance for furnishing motive power. Its situation with reference to a large section of rich country of varied and comparatively well developed resources, gives it an important influence; and the healthful and pleasant location adds much to the inviting conditions which exist there. It is worthy the consideration of any one looking for a desirable location.

It has steadily kept pace with the times and development of the territory surrounding it, leading in improvements that aid advancement, and contributing its influence as a county seat and the most important city of that region, to build up the surrounding country. The most notable improvement, and really the one on which the manufacturing interests of the city depend, is the Albany water power. This power is created by diverting a portion of the Santiam river, at Lebanon, and conducting it, in a canal nearly fourteen miles long, to Albany, where it is divided, one branch leading to the Calipooia, with a head of twenty-six feet, and the other to the Willamette, where a head of thirty-two feet is obtained. The canal is twenty feet wide at the bottom, the fall is four feet to the mile, and water to the depth of three feet flows through it. This furnishes an immense power which is under perfect control, and may be utilized all along the fronts on the Willamette and Calipooia rivers. It is available the entire year as it does not freeze in winter nor run low in summer. There are now located at Albany four flouring mills, two foundries and machine shops, a saw mill, a planing mill, wire weaving works, three furniture factories, two grain warehouses, a fruit cannery, brick yards, cement and sewer pipe factory and two breweries. Several other industries would find Albany a superior location, not only because of its fine water power, but its nearness to the raw materials and its excellent transportation facilities. The city has an excellent system of public schools. The Albany Collegiate Institute is an educational institution managed under the auspices of the Presbyterian church, and an academy under Roman Catholic control is maintained. The city has a system of water works, and is lighted by electricity.

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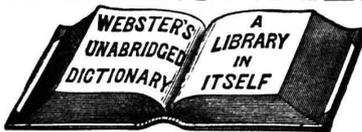
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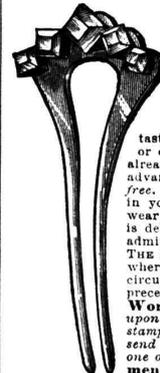
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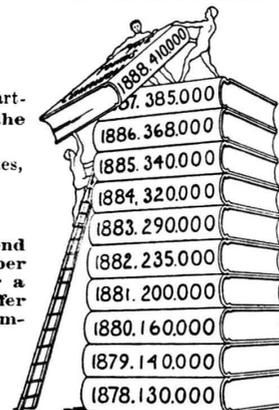
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<p>EUGENE D. WHITE, <i>Real Estate and Money Broker.</i> Commissioner of Deeds for all the States and Territories. Notary Public. Rooms B, C, D, 133½ First St., Portland, Or.</p>	<p>TITUS & STRAIGHT, Eugene City, Or. <i>REAL ESTATE.</i> <i>Insurance, Stock and General Brokers,</i> Correspondence with colonies and fruit raisers especially solicited.</p>	

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DAILY AND WEEKLY STATESMAN, Walla Walla, W. T. Established 1861. Old set paper in the territory. Subscription price, Daily, \$10; Weekly, \$3.00, in advance. Largest circulation. Frank J. Parker, proprietor.

THE BRITISH COLUMBIAN, New Westminster, B. C. Daily, \$8.00 per annum, Weekly, \$2.00. Sent postpaid to any part of Canada or the United States. British Columbia Printing Co., publishers.

THE WAITSBURG TIMES, Waitsburg, W. T. Published every Friday evening. The best advertising medium in Walla Walla county. Subscription price, \$2.00 per annum. C. W. Wheeler, proprietor.

THE CORVALLIS GAZETTE, Corvallis, Or. Published every Friday. Leading paper of Benton county. Subscription price, per year, \$2.00, in advance. Single copy, 5 cents. Craig & Conover, publishers.

THE OREGON SCOUT, Union, Oregon. An independent journal, issued every Friday morning. Jones & Chancey, propr's. Subscription price, \$1.50 per year. The leading paper. Amos K. Jones, editor.

THE PARTISAN, successor to *Puget Sound Courier* and *Olympia Transcript*. Published every Saturday. Leading republican weekly of the Northwest. Subscription \$2.50 a year. Thos. H. Cavanaugh, Olympia, W. T.

ALBANY HERALD, Albany, Oregon. Published daily, and Herald-Disseminator, published weekly. Subscription price, per yr., daily, \$5.00, weekly, \$2.00, in advance. Sample copies mailed for 10 cents.

THE ASTORIAN, Astoria, Oregon. Daily and Weekly. J. F. Halloran & Co., proprietors. Daily, \$7.00 per year; Weekly, \$2.00. Largest circulation of any newspaper published on the Columbia river.

THE DAILY AND WEEKLY WOOD RIVER News-Miner, Hailey, Idaho. Oldest paper published in the Wood River country. Subscription price, per year, Daily, \$10.00; Weekly, \$3.00. Richards & Richards, publishers.

BEDROCK DEMOCRAT, Baker City, Oregon. Daily and Weekly. Mining News a specialty. Subscription price, per year, daily, \$6. Weekly, \$2.50, in advance. Single copy 10 cts. Bowen, Small & Co., publishers.

THE LAKE COUNTY EXAMINER, Lakeview, Oregon. Largest circulation of any paper in Southeastern Oregon. Subscription, \$3.00. Latest land news and best advertising medium. Beach & Beach, publishers.

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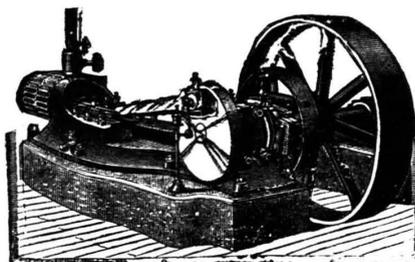
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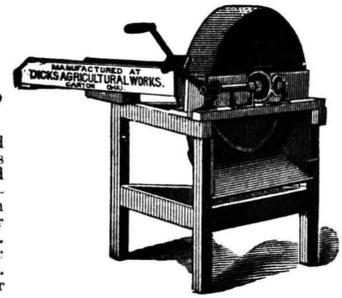
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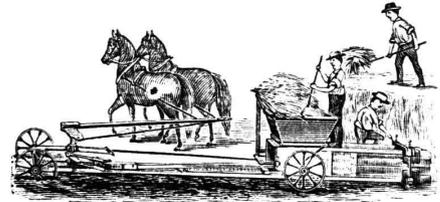
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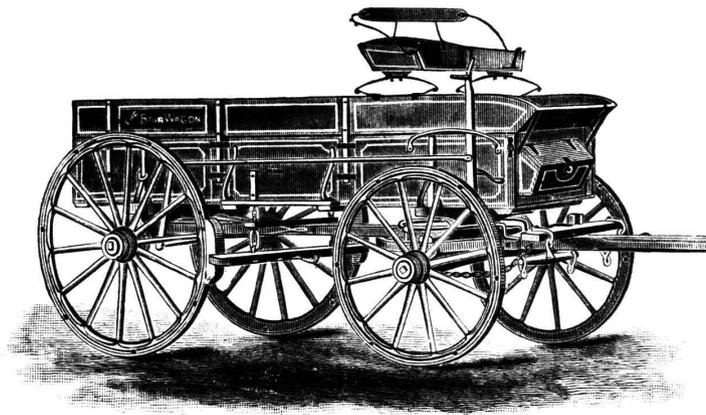
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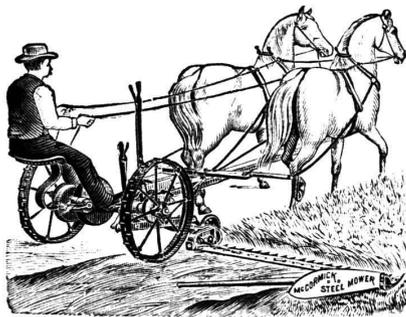
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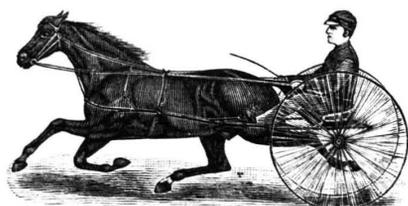


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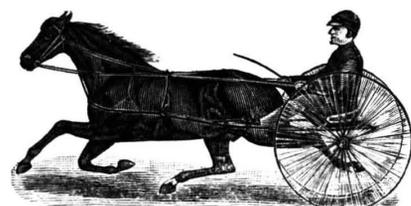


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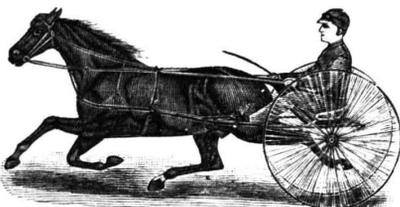
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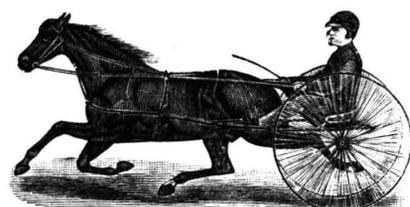


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