
WONDERLAND
1904

WATCHING THE TRAIN GO BY

WONDERLAND
1904

By Olin D. Wheeler

DESCRIPTIVE OF THE NORTHWEST.

Illustrated.

AMONG · THE
SUBJECTS · TREATED · ARE

THE HAUNTS OF WILD GAME
THE LIGNITE COAL AREA IN NORTH DAKOTA
THE YELLOWSTONE PARK
IRRIGATION IN THE NORTHWEST ★ AND
THE TRAVELS OF LEWIS AND CLARK·

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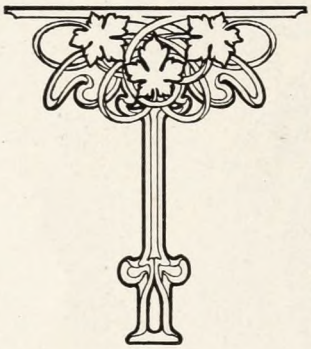


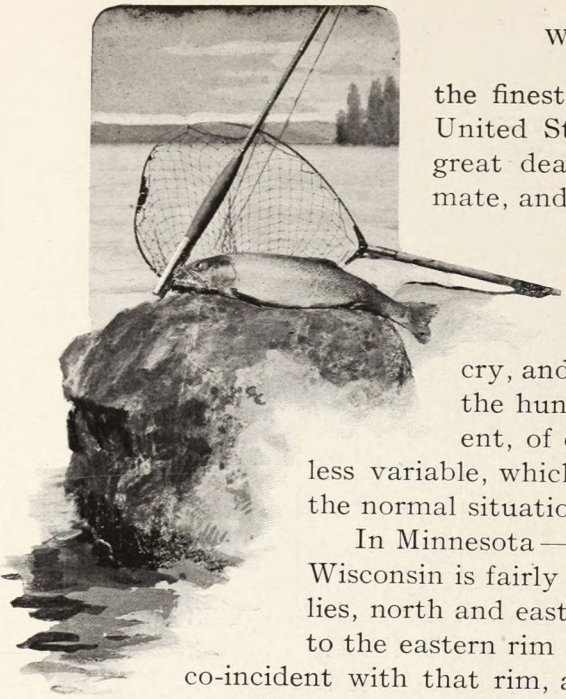
The Haunts of Wild Game

IN all ages man seems to have been a natural born hunter and angler. In these days some effort is being made to check the old hunting spirit and to substitute the camera for the rifle and shotgun, but it is doubtful if rapid progress is being made. The propensity to slay seems ingrained in the sons of Adam, and, indeed, in many of the daughters of Eve, and while game laws and wardens and a more refined public spirit may hold the game hogs, very rightfully, in check, it is altogether likely that man will continue to kill deer and elk, moose and goats, grouse and pheasants, ducks and geese, *et cetera*, for several decades to come.

The youthful Nimrod of a half century ago, whether he lived in Pennsylvania or Minnesota, has seen great changes in big- and even in small-game hunting. To some extent this holds true of fishing. Ten years ago it looked as if the big game was doomed to rapid and complete extinction. But under the operation of wise game laws the game has, in recent years, actually increased, and in Minnesota, for example, the deer were, in the fall of 1903, more plentiful than for years. This too, despite the fact that in recent years the hunters have fairly swarmed in the woods of Northern Minnesota and Wisconsin during the open season. Even as I write, the daily press recounts one shipment of forty-eight deer and a 1,200-pound moose from one Northern Minnesota town as received at the union station at St. Paul.

This increase of big game is noticeable throughout the entire Northwest wherever any serious attempt has been made to enact and enforce game laws. It proves the vitality of the game and shows that with fair protection it can be perpetuated indefinitely in those regions, and they are many, which can never be other than sparsely settled.

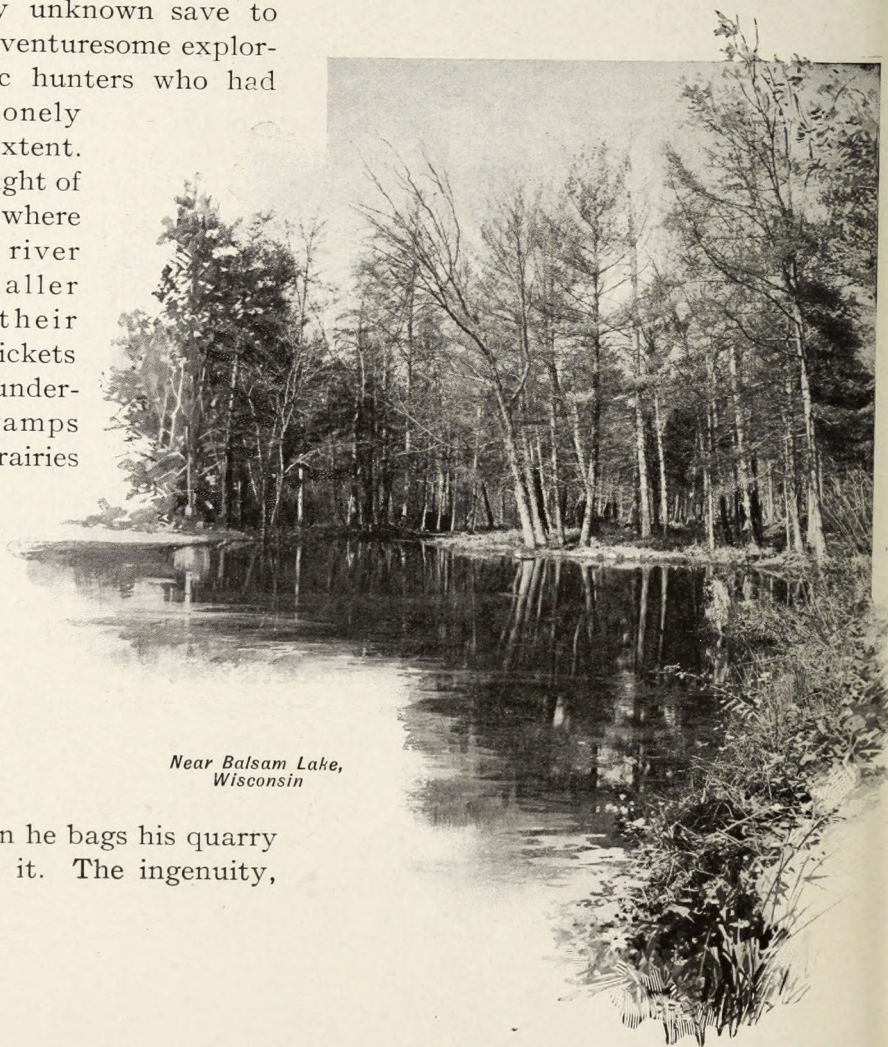
Taken all in all it is without doubt true that the Northwest is today



A Silent Witness

the finest game and fish preserve, so to speak, in the United States. The word Northwest comprehends a great deal, territorially, and as the topography, climate, and other conditions vary greatly, so does the game found there. From the piny forests of Western Wisconsin and Minnesota to the wild, craggy, and little-known Olympic mountain region of Washington is a far, far cry, and between these extremes, 2,000 miles apart, the hunter and angler may choose his sport, dependent, of course, upon those local conditions, more or less variable, which must always be reckoned with to modify the normal situation.

In Minnesota — and the situation, in its general aspects, in Wisconsin is fairly parallel to that in the former State — there lies, north and east of a line drawn, roughly, from Duluth west to the eastern rim of the Red river valley and then north and co-incident with that rim, a boundless, scantily populated region, until recently virtually unknown save to the fur cruisers, venturesome explorers, and sporadic hunters who had penetrated its lonely depths to some extent. Here, in the "Height of Land" country where the Mississippi river and many smaller streams have their birth, are great thickets of timber, lakes, underbrush, hills, swamps and morasses, prairies and glades, where large game—deer, moose, and some caribou—roam at will. Hunting in this wild, tangled region is sport, just such sport as the true wilderness hunter seeks, and, usually, when he bags his quarry he has fairly won it. The ingenuity,

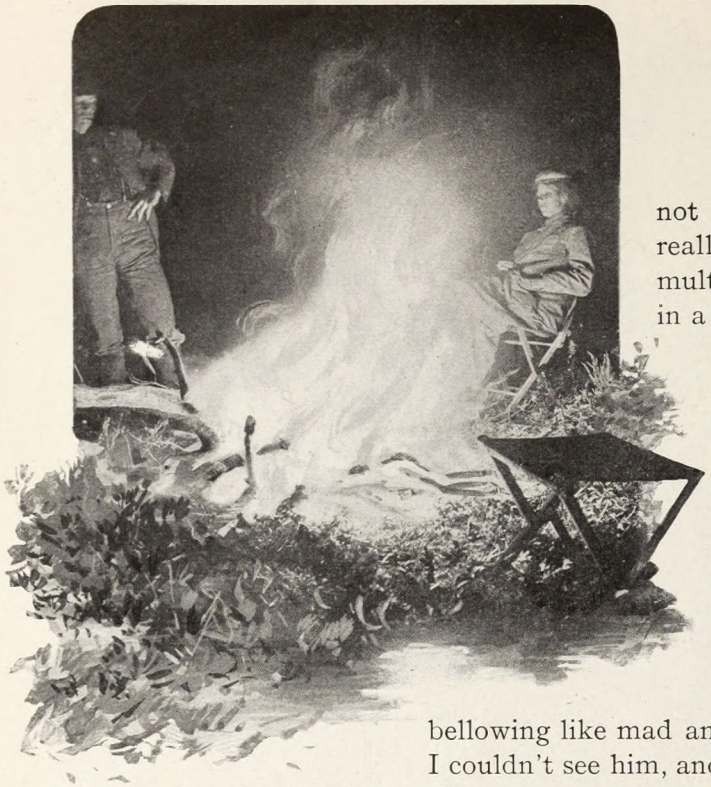


Near Balsam Lake, Wisconsin

A Perfect Buck

endurance, and skill of the hunter are pitted against the wariness and instinct of the moose and deer, it being often almost a case of "blind man's buff." And even should the sportsman fail, as sometimes he must, he has generally had a fair "run for his money." Tired legs, torn and muddy clothing, hungry stomachs with open-air appetites, are apt to be a part of one's experiences.

In recent years the game protective laws have resulted in an enormous increase of game in this section. Deer is the most common species found and there are thousands of them and, apparently, increasing yearly. The game wardens of the State estimate the number of deer killed in Minnesota during the season of 1903 to have been 10,000 and that this is a mere bagatelle to those remaining. The moose too, which,



Around the Camp Fire

not long back, were supposed to be really or quite extinct here, have multiplied to a surprising extent, and in a few years more Maine may have to look to its laurels as the principal habitat of this palmately antlered animal.

An episode of moose hunting during the season of 1903, in the vicinity of Blackduck, is thus reported by a gentleman from St. Paul:

"When I climbed the side of the ridge, I heard him, apparently about fifty yards ahead, bellowing like mad and stamping on the hard ground. I couldn't see him, and, since I was hunting partridges and had left my rifle at camp, kept within running distance of a big pine with inviting lower branches. There was hazel brush everywhere.

"Pretty soon I moved five yards to one side, and instantly the moose was opposite me, bellowing and stamping. I moved in a little twenty-yard circle twice around that tree, and the big bull made the same circuit twice, too, keeping always about fifty yards away and on the opposite side of the tree from me. I never once caught sight of him, although I looked until my eyes stuck out like door knobs. Pretty soon a red squirrel began to chir-r-r-r in the top of the pine and the big bull took to the big woods. I could hear him threshing the scrub and bushes for half a mile. I afterwards found that he was herding two cow moose on the ridge. He probably wanted to call them in and warn them, and held me to gain time."

The region under consideration abounds in lakes. Leech, Cass, Winnibigoshish, Bemidji, Itasca, Red, Rainy, and Mille Lac lakes are among the large ones and there are, literally, thousands of small lakes. Besides deer and moose there are some caribou and a great many black bears to be found here.

In the country immediately south of the divisional line named, and much of which is as yet not thickly settled either, particularly that part traversed by the "Duluth Short Line" of the Northern Pacific between the Twin Cities, and Duluth and Superior, deer and bears are plentiful, and there are an increasing number of wolves. An odd wolf or two were killed during the winter of 1903–4 within the city limits of both Duluth and Minneapolis, and several were seen within ten or fifteen miles of St. Paul by farmers. For a good, old-fashioned wolf hunt the section named is ideal. The country is quite open, only moderately rough,

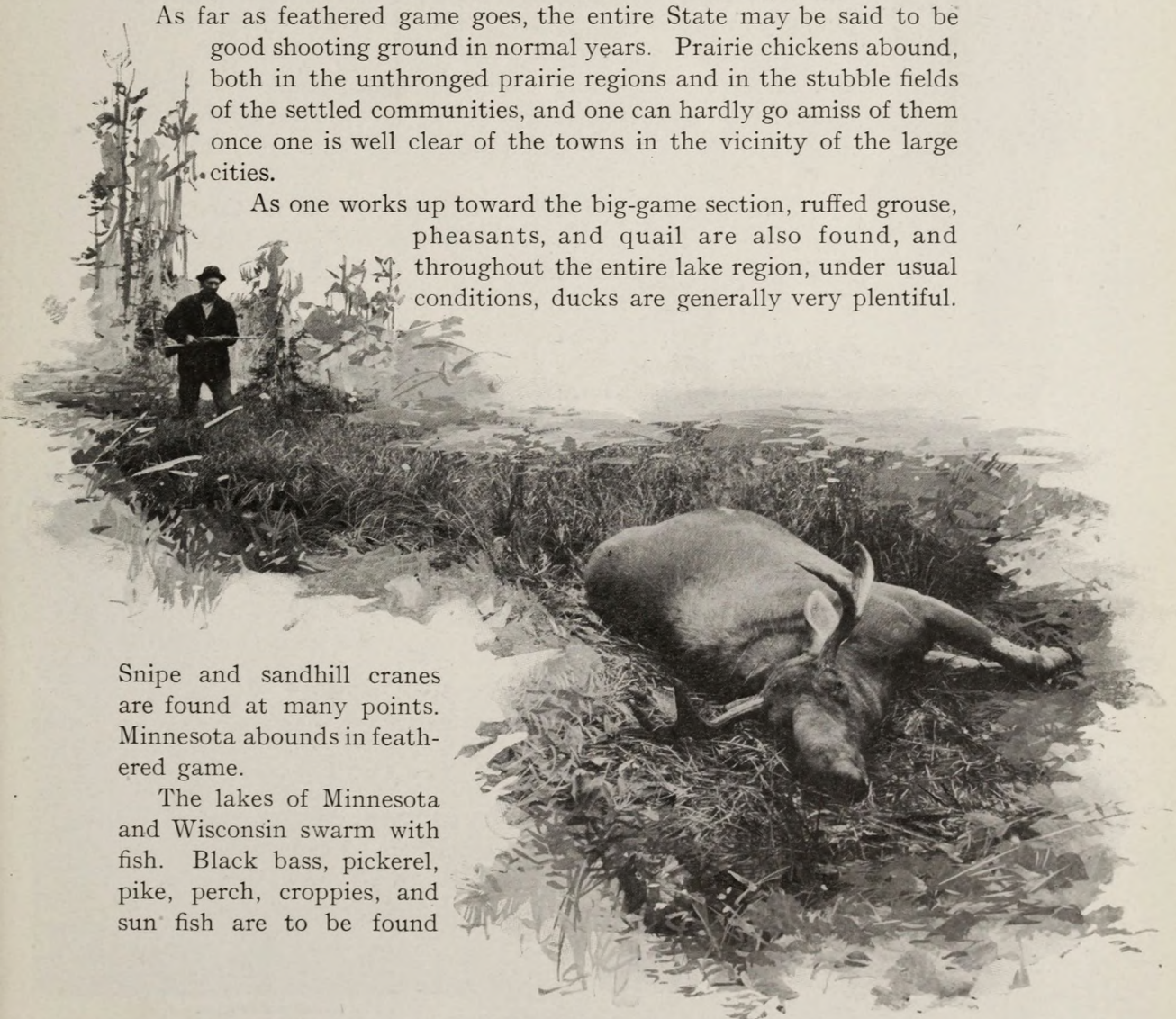
and the huntsman, with or without dogs, can go careering over the hills and across the prairies with just enough of danger in the coursing to add a thrill of exhilaration and a spice of adventure to it all.

Through its main and branch lines the Northern Pacific reaches all parts of the hunting region of Minnesota. Particularly by means of the Minnesota and International Railway leading north from Brainerd it reaches the very heart of the Leech, Red, and Rainy lakes country.

Aside from St. Paul, Minneapolis, Duluth, and Superior, which are all good general outfitting points, the more important places from which the big-game country may easily be penetrated are Carlton, Aitkin, Brainerd, Walker, Bemidji, Blackduck, Northome, Staples, Wadena, Perham, Detroit, Crookston, Grand Forks, Grafton, and Pembina. From any point on the railway leading west from Duluth and north to the boundary one can make his way to the haunts of the big game.

As far as feathered game goes, the entire State may be said to be good shooting ground in normal years. Prairie chickens abound, both in the unthronged prairie regions and in the stubble fields of the settled communities, and one can hardly go amiss of them once one is well clear of the towns in the vicinity of the large cities.

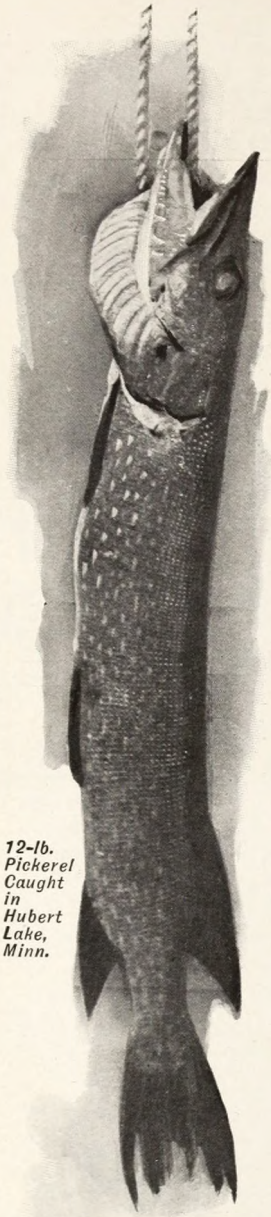
As one works up toward the big-game section, ruffed grouse, pheasants, and quail are also found, and throughout the entire lake region, under usual conditions, ducks are generally very plentiful.



The Downfall of the King

Snipe and sandhill cranes are found at many points. Minnesota abounds in feathered game.

The lakes of Minnesota and Wisconsin swarm with fish. Black bass, pickerel, pike, perch, croppies, and sun fish are to be found



12-lb. Pickerel Caught in Hubert Lake, Minn.

wherever there are lakes, and in the large Minnesota lakes and the St. Croix river the fighting maskinonge, or maskalonge, is found.

There is no special choice as to locality for angling, save as each person may have his own notions. The farther away one gets from the towns the more verdant and primeval are the conditions. The fish can be found everywhere and the lakes are kept well stocked by the State from its hatcheries.

In the regions about Blackduck, Bemidji, Walker, Jenkins, Pine River, Brainerd, Aitkin, Deerwood, Perham, Detroit, Battle Lake, etc., there are clusters of lakes which supply all varieties of Minnesota fish, and the tourist accommodations at these places, while not elegant, are entirely comfortable and are reasonable as to prices. Maskinonge are to be found more particularly in Leech lake, Mille Lac lake, and the St. Croix river.

Minnesota has an efficient State Game and Fish Commission and under its wise and energetic management the reckless slaughter of game and illegal fishing have been reduced to a minimum. Non-resident hunters of big game are required to pay a license of $25.00.

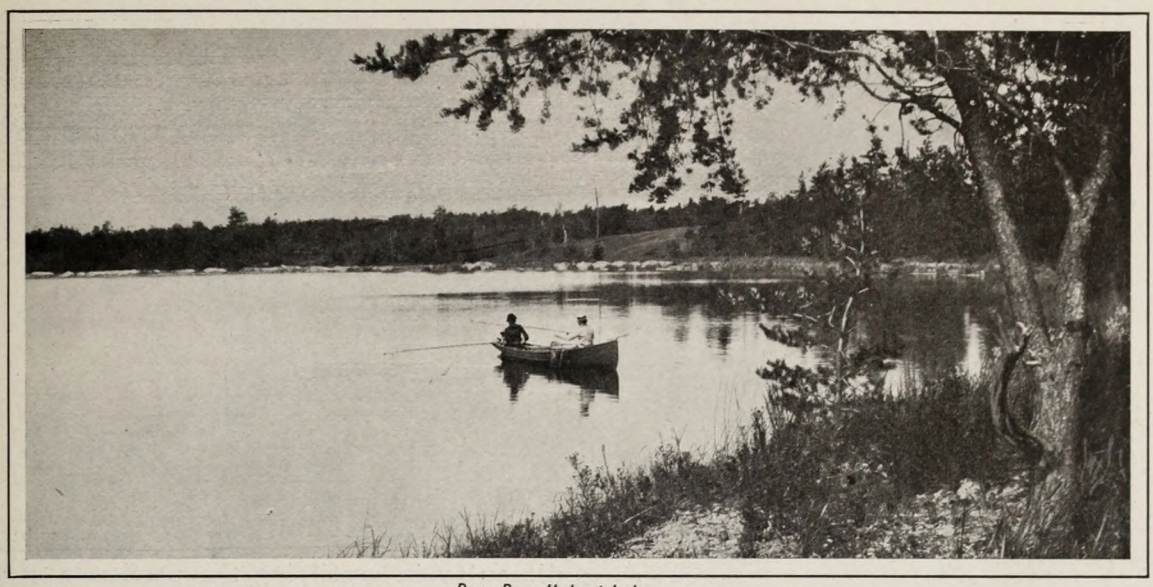
North Dakota can offer no inducements to the angler. There are no lakes of any consequence within its borders, and its streams are not stocked with fish. Neither can the State be accounted great for large-game shooting. Moose, elk, and mountain sheep, of which there are few or none now in the State, and antelope are absolutely protected. Deer can be hunted and they are still to be found in fair numbers in the Missouri river valley. The region about Medora was formerly a noted antelope and deer country. Under game protection it may again regain its reputation.

If one enjoys coursing after coyotes, foxes, and rabbits no better country can

Canada Grouse Approaching Nest

Live Canada Grouse

A Mother Grouse to the Rescue



Bass Bay, Hubert Lake

be found than the wide, treeless uplands and broad valleys of this region. The ground is ideal in many portions of the State, being little or not at all obstructed by fences, farms, or other similar obstacles. It would cause the blood of a devotee of the chase to tingle to look out upon some of this prairie country with its rolling swells, its wide reaches, and its glorious outlook, with just enough roughness in it to add zest to this exhilarating sport.

As a country in which to hunt geese and "prairie chickens" North Dakota excells. The "chickens" are plentiful and their whirr can be heard everywhere in the country along the main and branch lines of the Northern Pacific, and snipe, curlew, and plover are found in favored localities.

Wild geese are to be seen in countless numbers north of Jamestown in the Minnewaukon region. Time was when their presence was a positive nuisance, they so ravaged the fields. This may seem a far-fetched statement but it is simple truth. Wild geese in the valley of the upper James river are, in the season, as plentiful as domestic fowls in an eastern poultry region. And they are mighty good eating. These birds are of two varieties and they breed far up in the northern country and winter in Texas and the Gulf region. They are wary birds, which adds the more to the sportman's zeal to procure them, and yet they decoy well.

Montana is a paradise for both the angler and hunter. There is, perhaps, not one stream in the State that, under normal conditions, does not contain trout. As the State has a perfect network of streams, large and small, it follows that wherever one finds oneself there will be no

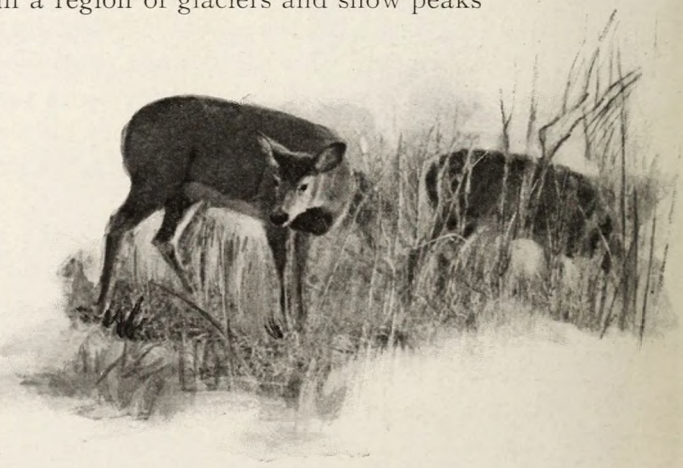
The Antelope Hunters

difficulty in gratifying the passion for trouting. The Yellowstone, Missouri, Hell Gate, and Bitterroot rivers with their thousand tributaries come from the mountains, and mountain trout or grayling can be obtained at almost any point on these waters that the angler cares to swing his rod.

From almost any of the larger towns on the railway or its branches the heart of the mountains can be reached in a day or two. For ideal camping, no State in the West excells Montana or its neighbor, Idaho. There, in the midst of the most inspiring scenery, where the mountains are both pine and snow covered, where deep cañons yawn and snow-fed creeks go tumbling and dashing through them, with beautiful parks for camping places, one can quickly set up his tent-house for a season and catch trout, hunt big game, draw in great whiffs of mountain air, and take a new lease on life.

Southwest from Billings and Red Lodge, in the mountains where the foot of man has seldom trod, in a region of glaciers and snow peaks on the borders of Yellowstone Park, there is a setting of Nature's emeralds, a group of hundreds of alpine lakes. Naturally, these lakes were devoid of piscatorial life, but some of them have been stocked and these now swarm with trout.

In Minnesota Wilds



The Yellowstone Park, while not a part of Montana,

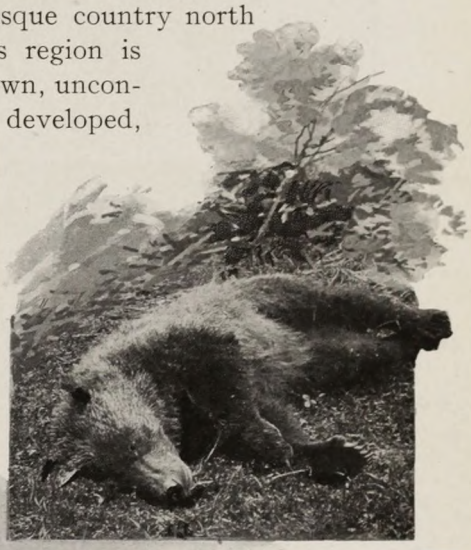
in its entirety, is essentially so in its general relations to the world, and it is the most perfect trout preserve to be found. The United States Government maintains it and under its care the supply of trout never grows less.

Rocky Mountain, rainbow, eastern brook, salmon, Loch Leven and Von Baer trout, and grayling are found in the waters of the park, and the fishing is free and open to all.

Eastern Montana is a plains country, essentially, where grouse, "chickens," and sage hens are found. Deer may still be hunted here and there, notably in the broken, butte-dotted, picturesque country north from Miles City about the Musselshell river. This region is worth visiting for the sake of seeing the little-known, unconventional, original style of land architecture there developed, aside from the abundance of deer found among the brakes.

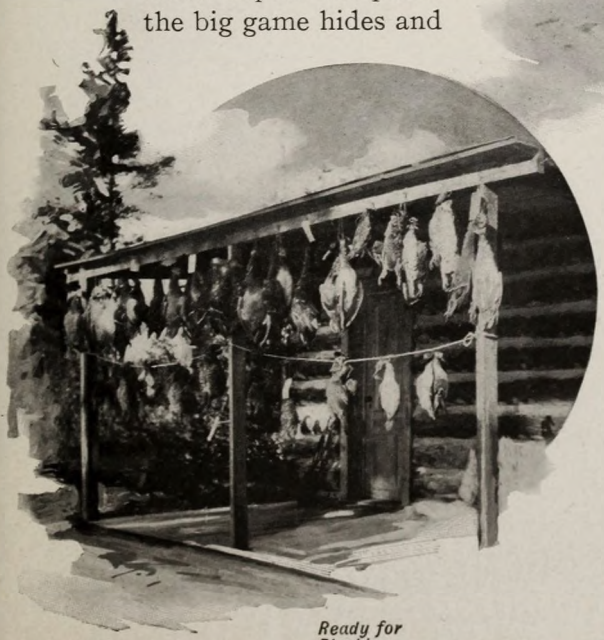
The mountains of Montana abound in game. Bear,— of all kinds — elk, deer, mountain sheep, — *Haplocerus montanus* — some moose, mountain or white goats,— *Oreamnos montanus* — with a reasonable number of the various kinds of the cat family are to be found.

Moose, female elk, mountain sheep, antelope, caribou, etc., are, however, absolutely protected by law. The State is well dotted by mountains that are among the grandest, scenically, of the Rockies, and in whose forest-depths and parks the big game hides and ranges. Such are the Crazy mountains north from Big Timber and Livingston, the wild Big Horn range with its crags and snow-covered peaks puncturing the clouds, the Bear Tooth mountains beyond Red Lodge, the Big Belt mountains east of Helena, the Mission range north of Missoula, and the Bitterroot range which



Old Ephraim's Last Sleep

Elk with 17 Points



Ready for Plucking

At a Hunter's Camp in Montana

Hunting Camp Among the Cottonwoods in Montana

Trouting in Lolo Creek, Montana

forms the boundary between Montana and Idaho. In these fastnesses the elk, deer, goats, bears, etc., roam at will, feeding in the glades, drinking at the licks, clambering among the great bowlders and fallen, rotting logs, and luxuriating among the high, cold, grassy parks which nestle at the feet of giant peaks. Bears and deer are found in most of the mountain regions, the elk frequent the mountains surrounding Yellowstone Park and the Bitterroot range, and the habitat of the goats seems to be in the Bitterroot and Mission ranges. Hunter's Hot Springs, the hot baths of which are at least equal to those of Arkansas, is a good place from which to hunt in the Crazy mountains and to fish in the Yellowstone river and other streams.

Of all big-game hunting that of the white goats is the most difficult and fatiguing. This is simply because these animals are found only in the highest and most inaccessible parts of the mountains, and the effort of climbing to their haunts is exhausting. The glory of the achievement, however, is ample recompense, to most hunters, for the toil endured, for at least one such round of hunting.

It must be remembered that in all these big-game regions the trout fishing is superb, timber grouse are plentiful, and "chickens" are found in the valleys, so that the bill of fare in the hunters' camps may be a varied and appetizing one.

It is proper to add that the Mission range is on the Flathead Indian reservation and that a permit to hunt there must be obtained, first, from the agent.

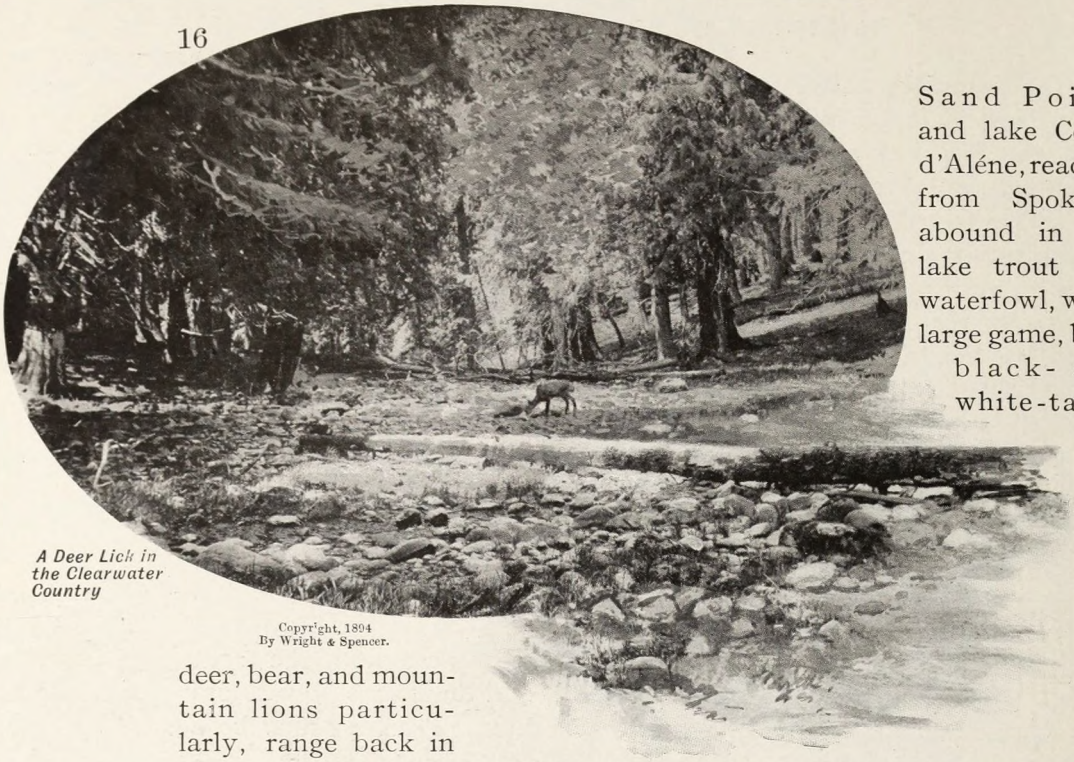
Non-residents must pay a license, in Montana, of $25.00 for big-game shooting, and $15.00 for small game.

Idaho is a wild, rough, mountainous State where the scenic effects are of a high order. The mountains harbor plenty of game, and the streams and the lakes, of which there are several very fine ones, are well filled with trout.

From Missoula, and the towns on the main line of the Northern Pacific west to Spokane, and from Moscow, Lewiston, and other points south of Spokane, the sportsman may easily reach the hunting grounds. Big game has increased in recent years in the Montana and Idaho mountains, particularly in the more remote districts, to reach which it is necessary to use pack trains. It is supposed that there are some caribou to be found in Northern Idaho.

In favorable localities there is feathered game, grouse, "chickens," etc., and about the lakes there are plenty of ducks and geese. Lake Pend d'Oreille, on the Northern Pacific main line, seen at Hope and

Canada or Grey Lynx



A Deer Lick in the Clearwater Country

Sand Point, and lake Coeur d'Aléne, reached from Spokane, abound in fine lake trout and waterfowl, while large game, both black- and white-tailed deer, bear, and mountain lions particularly, range back in the mountains bordering them, in quite large numbers.

Lakes Pend d'Oreille and Coeur d'Aléne are very large lakes and are among the five or six most attractive lakes to be found in the entire West, particularly the former, which challenges one's admiration at the outset. As a tourist proposition, simply, these lakes command attention because of their landscape beauty. The scenery about lake Pend d'Oreille especially, is of a lofty, rugged, alpine character, tempered by a soft, sensuous glow that simply captivates the senses. It is a glorious sheet of water, and a summer's outing spent in fishing and hunting on its borders and among its mountains will be one to be remembered.

Washington is a State of magnificent distances, scenery, hunting and fishing. The eastern part of the State is an elevated, rolling, volcanic plain with isolated buttes and ranges of hills of volcanic origin. Along the Washington-Idaho boundary the various branches of the Rockies —Coeur d'Aléne, Bitterroot, Blue mountains, etc.—are found, and in these, reached from Spokane as a center, there is good hunting and fishing. In some parts of the State there are fair-sized lakes where ducks and geese may be found in season. Cranes and jack-rabbits are quite plentiful and over a large portion of this part of the State prairie chickens are usually found in large numbers. For feathered-game shooting perhaps any of the railway stations in Eastern Washington may answer as points of operation.

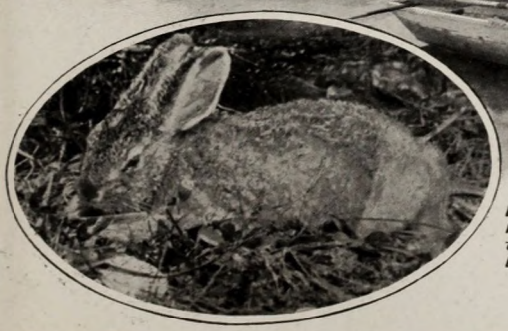
Along the Columbia river and its "breaks" there are some deer and large numbers of waterfowl.

North of Eastern Washington, and closely related thereto, in the Kootenai, Okanogan, and Similkameen regions across the Canadian boundary, there is a very rough country that harbors large game, particularly grizzly bears, and where the fishing is first class. Up in this country the hunter experiences the wild, strenuous life in his outings. There are no hills there, but mountains, high and ragged, their sides splintered by thunderbolts, the cañons mostly narrow and choked, with mountain torrents tearing through them. Great fields of snow lie there whose meltings nourish a lusty vegetation, and glaciers rest calmly in the cold recesses of the upper crags. Here roams old Ephraim, now and then a caribou is found at a favorable locality, a few white goats, perchance, occupy a good feeding ground among the silent crags, and the cold streams are the homes of delicious trout.

On Coeur d'Aléne Lake, Idaho

Western Washington is a game paradise. Its very remoteness is its recommendation. The mountains are in their pristine state, high, rough, timbered, silent, gloomy; the lakes secluded among the crags are clear, cold, and alive with fish; the streams roar through the sun-flecked arches of the forest as they did a hundred years ago, standing lures to the fly-caster.

Coeur d'Aléne Lake



Bringing Home the Deer

Green River from near Hot Springs, Washington

The country is rough, but grand beyond common knowledge, and the wild life of brook and wood is in keeping with its environment, strenuous and unwearied as to the finny tribes; free, lordly, and wild as to the game that roams the mountains.

The Washington forest country however, is not easy to hunt through, and this to an extent preserves the game and allows it to increase.

There are, among these primeval forests which clothe the mountains, many fine trout streams the banks of which the foot of the white man has rarely trod, and there are many heights where probably none but the Indian has chased the deer and elk.

The streams, many of them, reflect the flavor of the aboriginal occupancy in their names. Snohomish, Quiniault, Elwah, Chehalis, Snoqualmie, Dusewallips are a few of many. Those streams which are fed by glaciers are of little account — except perhaps near the tidewaters — from an angler's standpoint.

The streams flowing into the Columbia river and into Puget Sound, which are not soiled by glacial detritus, are fine trouting waters, and both the Sound and the Columbia afford superb salmon fishing. An exceedingly attractive point for a hunting

Cutthroat Trout

and fishing outing east of the Sound is Hot Springs, on the main line of the Northern Pacific, in the heart of the Cascade forest. The mineral water baths are most delightful, the hotel new and entirely modern, and the Green river, on the banks of which the springs are located, is a beautiful trout stream and but one of several at hand.

From Tacoma, Seattle, Everett, and other points one can arrange for excursions to many beautiful streams of the Sound region, and but a few hours' ride distant, and also for sea bass and salmon fishing in the waters of the Sound. There are several kinds of trout found in Washington waters, and the many lakes abound in bass, perch, etc.

Without much doubt, the finest hunting and fishing territory now to be found in the West is the Olympian peninsula, beyond Puget Sound. Here rise the cloud-washed, frosted peaks of the Olympic range, a beautiful vision as viewed from the heights about Tacoma, Seattle, and Everett, and in their depths and on their flanks the big game wanders, and in the rushing streams the trout play. Here are to be found large herds of elk and deer, plenty of black bear, lynxes, panthers so called, grouse, pheasants, and quail.

The region is one where things are on a large scale. The mountains are high, lofty, steep, and the higher parts are perpetually white with snow; the streams are clear and rapid, the lakes are Nature's fairest, the timber is the finest in the United States barring only the big trees in California, and the scenery is of the superlative order.

His First Mountain Sheep

Another Goathead and Rug

Where the Wild Goats Roam

The hunting grounds can be easily reached from any of the towns on Puget Sound or the Strait of Fuca, or from the coast towns to the south and west of the range. Port Townsend, Port Angeles, Olympia, Aberdeen, and Hoquiam are a few of these, while for general outfitting Seattle and Tacoma are, of course, all that can be desired.

In fishing or in feathered-game hunting on the outskirts of the Olympic country a guide is not necessary, but those who penetrate the range beyond the line of settlements will necessarily require guides.

A portion of the Olympics that has justly acquired a great reputation is that around Lake Crescent. Not only is this one of the most picturesque lakes, and the locality one of the grandest, scenically, in the United States, but it has justly become widely known through the piscatorial exploits of the late Admiral Beardslee,—"Piseco"—who discovered in the waters of Lake Crescent two new species of trout, the *Beardsleei* and *Crescentis*, found, so far, in no other waters.

The lake, a crescent in shape, is nine miles long, 600 feet and more in depth, of a beautiful ultramarine blue color, and surrounded by peaks of great grandeur. Near it lies Lake Sutherland, a smaller but rarely beautiful sheet of water. Accommodations for sportsmen are satisfactory and the lakes are easily reached by good roads from Port Angeles.

The Lake Crescent trout are caught by fly casting, and by surface and deep water trolling. The Blue-back, or *Beardsleei*, range from twenty-two to thirty and thirty-two inches in length, and from four to fifteen pounds in weight. The *Crescentis* are also large fish, the former being the finer table fish. The speckled trout found here are large, a record trout being twenty-seven inches long and weighing eight pounds.

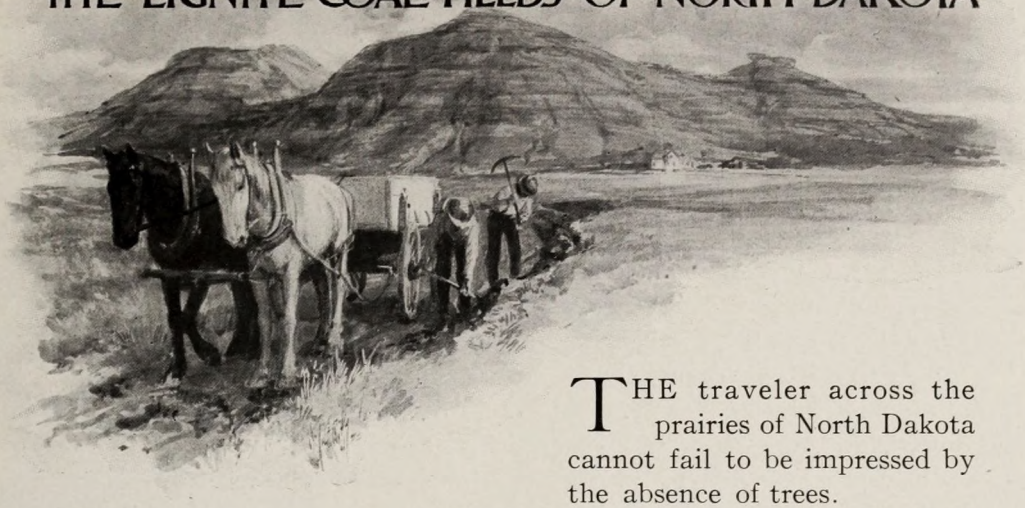
There are other lakes scattered throughout the Olympian region where the angler may enjoy Walton's art, and for combined hunting and fishing the country centering about Puget Sound is unsurpassed.

Washington, and indeed, the entire Northwest, is interested in game and fish protection, with the result that the game is increasing. The laws upon the subject, in all the States, are more or less changed at each legislative session, usually in the direction of increased protection.

There are State fish hatcheries at several points in the Northwest and others are in prospect, so that the supply of fish will be maintained. There is room throughout the region here cursorily passed in review, for all true lovers of sport, and the Northern Pacific cares for no others.

From Puget Sound ports the sportsman or tourist departs for Alaska and its game animals or Northland sights. The Alaskan game is in a class by itself, and many hunters are now turning their thoughts and steps thither. The recent construction of the White Pass and Yukon railway across the White Pass from Skaguay, has opened up a region to tourist and hunter heretofore an unknown land, and one full of surprises and beauty.

THE LIGNITE COAL FIELDS OF NORTH DAKOTA



THE traveler across the prairies of North Dakota cannot fail to be impressed by the absence of trees.

The first thought, after the feeling of surprise has worn away, is as to the cause of this lack of forestation, and this is an interesting and, perhaps, still unsettled question. Following this comes the more startling and practical query, what, then, do the thousands of people who inhabit these miles of wheat farms and vast areas of grazing grounds do for fuel ?

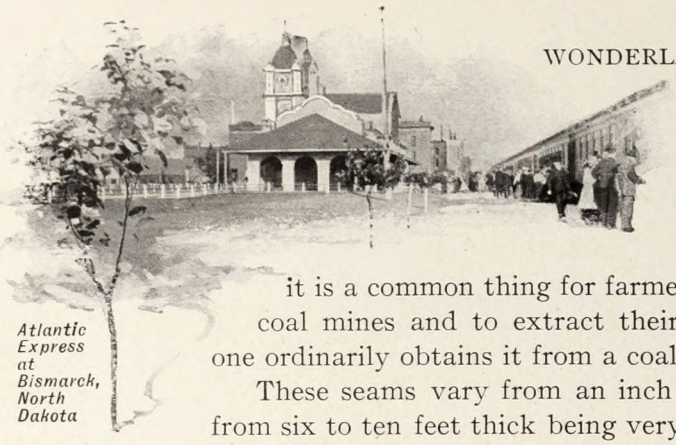
The farmer, townsman, and ranchman must have fuel to cook their food and to keep them warm—whence comes the supply of combustibles?

The answer may be seen from the train at innumerable places, as one rides along, and all explorers of the region, as far back as Lewis and Clark, and possibly Verandrie, have called attention to it. It is coal—not anthracite, nor yet bituminous, but lignite, and it underlies the western part of the State in enormous quantities. Fortunately, too, it is easily exploited.

In 1804, Lewis and Clark called attention, in their journals, time after time, to the many exposures of "coal" which they saw along the banks of the upper Missouri river. At their camp, during the winter of 1804–5, at Fort Mandan, just below the mouth of Knife river and about opposite the present town of Stanton, they used this lignite coal in their blacksmithing operations, and possibly, also, for ordinary fuel.

The lignite area of the State occupies, roughly, the western half of it, which is known as the Plateau du Coteau du Missouri, or simply the Coteau country. Steele, on the Northern Pacific, is at the most eastern point of the coal fields, and above Steele the line swings to the northwest passing just east of Minot on the Great Northern railway. Throughout this region the lignite is exposed in seams, sometimes very small, and again very large, in thousands of places. In a great many cases the lignite beds are wholly covered and concealed by glacial drift.

The predominant topographic feature of this country is the Missouri river valley and its tributaries, particularly that of the Little Missouri



Atlantic Express at Bismarck, North Dakota

river. Wherever the streams cut the lignite seams there are fine exposures and, in most cases, the workings are simple and easy. Along the river valleys and ravines it is a common thing for farmers and ranchmen to have their own coal mines and to extract their fuel therefrom much the same as one ordinarily obtains it from a coal bin or woodpile.

These seams vary from an inch to forty feet in thickness, seams of from six to ten feet thick being very common, and those from twelve to fifteen feet being frequently found. The lateral extent and continuity of the seams varies greatly. Some of them extend for miles, others pinch out within short distances, but are often, after short intervals, succeeded by other seams. The lignite beds extend to great depths. The Northern Pacific railway bored two wells at Dickinson and Medora, to between 900 and 1,000 feet in depth and passed through sixteen and seventeen seams respectively, aggregating a thickness of from fifty-five to sixty feet of good fuel.

In fuel value, the North Dakota State Geological Survey states that "the lignites are generally of a very excellent quality, ranking, according to the accepted standards for coal, between the ordinary lignites and bituminous coal." They are, practically, free from sulphur and there are no iron nodules found.

The origin of these lignites is ascribed to vegetable matter. "Swamps . . . . in which the water was sufficient to preserve the organic matter until large quantities had accumulated, formed most favorable sites for the future lignite beds. A subsequent change in the conditions . . . . resulted in the deposition of fine sediment on the mass of fallen and melted vegetation, forming the overlying clay or sand layer," and these conditions recurring again and again have produced the many seams, or beds, found at different elevations.

The settler and manufacturer will ask, however, what is the comparative value and efficiency of this fuel, how is it burned, and what does it cost? These questions can all be satisfactorily answered.

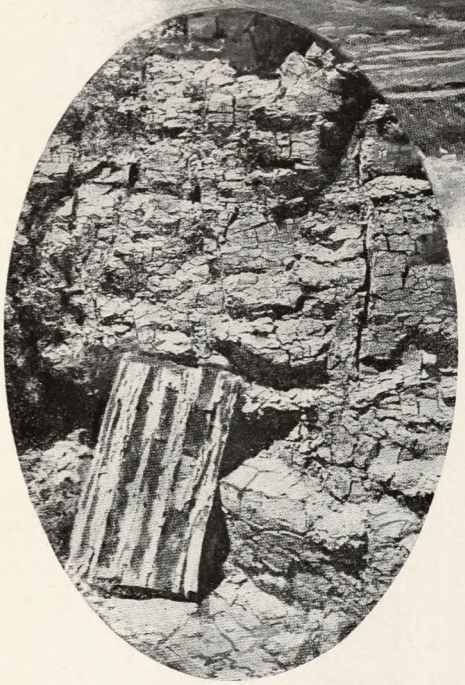
Without attempting to use scientific terms, it may be stated that these North Dakota lignites contain, according to analyses made by the North Dakota State Geological Survey, from 50 to 52 per cent of fixed carbon. Based upon fixed carbon alone, a ton of lignite is worth, for heating purposes, nearly 75 per cent of a ton of Pennsylvania bituminous coal, and the lignite is the equal of the bituminous coals of Kansas, Missouri, and Iowa.

There is about 36 per cent of volatile matter in the lignite which, under proper conditions, may be made very valuable. There is very little ash, about 8.5 per cent, in this coal, and usually the lignite burns

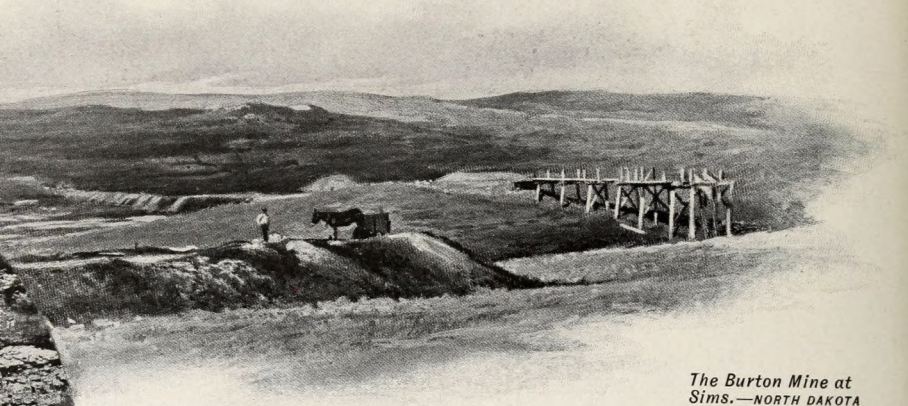
The Satterlund Mine in McLean County— NORTH DAKOTA GEOLOGICAL SURVEY

In the Lignite Region of North Dakota

The Pyramid Park Region, North Dakota, where lignite seams abound



The slab in the foreground illustrates the woody structure sometimes found in lignite. The wall of lignite behind it shows the manner in which it checks on drying.—NORTH DAKOTA GEOLOGICAL SURVEY



The Burton Mine at Sims.—NORTH DAKOTA GEOLOGICAL SURVEY

much like wood "leaving a gray, powdery residue." This woody structure is characteristic of the coal, slabs and logs, turned to lignite, of course, often being found in the seams. These burn splendidly.

The Hospital for the Insane at Jamestown, N. D., is one of the largest and finest in the United States. Lignite has been used there for years and it has been thoroughly tested. The following statement rendered by the Chief Engineer will mean more to those interested than any words of mine and I extract it from the Second Biennial Report of the State Geological Survey :

"The use of lignite coal at this institution started in 1890. Since that time we have used it continually for generating steam, and for the past eight years have used it exclusively for cooking in the general kitchen of the institution. Lignite coal can be burned in any furnace that burns hard or soft coal.

"The coal was burned on the soft coal grate and furnace up to the winter of 1894–5, when there was a change made in the furnace by arching over the grate with fire brick, and using the forced blast with a fan, which very much increased the value of the coal for making steam, by getting more benefit from the hydrocarbon of the coal.

"Eastern bituminous coal was tested against lignite in 1894, which gives the value of Dakota coal in comparison with the best bituminous coal in the market (which is Youghiogheny coal). I tested Youghiogheny coal first with the boilers before making any alteration for the lignite coal and there was little difference between the tests of lignite coal. We find from our experience at this institution that the coal fresh from the mine gives us as good results as the coal when dry. One pound of lignite coal fresh mined will evaporate as much water as a pound of lignite dried.

"The following table shows the result of the tests made here:

	Youghiogheny Coal	Lignite Coal
Date of test	Aug. 6, 1894	Aug. 8, 1894
Duration of test	7 hrs. 30 min.	8 hrs.
Average temperature of feed water	74 Fahr.	74 Fahr.
Pounds of coal burned	1,400	3,370
Pounds of combustible	1,243	3,170
Per cent of ash	11.21	5.93
Pounds of coal burned per square foot of grate per hour	8.29	18.72
Total water evaporated at temperature of feed	8,837 lbs.	14,157 lbs.
Water evaporated in pounds, per pound of coal, actual condition	6.312	4.2
Water evaporated in pounds, per pound of combustible	7.1	4.46
Temperature of flue gases	510 Fahr.	510 Fahr.
Boiler 6 feet in diameter by 16 feet long with 30 4½-inch flues. Grate surface 4 ft. 5 in. by 5 ft. Coal three days from mine. Value of coal	1.00	.665

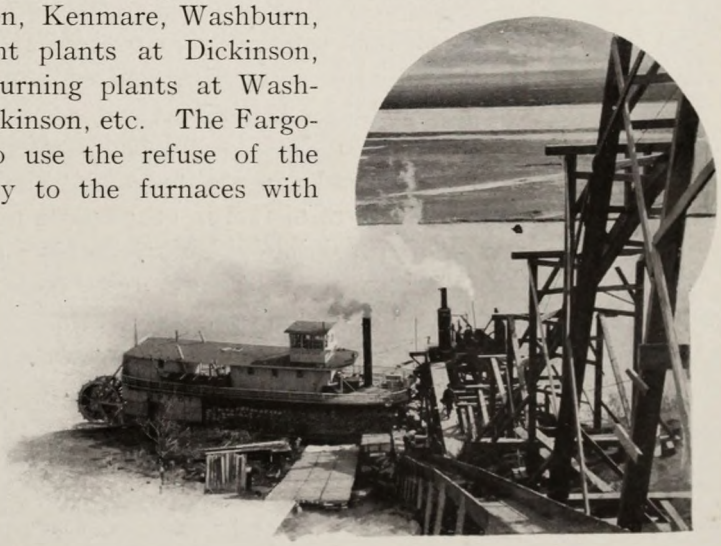
"The cost of Youghiogheny lump at Jamestown was $6.80 per ton and of lignite $2.80."

Most of the ordinary stoves are adapted to burning lignite for domestic purposes, particularly those designed for anthracite coal. Many stove manufacturers have designed stoves especially for using lignite, which operate successfully. Experience seems to show that where one has an ordinary stove that is too valuable to be cast aside, it can be made to work fairly satisfactorily if the openings in the grate are not too large.

The heat from lignite is easily regulated. A slow, smoldering fire is maintained without difficulty and it can quickly be changed into an active one.

In private conversation with those who have used this fuel I have been assured in the strongest terms of its many admirable qualities for domestic use.

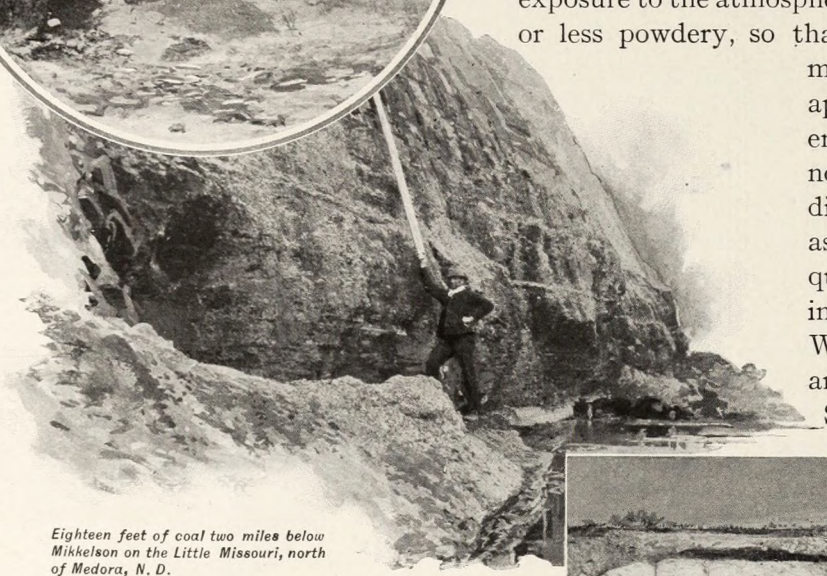
For manufacturing purposes the lignite is very generally used in this region. Some establishments use natural draft, others employ some method of forced draft. Among those using this fuel are flouring mills at Mandan, Jamestown, Hebron, Kenmare, Washburn, and other places; electric light plants at Dickinson, Minot, Bismarck, etc.; brick burning plants at Washburn, Williston, New Salem, Dickinson, etc. The Fargo-Edison Electric plant at Fargo use the refuse of the mines, feeding it automatically to the furnaces with eminently satisfactory results. They employ forced draft. There is not an electric light nor a power plant in North Dakota that can obtain this fuel, economically, that does not use it.



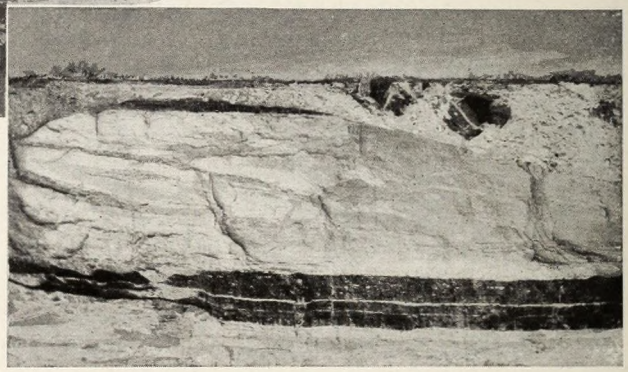
Upper Missouri River Steamer — Uses Lignite Coal

Characteristic Lignite Seam in North Dakota

The principal drawback at the present time to a more widespread use of lignite is the fact that no process for briquetting it cheaply has as yet proved entirely successful. As the material drys, or slacks, after exposure to the atmosphere, it becomes more or less powdery, so that some method of making it into bricks appears necessary to enable it to be economically shipped to distant points. Even as it is, there are large quantities of it used in South Dakota and Western Minnesota and as far south as St. Paul and Minneapolis in Central Minnesota, and the demand, in Minnesota, for the fuel very largely exceeds the possible supply.



Eighteen feet of coal two miles below Mikkelson on the Little Missouri, north of Medora, N. D.



Eight feet of coal in top seam about ten miles below Mikkelson on the Little Missouri River, north of Medora

A cheap and effective method of briquetting will be found in due time, as experiments are constantly being made, and the value and use of lignite will then be greatly enhanced and extended. The briquettes are simply a convenient and concentrated form of lignite. The bricks weigh from half a pound to two or more pounds and are made from powdered or crushed lignite, are suitable for use in any stove or furnace, and are adapted to all kinds of transportation. They are a favorite form of fuel in other parts of the world and will, eventually, be largely used in the United States.

The cost of lignite to the consumer, at the mine, varies from a few cents to a dollar and a half per ton.

For ordinary, household consumption the farmer or townsman can, in many instances, obtain the fuel from some exposed vein in a ravine or on the prairie for little or nothing except the labor or expense of hauling.

In the larger towns or in those remote from the mines the lignite necessarily comes in competition with the eastern or the Montana coals.

The eastern coal is carried to Duluth and Superior on boats and from there is hauled in freight trains to North Dakota. The Montana coals can scarcely compete with lignite as the mines are so far away that freight charges are prohibitive. In the Red river valley the eastern coals are fairly competitive with the lignites. Hocking Valley coal costs, there, normally, from $5.25 to $5.50 per ton, with Youghiogheny coal a trifle higher, as against $3.00 per ton for lignite. At Jamestown, 100 miles west from Fargo, the situation has changed. There eastern coal will retail at about $7.00 a ton, lignite at less than $3.00. In the towns of the Missouri valley the eastern coals are, of course, entirely out of the question from a competitive standpoint.

To one unaccustomed to it, lignite presents a peculiar appearance. Standing, one day, on a street corner in Bismarck, I watched a laborer shoveling what at first I thought was dirt. Somewhat surprised I inspected the pile a little closer and saw that it was lignite. Its color is a brownish, rusty black and it looks very much like a blackish dirt, and in burning it in ordinary stoves a peculiar odor is noticeable. It does not agree with our usual conceptions of coal.

Like all new and untried commodities lignite has progressed in favor slowly, and its advance has been retarded by the fact that it is only within a few years that the lignite area of the State has been rapidly settled. Furthermore, this immigration coming largely from the East has looked upon this peculiar fuel with a suspicious eye.

From a manufacturing standpoint lignite is very valuable. Through its widespread distribution, and owing to the ease with which it can be mined, it means the future establishment of many and varied, but likely enough in many cases, small but well-scattered industries. Dairies, small, local flouring mills and brick yards, clay-working manufactories, paper mills to work up the vast quantities of straw that now are annually burned, are a few of the establishments that the future will note. As a consequence of these lignite fields every small town can, and many now have, electric lighting plants for private dwellings as well as for stores and large buildings.

As for the farmers and ranchmen their fuel lies, in thousands of cases, on

Washburn Lignite Coal Co.— Hoist, etc., Wilton, N. D. Capacity of mine 1,200 tons daily

their own farms and ranches and all that is necessary is to gather the fuel crop as they do the grain and potato crops. And it is a better fuel than wood, especially in winter when it is particularly needed night and day, it is easily handled and controlled, and is, practically, smokeless. It is so easily shoveled from the beds that the farmers' boys can obtain a wagon load of it with little more effect than is necessary in loading dirt.

The greatest impetus to, and development of, lignite mining has been by the Washburn Lignite Coal Company, at Wilton, N. D., north of Bismarck. Established in the fall of 1900 with a prospective yield of 100 tons daily, it has now reached a daily output of 1,200 tons owing to the demand for the fuel. Another shaft one mile from the first one has been opened and this mine has a capacity of 1,000 tons per day.

The deposit at Wilton lies seventy feet below the surface, is from ten to fourteen feet in thickness, is solid fuel free from clay and foreign substances, and is known to extend over more than two sections of land. The mines are worked by electricity and are supplied with the best, modern machinery.

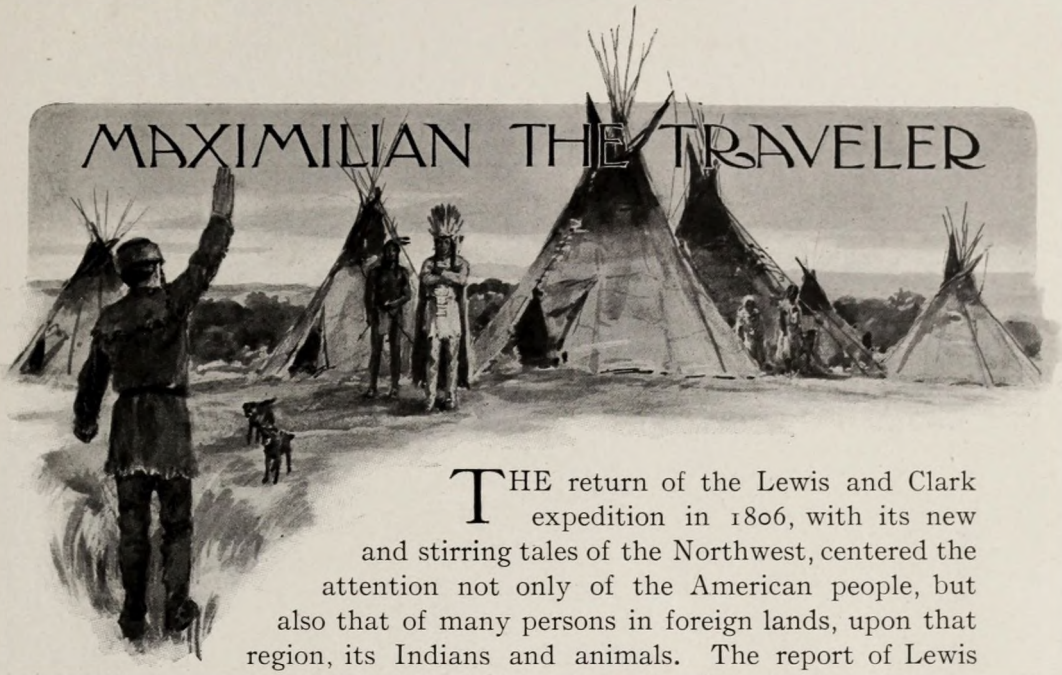
This Wilton lignite is very pure and averages only 4 per cent of ash.

The peculiar appearance of the Pyramid Park, or Bad Lands country in the valley of the Little Missouri river about Medora, is owing to the wide distribution of lignite. There much of it has burned out and the residue, scoriaceous matter, is highly, brilliantly colored, and has been so acted upon and sculptured by erosion that it is known as one of the most picturesque regions in the country. It is a rival, and in some respects superior, to the Painted desert of Arizona.

The value of these lignite fields to the entire Northwest can hardly be overestimated. They insure for a long period a supply of good, merchantable, low-priced fuel in a country where the lack of it has been supposed to be the chief drawback to settlement. With this question thoroughly understood it will mean the opening of thousands of farms and the rise of hundreds of villages in a region where land too is low priced.

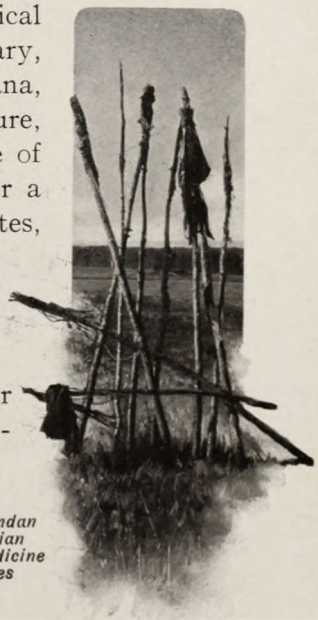
The young man in New York, Ohio, and Illinois who wishes to remove to where land and town lots may be bought with the savings he may have laid by, can find them in the Coteau country. He and all others may rest assured that there also are illimitable quantities of a poor man's fuel. Land, water, and fuel are the trinity that determine the building up of the waste places, and North Dakota has them and they can be obtained for reasonable prices.

MAXIMILIAN THE TRAVELER



THE return of the Lewis and Clark expedition in 1806, with its new and stirring tales of the Northwest, centered the attention not only of the American people, but also that of many persons in foreign lands, upon that region, its Indians and animals. The report of Lewis and Clark was not published until 1814, so that foreigners did not become conversant with the stories of adventure and the startling incidents brought back by those explorers until after that time. Among those whose attention was drawn to the country drained by the Missouri river was Maximilian, the prince of Wied, a German. This gentleman, accompanied by Mr. Bodmer, a painter, traveled extensively in the West from 1832 to 1834. His travels were published in German, French, and English under the title of "Travels in the Interior of North America," and were accompanied by a large atlas containing eighty-one magnificently colored plates. The copies of this work in this country are confined to a few prominent libraries and fewer individuals, so that the work is rare, inaccessible to most persons, and familiar to but few. In the Northwest the writer knows of four copies, one each in the historical libraries of Minnesota and Wisconsin, one in the Newberry library, of Chicago, and a copy owned privately in Bozeman, Montana, but there may be a few others. Maximilian was a man of culture, refinement, and scientific attainments, and his volume is one of great worth. He arrived in Boston July 4, 1832, and after a sojourn in the eastern and central portions of the United States, he reached St. Louis March 24, 1833, just at the time the Sac Indian Chief Keokuk and a delegation of his followers appeared there to plead for the release of Black Hawk, who was there held a prisoner.

On April 10, 1833, the American Fur Company steamer Yellowstone left St. Louis for the upper Missouri country, having Maximilian and Bodmer as passengers.



Mandan Indian Medicine Poles

Fort McKenzie on the 28th of August, 1833

From "Travels to the Interior of North America in 1832-3-4," by Maximilian, Prince of Wied, 1843

On August 9th the party reached Fort McKenzie—old Fort Pickwan, or Piegan—on the Missouri above the mouth of Marias river, and below Fort Benton.

Here Maximilian remained until September 14th, when he returned to Fort Union, where he stayed until October 30th. He then journeyed down the Missouri in a Mackinaw boat to Fort Clark, where he arrived November 8, 1833. Here he made a long stay, spending the winter of 1833–34, and leaving for St. Louis on April 18th, which place he reached May 27, 1834.

This is Maximilian's itinerary in brief, but it would require a volume to recount the labors which he performed during all this time.

Maximilian followed Catlin by only a year and covered practically the very same ground, and his work naturally, therefore, is to be compared with that of Catlin. Both made ethnology a special study; both gave us descriptive narratives of the country; both returned with portfolios filled with portraits of Indian chiefs and canvases showing the scenic beauties and characteristics of the country.

But in their studies and narratives they are wide apart. Catlin, while giving us a narrative of much value, truly is diffuse, sentimental, redundant. Maximilian's work bears the impress of the careful, methodical, scientific student, and he writes tersely, earnestly, and plainly. Bodmer's work, too, is far and away ahead of Catlin's. Indeed, under all the circumstances, it would be hard to overpraise it. It is superb and will stand forever as a basis for comparison.

Maximilian gives much information regarding the doings in the old fur days, and many facts that he records can be found nowhere else. He describes the Indians, the trading posts, the huntings, the methods of navigation, the country, the men, the birds and beasts, and in fact, everything of importance with which he came in contact.

It is extremely fortunate that we have such a truthful and modest narrative as this eminent and little-known traveler left us. His descriptions of life at the old frontier trading posts, with their retinues of trained clerks and servants, and where life among the wild and restless tribes was semi-feudal and always dangerous, are plain but vivid. To these very remote posts the steamer from St. Louis came once a year, sandbars and a boating stage of water permitting, bringing the annual supply of merchandise, the orders for the ensuing year's operations, and, gathering up the store of furs and pelts and tallow accumulated during the current year, returned without ceremony to St. Louis. This brief visitation, often of but a few hours' duration, constituted the only communication vouchsafed the poor, lone fur traders with the outer world, for a year at a time.

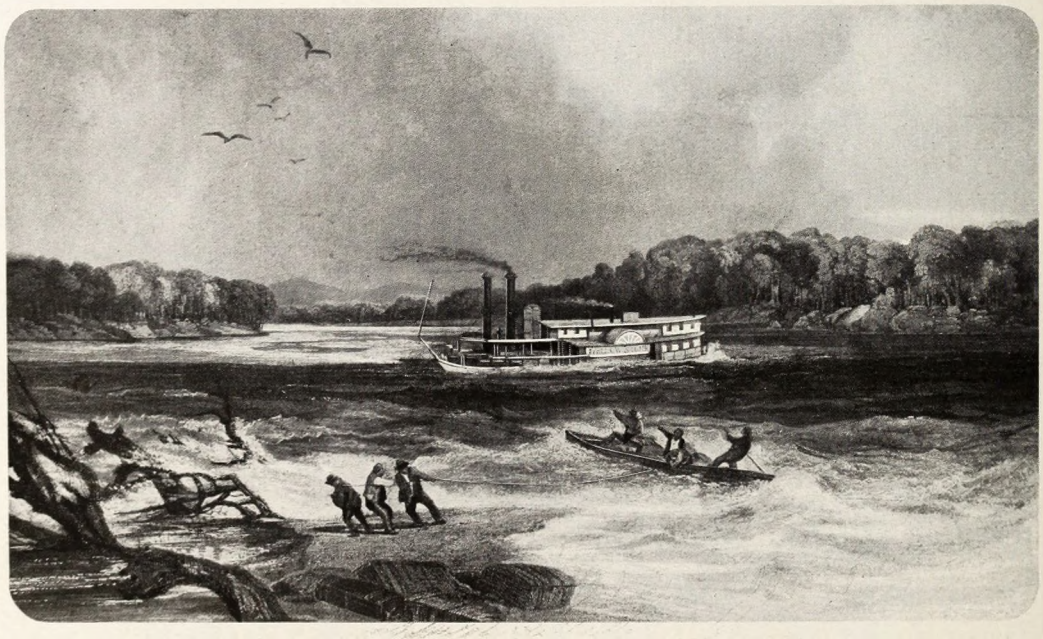
Maximilian's experiences with the various tribes—Blackfeet, Assiniboines, Mandans, Grosventres, Arikara, Sioux, and others — were inter-

esting, and his comments upon Indian nature are sensible. He was not of those who believed that the dead Indian was the good Indian, neither was he given to a maudlin sentimentality.

The long winter of 1833–34 among the Mandans and Grosventres at Fort Clark, near where Washburn, N. D., now stands, enabled him to carefully study these interesting people, friends of Lewis and Clark, and to hand down to us valuable testimony concerning them.

While at Fort Clark Maximilian was seriously ill and for a time his recovery was doubtful. He made a large Indian collection which, unfortunately, was lost by the burning of the steamer, in its transportation down the Missouri.

Next to the great narrative of Lewis and Clark, in connection with the Northwest, stands that of this intelligent traveler, and while it is, in most respects, a very different sort of a narrative, Maximilian's work is a valuable adjunct to the student or reader of Lewis and Clark and of Western history in general. It is gratifying to know that the Arthur H. Clark Company, Cleveland, Ohio, has in press this work and also several other narratives of the West published between 1748 and 1850, so that these rare volumes will soon be placed within more convenient reach of ordinary readers and students.



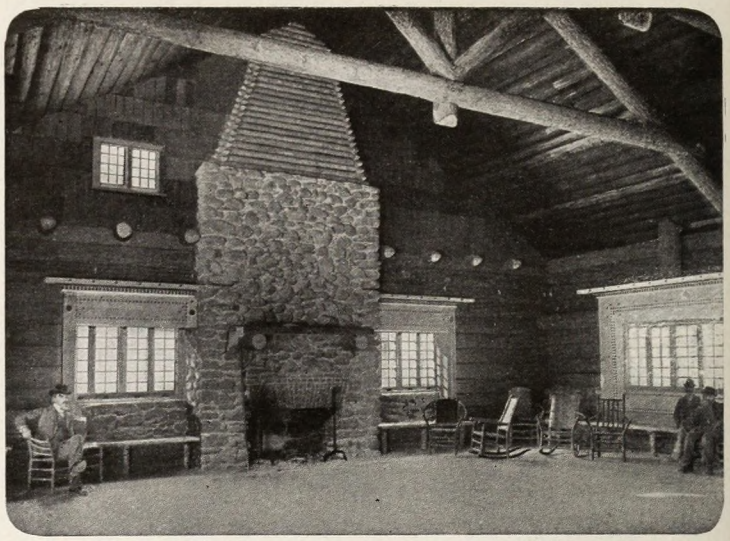
The Steamer Yellowstone ascending the Missouri River in 1833

From "Travels to the Interior of North America in 1832-3-4," by Maximilian, Prince of Wied, 1843

THE GREATEST PARK IN THE WORLD

THIS title is not meant as a high-sounding phrase, but is to be taken seriously, for Yellowstone park is, in all truth, the greatest park in the world, if the testimonies of world travelers are to be credited. While several of the phenomena found here are, taken separately, enough to make this region a renowned one, yet, as has been said and written many times,—and it cannot be too often repeated—it is in the strange, almost uncanny, concentration of so many weird and unusual manifestations of Nature in this somewhat restricted spot, that enables it to challenge the world to show another similar area, or one that even approaches it. That such an accumulation of thermal peculiarities should have been bunched in an area of 3,312 square miles *any*where, is a geological fact that calls for the profoundest reasoning and acutest investigation and study. If, as has been said, this is the safety valve of the globe, or any considerable part of it, it may be a very safe place to be, for steam boilers seldom, perhaps, burst near the point where the safety valve is attached. Certainly no Mount Pelee or Vesuvius has broken forth here in historical time, notwithstanding the boiling and eruptions that, after the fashion of the hot spring and the geyser, have, we know historically, been going on for nearly a century. The record shows that the operation of the thermal forces in Yellowstone park has been remarkably uniform, notwithstanding the attempts of a few individuals to prove the contrary.

For many years I have been writing of this World's Greatest Park. It is a wholesome, prolific subject, one easy to become enthusiastic over. Even so, I have felt that I would this time, as far as possible, let others tell the story for me, and let the reader, instead of seeing the park through the eyes of one person, see it through the eyes of many.



Interior of Main Waiting-room of N. P. R. Station, Gardiner, Mont.

Recent Improvements.

"Preliminary to my text," as a clergyman I once knew invariably began his sermon, let me state that great changes have been and are still going on here. The Government has at last become fairly stirred up, thanks to Speaker Cannon and a few other Congressmen, and is doing what should have been done ten years ago. Others are doing, too, and a marvelous improvement it is all making in many things that minister to the pleasure and physical comfort of the tourist.

In 1903, the Northern Pacific having extended the railway from Cinnabar to Gardiner, a railway station was constructed that, with its surroundings, is one of the most unique, cosey, and attractive to be found in the United States. From the Bitterroot valley and mountains, selected pine logs were brought which, with the smooth, richly colored bark on, were fashioned into a symmetric, well-proportioned, tasteful, and rustic building, the interior of which, with its quaint hardware, comfortable, alluring appointments, and ample fireplace and chimney, is in keeping with the inviting exterior. Two colonnades supported by massive, single log pillars at intervals, under which young and growing pine trees in wooden boxes are found, adds much to the beauty of the structure.

On the south side of the station, opposite to the railway track and fronting the great park, is a pretty, artificial lake, the water which supplies it being brought in a flume from the Gardiner river, a mile away. Back of the lake rises the high, brown-black, lava arch and its side walls, the new and striking official entrance to Yellowstone park, costing $10,000, whose corner-stone President Roosevelt laid in 1903. To the left of the station and arch lies Gardiner, a snug little town on the very boundary of the park; just beyond it flows the Yellowstone river, and still beyond and across the stream, rising high above and some miles away, the high Snowy range, a northern continuation of the Absaroka, terminates the view. At the right stand Electric peak and Sepulchre mountain, great, mighty peaks of volcanic origin and grand form.

The whole combination of railway and train, rustic station, lake, town, arch, and landscape, added to the chattering throng of humanity, full of life and laughter as it hustles aboard the line of waiting coaches

with their champing, impatient horses, is full of interest and enthusiasm, and a very fitting prelude to the wonderful trip ahead.

The coaches loaded, a word to the horses and six pairs of equine shoulders are pressed against the collars, six splendid bays spring forward, and with a tautening of the traces and a crunching of gravel the merry load of tourists, followed by other coach loads, winds about the little lake and then, passing through the portals of the arch, are fairly within Wonderland.

"For the Benefit and Enjoyment of the People" is the legend carved on a large stone embodied in the face of the arch. These words, taken from the Act of Dedication in 1872, are most appropriately placed as they appropriately express the purposes for which the park was established, and it is entirely proper that they should thus greet the eye of the tourist at the moment that he enters the confines of the park.

The arch is fifty feet high, the opening thirty feet in height and twenty feet wide, and the north wall, or wing, is one hundred thirteen, and the south wall ninety-two feet long.

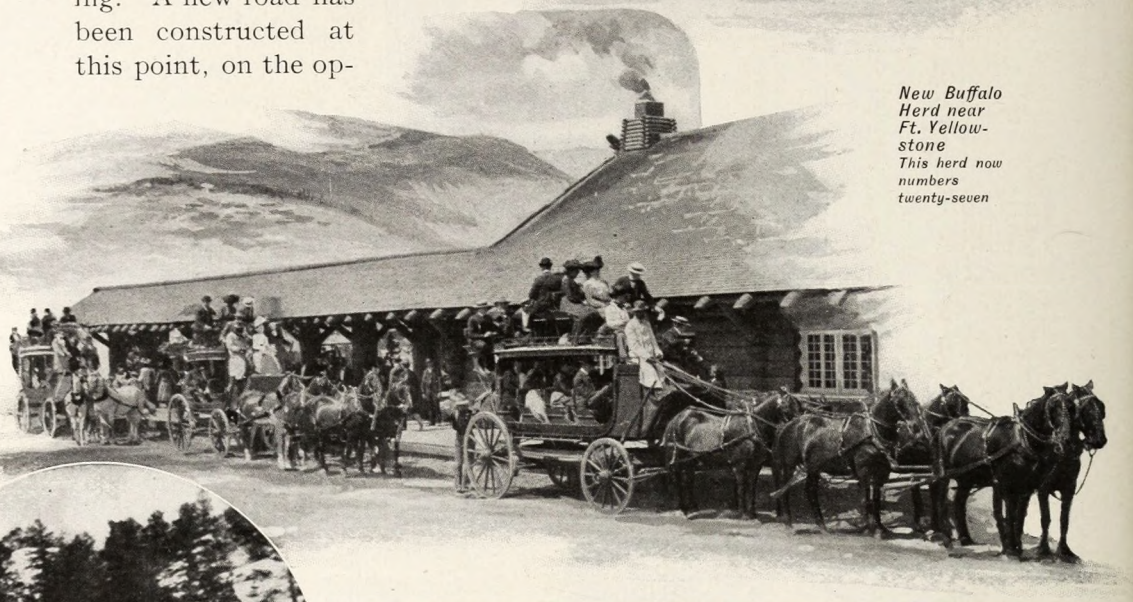
The road between Gardiner and Mammoth Hot Springs and the improvements recently made at the latter point indicate the character of the betterments that the Government is making

New Lava Arch — The official entrance to Yellowstone Park, Gardiner, Mont.

N. P. R. Station, and Entrance Arch to Yellowstone Park, Gardiner, Mont.

in the park. The old road which ran directly underneath the Eagle Nest Crag was unsubstantial and required careful watching. A new road has been constructed at this point, on the op-

New Buffalo Herd near Ft. Yellowstone
This herd now numbers twenty-seven



Park Coaches at Gardiner, Mont.
Ready to start

posite side of the Gardiner river, which is absolutely safe, is wider, and affords a much better view of the interesting crag to the tourist. The old wooden bridges have been replaced by steel and concrete structures, and the grades leading from the river to Fort Yellowstone and the Springs have been materially reduced. The five miles between Gardiner and the Springs are interesting ones. The brawling, roaring stream has channeled a narrow valley between Terrace mountain and Mount Everts which the road follows, affording glimpses of pleasing scenery at each new turn. Those on the coaches to whom angling is a passion think of trout, trout, trout, and well they may for the gamy fish is there. If early or late in the season, antelope or mountain sheep or deer may be seen feeding on the flats or on the hillsides. The slope of Terrace mountain, across which the road lies, is composed of ancient hot springs travertine, while Mount Everts, whose seamed side lies open and ragged, shows, at its long, flat summit, a fine palisade of lava. In the rolling valley between the two mountains lies the pasture in which the buffaloes recently pur-

Mountain Sheep
to be seen on road between Gardiner and Mammoth Hot Springs

chased by the Government are kept and where visitors to the park can see them.

At Mammoth Hot Springs the changes in recent years amount, almost, to a transformation. The roads have been rearranged and regraded, concrete sidewalks laid, a system of water works and acequias installed, the Haynes studio removed from the plaza, and the wide area of glaring white travertine surrounding the military quarters and about the hotel is now hidden in a mantle of green, made possible by manuring, cultivation, and irrigation. New and very attractive buildings have been erected, notably the clean, white, artistic one of the United States Signal Service Bureau, and the noble, dignified one of the United States Engineer officer in charge, constructed of Columbus (Mont.) gray stone. The Yellowstone Park Transportation Co. have erected a mammoth barn of artistic design for the housing of their many coaches and hundreds of horses, and all in all the tourist of four or five years ago would now scarcely recognize the Capital of Yellowstone Park.

The Colored Terraces.

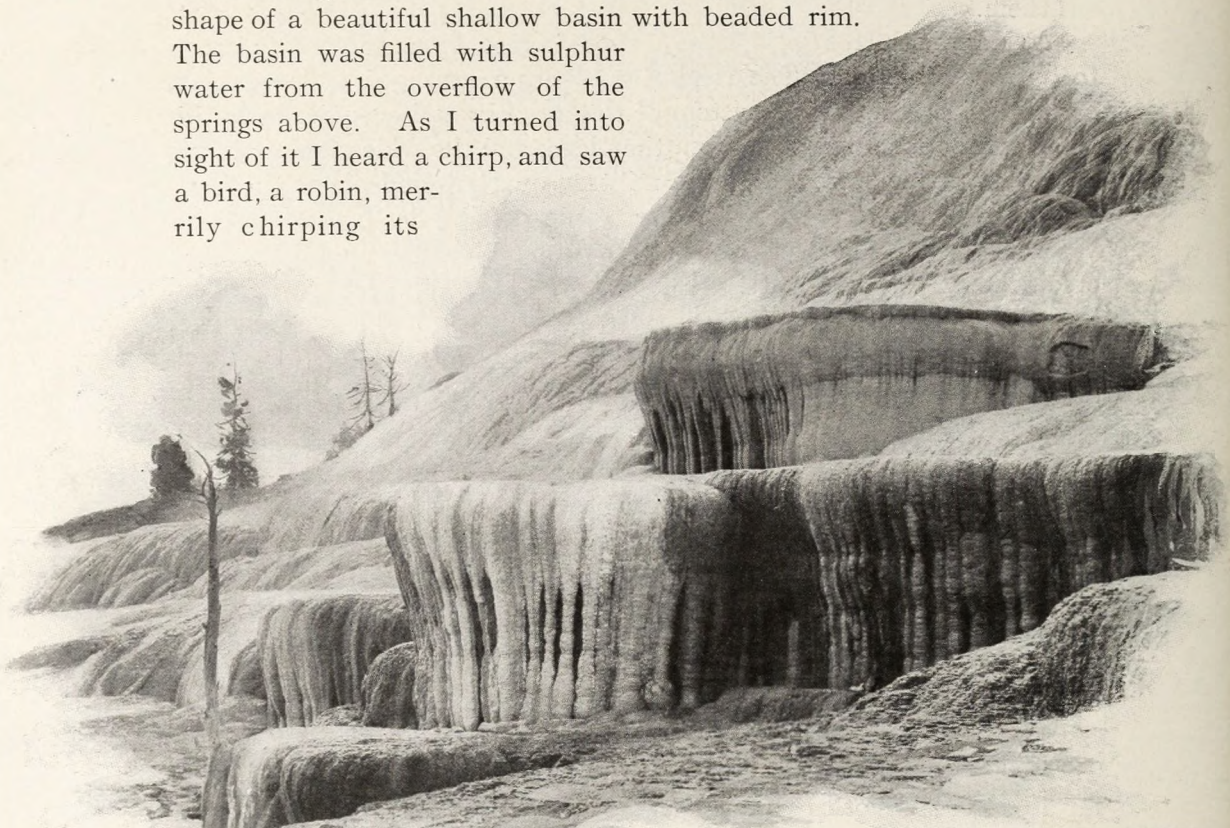
The many-colored terraces found here, the only ones of the kind either in the park, or elsewhere, I believe, remain about as heretofore. Some changes take place from year to year, but what one terrace or spring loses another gains so that the general average is preserved.

"*Mode Wineman*," writing in the Chicago *Evening Post* of a "Tramp Through The Yellowstone," in 1903, thus refers to his first sight of the terraces at Mammoth Hot Springs:

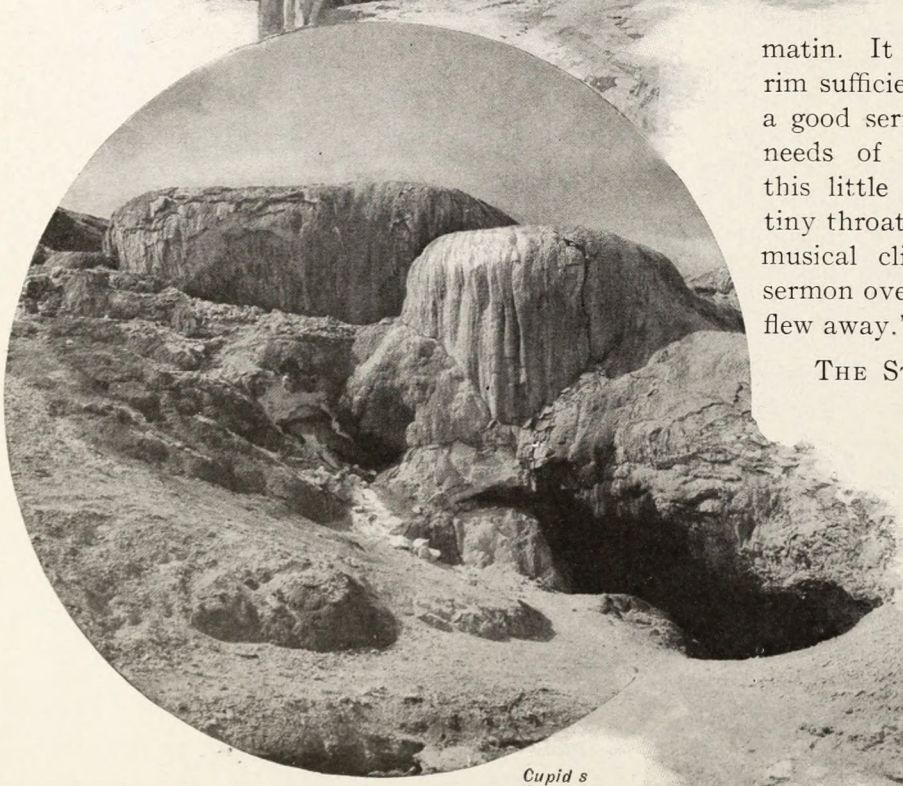
"The sky became overcast, the wind blew, and it began to rain as, through a vista, appeared a mass of orange-colored deposits from which a vapor rose. It was the Mammoth Hot Springs, with gorgeous-colored terraces famed the world over, and the vapor was steam from the springs themselves as the water overflowed and trickled down over a fairylike waterway. When I reached the terrace—Jupiter Terrace—the rain ceased, the clouds parted, the sun shone, and a rainbow played mystically over the first scene in Wonderland. But for a moment only. The clouds lowered, it grew dark, and rain fell again. Later it partly cleared; still the soft, feathery clouds played merrily, tumbling joyously about (a football game on Marshall field mentally passed in review). Again it cleared, the sun set in a radiance over the magnificent terraces. Who can describe the colors of these wonderful formations? They are absolutely unique. One must sit in silence with riveted gaze until the minute, marvelous formations reveal their tiny, delicate contours bathed in port wine, orange, and chocolate. One is indeed fortunate to catch a glimpse of their true beauty. But they must be studied. * * * * *

"Pulpit Terrace is so called because it resembles a pulpit, and a most artistic one it does resemble, the beauty of which has never been carved

save in imagination. The desk of the pulpit is in the shape of a beautiful shallow basin with beaded rim. The basin was filled with sulphur water from the overflow of the springs above. As I turned into sight of it I heard a chirp, and saw a bird, a robin, merrily chirping its matin. It stood on the beaded rim sufficiently long to preach a good sermon. True to the needs of pastoral preachers, this little minister wetted its tiny throat as it reached some musical climax. The unique sermon over, my little minister flew away."



Pulpit Terrace, Mammoth Hot Springs



Cupid s Cave, Mammoth Hot Springs

THE STAGE COACHES.

It is well known that no railways, steam or electric, are allowed within

the park. The means of transportation are stage coaches drawn by the best horses that the West produces. Regarding these coaches, L. W. B., in the Chicago *Inter Ocean*, has written:

Black-tail Deer on Parade Ground, Fort Yellowstone

"The stage coach, like the buffalo, has ceased to be a feature of the western landscape, except as it is preserved in the Yellowstone National Park It is only a few years since it was a part of every bit of western history, and the center of most western romance. But it has been crowded out by the railroad, and where the stage routes are still set down on the map the traveler will be disappointed to find only a spring wagon or an old hack that carries package freight and does a general traffic business rather than an express or passenger business. The stage of romance and of reality a dozen years ago cannot be found in any part of the West except in the National Park. Here it remains in a state befitting its past glory, in accommodation and style, if not in the character of its business. It is for pleasure and not for business, and it is nearer to the coach of the parades in the East than it is like the coach of the plains. There is a pleasure about the top of a stage coach drawn by four or six spirited horses that is not found in any other mode of travel.

"It is appropriate that the National Park should be the preserve of the stage coach as well as of its companion of the plains, the buffalo. The buffalo, the elk, the deer, and the bear were not afraid of the stage coach in the old days when all were companions on the plains, and they are not afraid of it now in the park."

Park Travel.

It may be well to correct here an erroneous impression that prevails with many that the trip through the park must be hurriedly made. The time that is spent in the park, in the course of the usual tourist trip, may be prolonged to as great an extent as desired, at the option of the individual, and with no additional cost for transportation. The tourist may present himself on the first day of the park season and remain until the hotels are closed, if he desires, and may put in his time where and as he pleases.

He will, naturally, as at any other place, have his hotel bill increased by so doing. The usual hotel rate of $4.00 per day, is decreased to $3.50 per day after seven days. It is becoming more common each year for tourists to remain from one to two weeks, or more, in the park. This practice will increase now that a fine hotel has been erected at the Upper geyser basin.

More and more also the cosmopolitan nature of the park becomes

The White Elephant, Mammoth Hot Springs

Golden Gate, Yellowstone Park

Yankee Jim s Cañon, near Gardiner, looking south

manifest. All parts of the United States are now well represented on the hotel registers. The far East and the South are sending larger delegations each year to Wonderland. But still the foreigner holds his own, numerically. From all over Europe they come to see what can be found only in this retreat among the mountains.

Mary C. Ludwig has written, in the Pittsburg *Press*:

"We have often heard the assertion: 'There are eight or ten foreigners to each American visiting the park.' In all our park tour we do not find this to be true, but we do observe that the number of foreigners in proportion to the people of the United States is a serious reflection on the loyalty of those who persistently visit foreign shores without even a thought of the greater wonders to be found here. In our hearts we echoed the sentiment of the Englishman, who, after visiting the park, forcibly exclaimed: 'What d——d idiots these Americans are, always going to Europe for scenery, when they have at home that which infinitely transcends anything to be found abroad.' "

Mammoth Hot Springs to Lower Geyser Basin.

Leaving Mammoth Hot Springs, in regular course, the coaches wind past the terraces, through the chaos of rocks which encompass Silver Gate, through Golden Gate cañon, with its new and substantial concrete viaduct and little Rustic fall, and emerge into Swan valley. V. C. S. in the Chicago *Evening Post* describes an incident of this day's drive typical of touristic experiences in the park:

"Passing out of the cañon we were bowling along a pleasant, wooded valley when a few yards overhead we espied an enormous black bear.

"It was our first glimpse of the untamed beast in his native wilds, and it is not strange that to our distorted vision he looked about the size of an elephant.

"While we gazed with considerable apprehension, the bear crossed the road and then halted on the edge of the wood to take a look at the passing coach. His deliberate gait and idly, curious air reassured us.

"Out came the cameras from beneath the coach seats and with trembling fingers we 'snapped' his picture.

"The 'setting' over, Bruin moved on leisurely through the thicket.

"A few miles beyond we came upon a beautiful deer grazing by the roadside. The lovely creature looked up as we approached and accommodatingly remained motionless until we secured a snapshot.

"I do not wonder that after coming into close and amicable range with the denizens of the forest, as men do here, they lose all desire to kill these wonderful creatures in whom God has implanted a love of life possibly as strong as ours. Who can say?"

Between the Springs and Norris geyser basin where luncheon is eaten, many interesting things are seen. After passing Willow park and

Apollinaris spring, one of the really important objects looms ahead. It is a simple, imposing cliff upon the borders of beautiful Beaver lake, but the structure of the cliff is noteworthy. It is a cliff of natural glass, or obsidian, and from its fragments the Indians formerly fabricated arrow-heads. To the student or geologist the cliff is very attractive.

Of the ride along this stretch John T. Moore in Toronto *Inward* wrote:

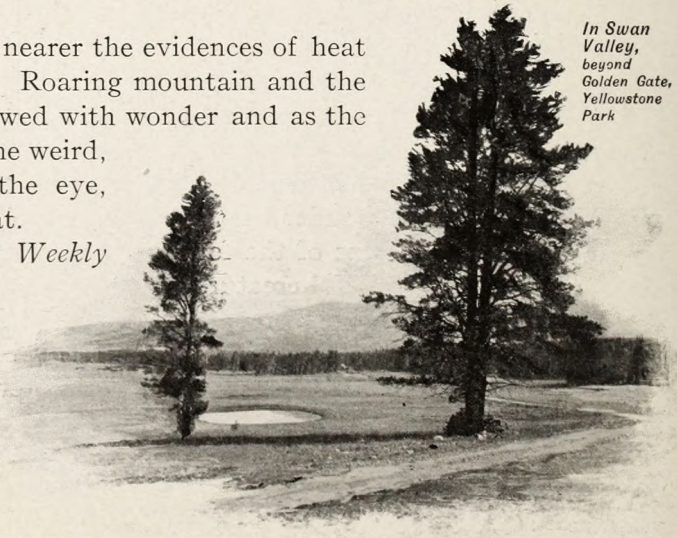
"Nearing the edge of Willow park, there was upon our right a smooth incline, dotted with pine trees, resembling a model deer-park with well-kept sward and almost encircled by dense forest. Across this pretty opening there scampered three perfect beauties of black-tail deer. On reaching an opening in the thick timber beyond they halted and turned a startled look upon us. It was such a picture as would thrill a sportsman with delight.

"From a spring beside the road our party indulged in draughts of natural soda water, much better than many of the compounds dealt out at showy fountains. Now we travel along the base of ribbed and castellated sandstone, then on between rocky walls, and upon emerging, there, at our right, is Beaver lake. There, too, are the dismantled public works of the departed amphibious builders—carpenters with their teeth, and plasterers with their tails. Submarine mosses abound in this lake, and at its margin a pellucid pool attracts my notice and holds me with strong fascination. Turning, I lift my eyes, and there the obsidian cliff glistens and sparkles in the sun. A veritable mount of glass, translucent, yet inky black. Fragments bestrew the road, so that for rods we drive over the somber macadam. Prospectors shivered by a blast one of the huge basaltic columns, and showered the shining volcanic glass now lying at our feet, ranging in size from massive spalls to merest splinters. Looking first upon the thin shaving in my hand, through which the sunlight feebly filters, I turn in mute amazement to the battlemented pile before me flashing back the sunlight from each facade. The passing clouds seem to float barely above the brow, and yonder projects a Norman turret, rounded and capped and shapely, as if the product of human hands."

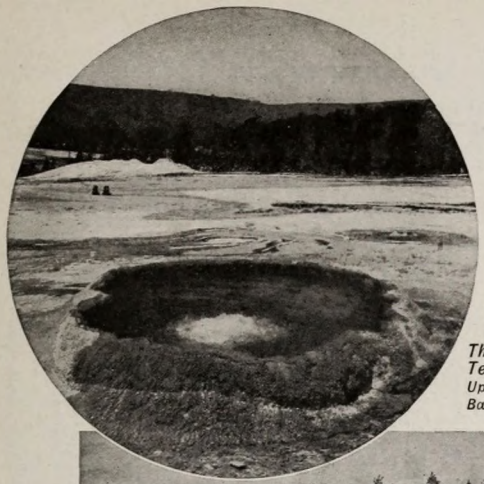
As Norris basin draws nearer the evidences of heat action become more clear. Roaring mountain and the Devil's Frying Pan are viewed with wonder and as the coaches reach Norris and the weird, uncanny spot breaks on the eye, the interest is at white heat.

A writer in *Harper's Weekly* thus remarked upon this spot:

"The road skirts along the ridge, and



In Swan Valley, beyond Golden Gate, Yellowstone Park



The Teakettle, Upper Geyser Basin

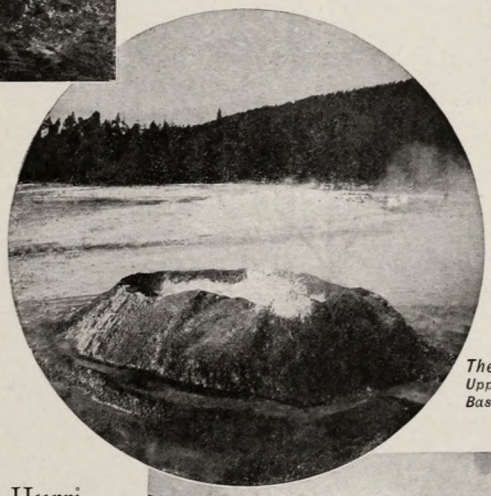
the steaming craters can be seen, the rumblings and roarings heard, and the sulphuric odors smelt from the coach; but whoever would really know what a formation is and what boiling springs and eruptive geysers are should walk over the crust. It will be an experience that has been enjoyed by comparatively few, that of walking on the shell formed by the deposits of hot water, and under which the water may still be heard bubbling. Sometimes the crust will yield, and the traveler will break through a little, but there is very little danger and a good deal of interest." Let

Buffalo Spring, Lower Geyser Basin

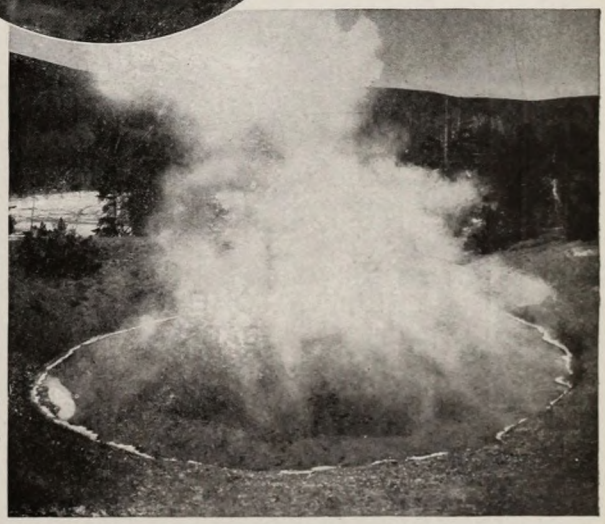
me add, be careful, nevertheless!

The tourist remains an hour and a half at Norris, after luncheon, looking about the weird spot. The Black Growler, a noted steam geyser, the Constant, Monarch, and New Crater geysers, Congress and Emerald springs, the Devil's Ink Stand, and the Hurricane are the principal sights here. The tourists are picked up by the coaches at the lower end of the basin, after sight-seeing is done, and then the ride to Lower geyser basin and the Fountain hotel is continued.

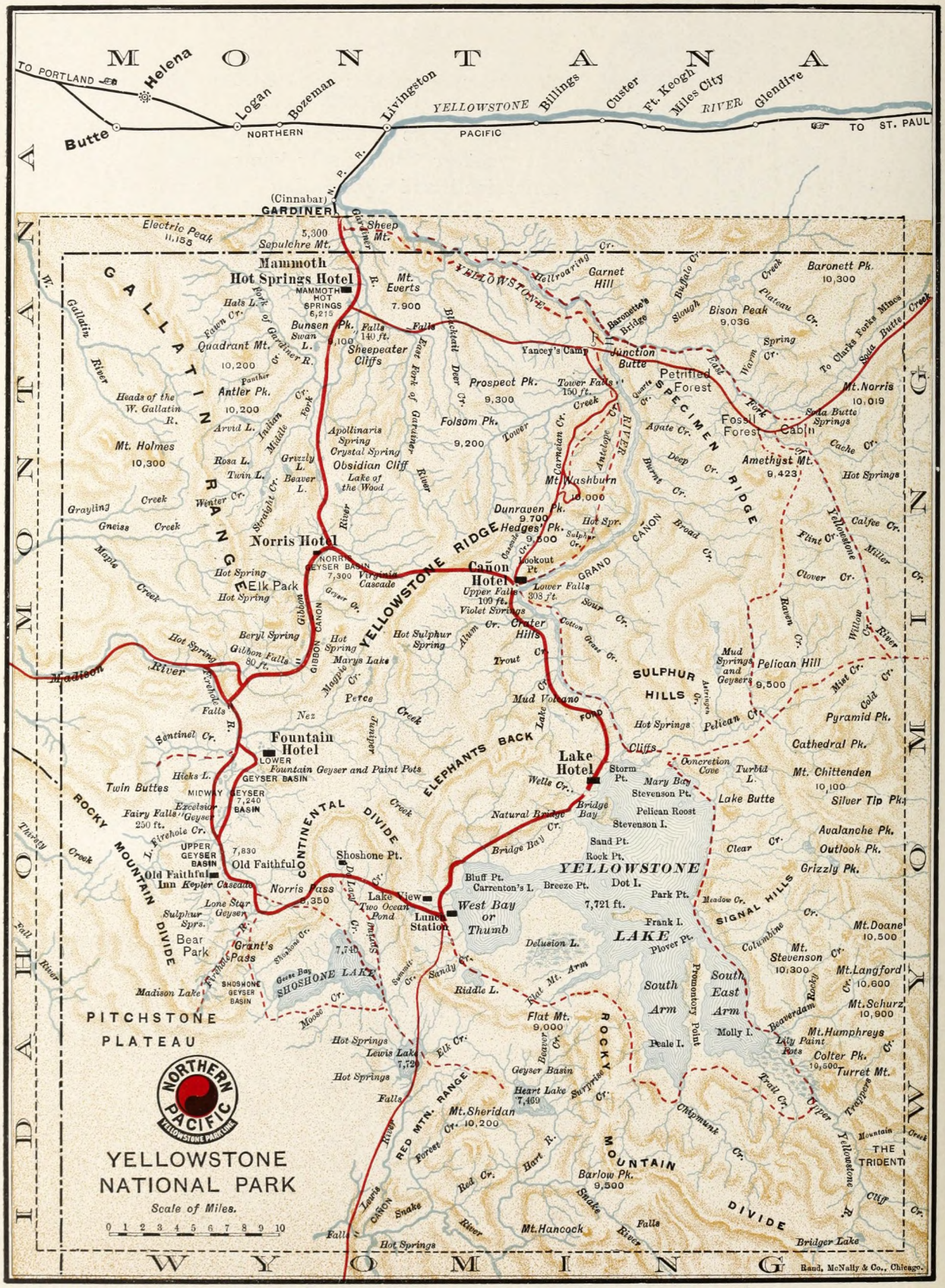
A writer in the *Methodist Magazine and Review* said of the park roads, many years ago, "admirable roads



The Sponge, Upper Geyser Basin



Black Sand Basin, Upper Geyser Basin


MONTANA
TO PORTLAND
Helena
Butte
Logan
Bozeman
Livingston
YELLOWSTONE RIVER
Billings
Custer
Ft. Keogh
Miles City
Glendive
TO ST. PAUL
NORTHERN PACIFIC
N. P. R.
(Cinnabar)
GARDINER
Electric Peak 11,155
Sepulchre Mt. 5,300
Sheep Mt.
Mammoth Hot Springs Hotel
MAMMOTH HOT SPRINGS 6,215
Mt. Everts 7,900
Hellroaring Cr.
Garnet Hill
Baronett Pk. 10,300
Bison Peak 9,036
Baronette's Bridge
Yancey's Camp
Junction Butte
Petrified Forest
Fossil Forest Cabin
Mt. Norris 10,019
Soda Butte Springs
To Clarks Forks Mines
Hals L.
Quadrant Mt. 10,200
Antler Pk. 10,200
Bunsen Pk. 9,100
Falls 140 ft.
Sheepeater Cliffs
Prospect Pk. 9,300
Tower Falls 150 ft.
Folsom Pk. 9,200
Heads of the W. Gallatin R.
Mt. Holmes 10,300
Rosa L.
Twin L.
Grizzly L.
Beaver L.
Apollinaris Spring
Crystal Spring
Obsidian Cliff
Lake of the Wood
Mt. Washburn 10,000
Amethyst Mt. 9,423
Hot Springs
Dunraven Pk. 9,700
Hedges' Pk. 9,500
Hot Spr.
Lookout Pt.
Norris Hotel
NORRIS GEYSER BASIN 7,300
Virginia Cascade
Cañon Hotel
Upper Falls 109 ft.
Lower Falls 308 ft.
Violet Springs
Elk Park
Hot Spring
Beryl Spring
Gibbon Falls 80 ft.
Hot Sulphur Spring
Marys Lake
Crater Hills
Mud Volcano
Mud Springs and Geysers
Pelican Hill 9,500
Pyramid Pk.
Cathedral Pk.
Mt. Chittenden 10,100
Silver Tip Pk.
Fountain Hotel
LOWER GEYSER BASIN
Fountain Geyser and Paint Pots
MIDWAY GEYSER BASIN
Twin Buttes
Hicks L.
Fairy Falls 250 ft.
Excelsior Geyser
UPPER GEYSER BASIN 7,830
Old Faithful
Old Faithful Inn
Kepler Cascade
Lake Hotel
Storm Pt.
Mary Bay
Stevenson Pt.
Pelican Roost
Stevenson I.
Lake Butte
Natural Bridge
Bridge Bay
Sand Pt.
Rock Pt.
YELLOWSTONE LAKE
Dot I.
Park Pt.
Frank I.
Plover Pt.
South Arm
South East Arm
Peale I.
Molly I.
Avalanche Pk.
Outlook Pk.
Grizzly Pk.
Mt. Doane 10,500
Mt. Stevenson 10,300
Mt. Langford 10,600
Mt. Schurz 10,900
Mt. Humphreys
Colter Pk. 10,500
Turret Mt.
THE TRIDENT
Shoshone Pt.
Lake View
Two Ocean Pond
Lunch Station
West Bay or Thumb
Bluff Pt.
Carrenton's I.
Breeze Pt.
Delusion L.
Riddle L.
Flat Mt. 9,000
Flat Mt. Arm
Sandy Pt.
Norris Pass 8,350
Lone Star Geyser
Sulphur Sprs.
Bear Park
Grant's Pass
7,740
SHOSHONE GEYSER BASIN
SHOSHONE LAKE
Madison Lake
Lewis Lake 7,720
Hot Springs
Geyser Basin
Heart Lake 7,469
Mt. Sheridan 10,200
Barlow Pk. 9,500
Mt. Hancock
Bridger Lake
PITCHSTONE PLATEAU
GALLATIN RANGE
YELLOWSTONE RIDGE
SPECIMEN RIDGE
GRAND CANON
SULPHUR HILLS
ELEPHANTS BACK
CONTINENTAL DIVIDE
ROCKY MOUNTAIN DIVIDE
SIGNAL HILLS
RED MTN. RANGE
ROCKY MOUNTAIN DIVIDE
YELLOWSTONE NATIONAL PARK
Scale of Miles.
0 1 2 3 4 5 6 7 8 9 10
IDAHO
WYOMING
Rand, McNally & Co., Chicago.

have been constructed, at great cost, throughout this park. In places great engineering difficulties are overcome with a boldness of construction akin to some of the grandest rock work in Switzerland."

This was long before the Government began the work of regenerating the roads. Within three years there have been expended close on to $600,000 in Government improvements here, much of which has been in new road construction and old road betterment. One of the new and attractive bits of road follows the Gibbon river past a series of cascades, just after leaving Norris basin. Then, crossing Gibbon meadows, the coaches thread the defile of Gibbon cañon, cross a pine ridge to the Firehole river, a beautiful stream, and reach the Fountain hotel in time for dinner.

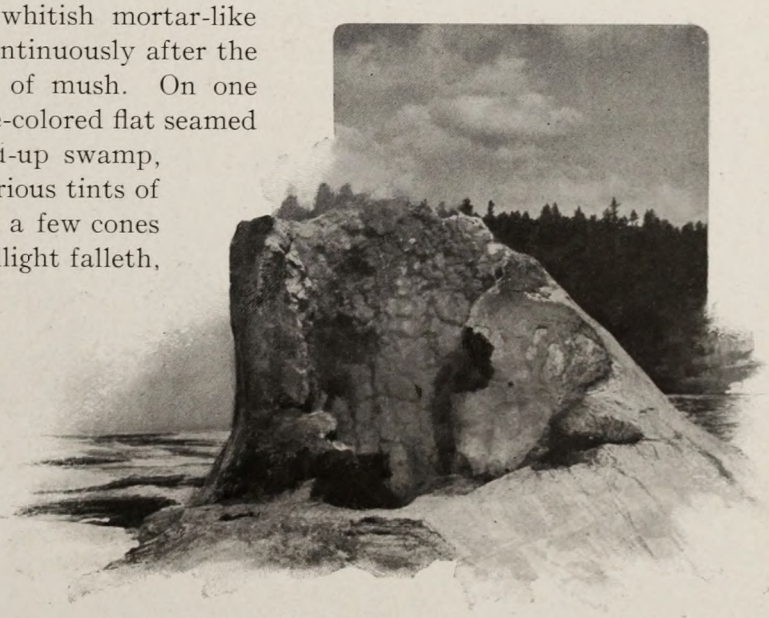
In order to fully see the Lower geyser basin one should remain an extra day or more at this point. On the usual trip the Fountain geyser, the Paint Pots, Clepsydra geyser and, usually, the Great Fountain geyser may be seen. But if several other objects equally interesting are to be viewed, at least one other day is necessary. In the vicinity of the Great Fountain geyser, about two miles distant from the hotel, there is an aggregation of pools and springs and geysers little short of the marvelous.

The Fountain geyser is one of the best in the park, and the Great Fountain is still finer. The former may be seen in eruption from the piazza of the hotel. Its eruptions occur about every four hours, and it plays for a quarter of an hour to a height of from forty to sixty feet.

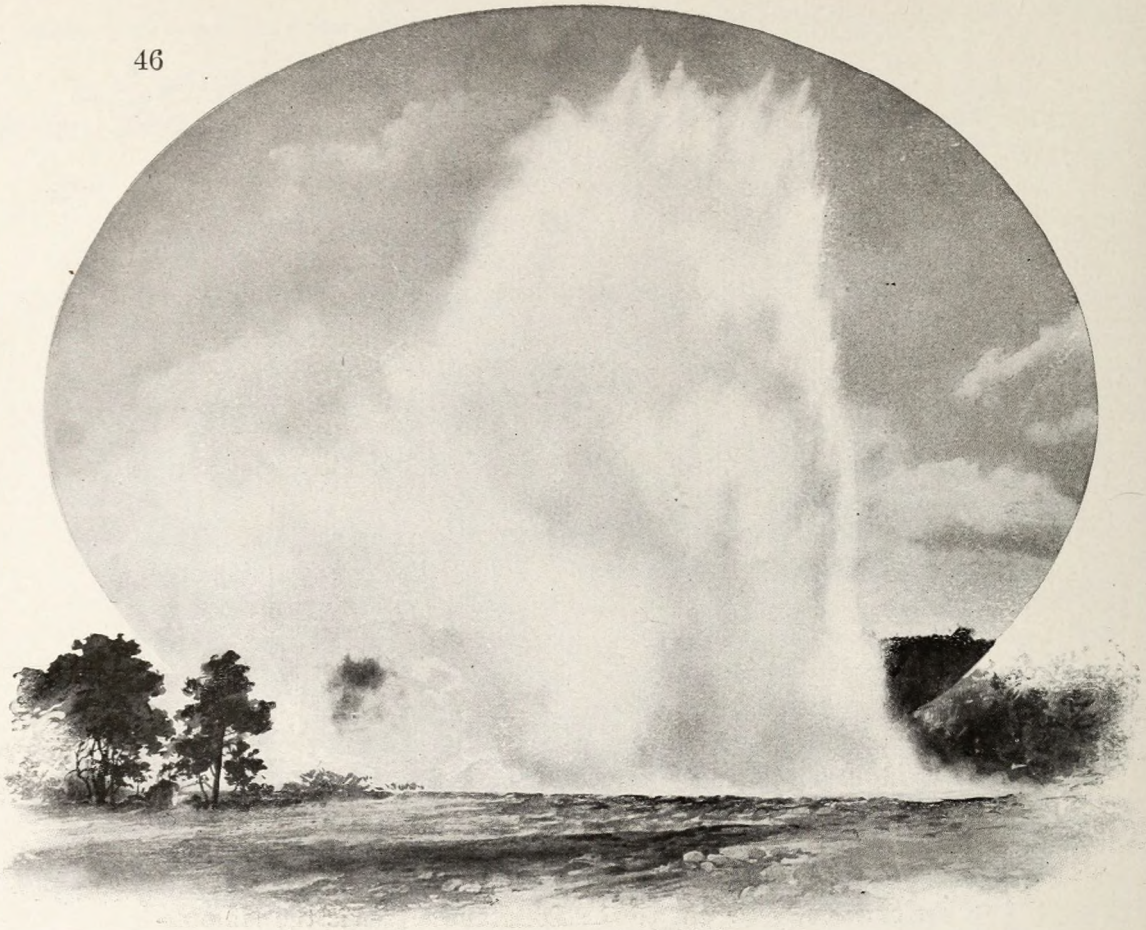
Another curiosity adjacent to the Fountain geyser is the Mammoth Paint Pots, and to many they are even more novel than the geyser.

Let me again quote from Mary C. Ludwig at this point:

"After we have eaten dinner we find that the Fountain hotel is literally surrounded with geysers and hot springs. A very interesting phenomenon is the Mammoth Paint Pots. The main pot or basin is perhaps forty by sixty feet and its contents consist of a mass of a whitish mortar-like substance which boils continuously after the manner of a hugh pot of mush. On one side of the basin is a rose-colored flat seamed and cracked like a dried-up swamp, dotted with cones of various tints of pinks, interspersed with a few cones of Quaker gray. The twilight falleth, causing these colors to mingle and blend until we cannot distinguish the pink from the gray, nor the gray from the



Crater of Giant Geyser, Upper Geyser Basin



Great Fountain Geyser, Lower Geyser Basin, Yellowstone Park

white, and turning from this new prodigy we pass a few rods farther to the west to await the eruption of the Fountain geyser. It has a crater thirty feet in diameter. We had thought the Norris basin weird and uncanny, but as we stand near the verge of this chasm, watching the furious boiling of the water, often-times thrown violently upward or tossed and swished about until the surface is covered with a seething foam, listening to the ominous groans and growls and threatening roars under foot, the whole intensified by the gathering darkness, until it really seems as though all the demons in Hades are congregated beneath and holding high carnival over the prospect of the surface caving in and fresh victims falling through to be tormented by their diablerie, Norris dwindles into insignificance.

"Awful as it is, we stand spell-bound. Finally, with a terrible shriek, the whole boiling, angry mass shoots upward some twenty or thirty feet, whilst fountain-like jets are thrown thirty or forty feet higher, and the volume of water, spray, and steam presents to our astonished gaze a sight that seems not of the earth earthly. We have seen it numerous times since in daylight, and although it is ever grand and beautiful the memory

of that first wonderful display lingers over all and we wish that all tourists might first see it under similar circumstances."

At the Fountain hotel the tourists first come into intimate relation with the bears, which have now become as much a feature of the park as the geysers. And very curious and interesting Bruin is!

Mr. James E. Scripps thus describes, in the Detroit *News-Tribune*, his observations of the bear scavengers:

"Returning to the hotel we go out to see the bears, which are fed with the garbage, and come every evening regularly in search of it. The feeding place is perhaps 200 yards from the hotel, in the edge of a mass of young pines. A slight wire fence keeps visitors from intruding too closely upon them, though it offers no obstacle to the bears. It was just growing dusk. Presently a great black monster slowly approaches from through the woods. He pauses every few steps as if on the lookout for an enemy. He noses about for a few minutes among the old fruit cans with which the ground is strewn, and then departs. He is followed by another, who is evidently enjoying his supper, when the first one returns and, rushing upon him in fierce attack, drives him from the feeding grounds. At every attempt to return, the second bear would thus be chased off, although the other seemed full to repletion.

"We saw one bear in the woods, as we were driving, not 1,000 feet from us. He was probably scavengering some camping place. At one of the hotels we saw eight or ten, and they were all behaving as hoggishly as the one at the Fountain hotel. Some seemed very quarrelsome, while others were timid and only ventured near the food when the fiercer ones were away. While well fed they are not dangerous to visitors. Of course there are times in the early spring and when they have cubs to protect when it would not be safe to trust them too implicitly. There seem to be two varieties in the park, the silvertip, a species of grizzly, and the cinnamon, a large black bear. The silvertips have a streak of gray on their backs."

Midway and Upper Geyser Basins.

Nine miles from Fountain hotel lies the Upper geyser basin, to many the most wonderful area in the park. On the way the coaches stop at Midway geyser basin where are seen the crater of Excelsior, the monster geyser of the world, Prismatic lake, a body of water 250 by 300 feet which the word beautiful but faintly characterizes, and Turquoise pool, another iridescent creation. Excelsior geyser is rarely in eruption, its last outbreak having taken place in 1888. When in operation it is a water volcano. Of Prismatic lake, Wm. E. Curtis, the well-known newspaper correspondent, has written in the Chicago *Record*:

"The most beautiful spring in the park, and geologists say the most perfect spring in the world, is known as Prismatic lake, which is an almost

circular pool 300 feet in diameter. The water is so clear that one can see into the bowels of the earth from whence it comes, and the surface shows a wonderful play of prismatic colors, from which it was named. During the countless ages that this beautiful spring has been bubbling, the overflow, constant and even, has built up a cone or mound sloping regularly and gently in all directions for a distance of thirty or forty feet. Down this slope the overflow from the spring descends in tiny rivulets that interlace each other like the web of a spider. The water is strongly impregnated with lime and other minerals, which cause the mound to grow slowly but surely."

To Prismatic lake, as to many other pools and phenomena in this enchanted region, the English language is inadequate to do justice.

It is at the Upper geyser basin that one again feels the inadequacy of words to voice the feelings and emotions which struggle for expression. This is the stronghold of the geyser. All other points where these unique, ebulient fountains are to be seen are not in the running. Besides geysers there are marvelous pools, breath-taking in their beauty and delicacy of color.

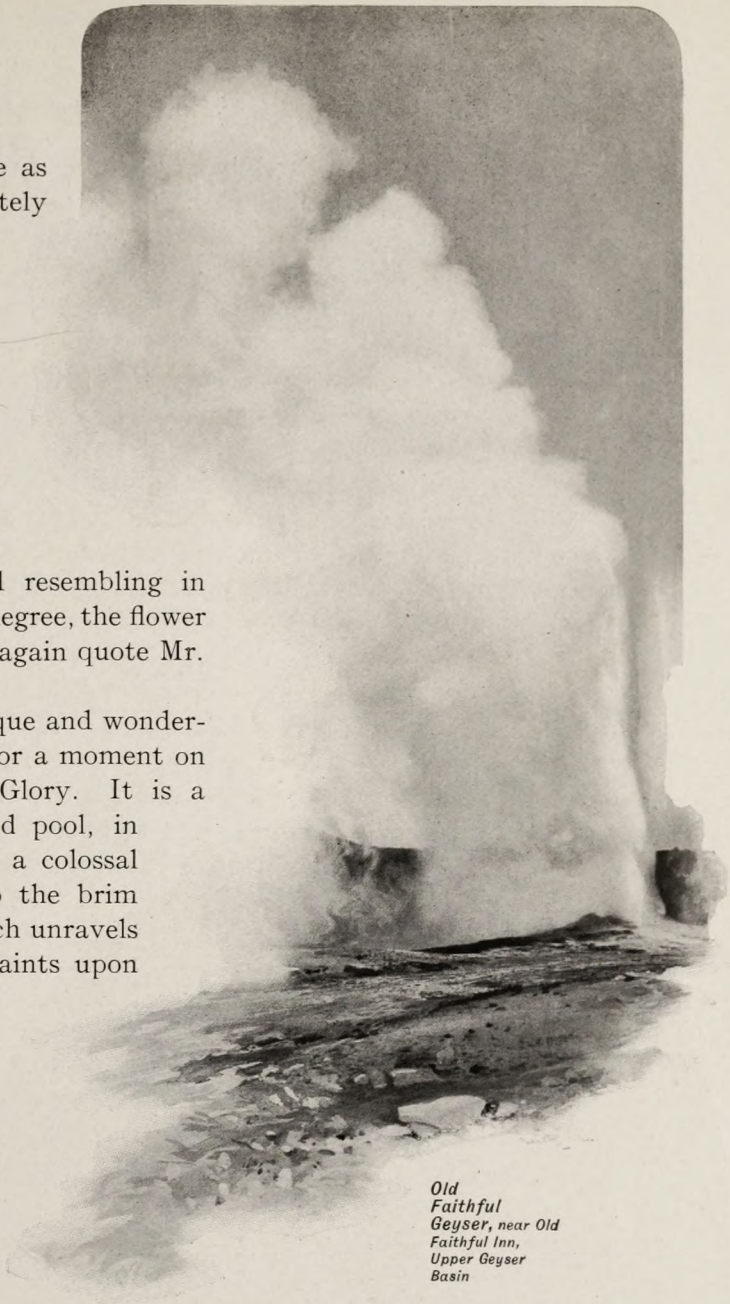
At the lower end of the basin are found two or three of the largest geysers. Prominent among these is the Giant, so named by the Washburn-Doane party from the tremendous height and violence of its eruptions. Lieutenant Doane's description of the Giant, "a crater of flinty rock, in shape resembling a huge, shattered horn, broken off half way from its base," is an apt characterization today and will enable one to identify it at a glance. Bishop Cranston has paid a deserved tribute to the Giant in the *Western Christian Advocate:*

" 'The Giant,' as his name indicates, is greatest of them all; but he is not a giant every day in the year. Why? Because there is an active waste-vent in his 'formation.' A fierce column of steam issuing constantly from a minor crater, called 'The Twin,' robs him of his mighty energies by day and by night. Built for wonderful performances—his crater structure massive, his endowment ample—when he does respond to the impatient expectancy of those who have traveled far to witness his power, there is no disappointment. His voice is heard afar, and footmen, wheelmen, and vehicles of all kinds hasten to the scene. The voices of all the lesser geysers are lost in his mighty fervidness, as he builds a majestic monument that, should his heated utterances congeal, would stand over 200 feet in the air. He holds straight on for an hour and a half, no matter how the admirers of the 'Daisy' or 'Splendid' or 'Economic' may pant through exhaustion of their pampered faculties. He does not heat his throat, and keep a roaring fire under his ribs, for from seven to sixteen days, only to play second part to the choir of singing geysers on the hillside behind him!"

I have already remarked that scattered about the geyser basin are

many hot pools. These are as variously and indiscriminately distributed as are the geysers, and they contrast very effectively with them. Just before reaching the spot where the Giant, Grotto, and other geysers are found, there is seen a collection of pools the most conspicuous of which is the Morning Glory. It is a pool of extreme delicacy in tint and resembling in appearance, to a surprising degree, the flower from which it is named. I again quote Mr. Moore:

"Before leaving this unique and wonder-exciting spot, let us stand for a moment on the verge of the Morning Glory. It is a symmetrical, bell-mouthed pool, in form the very perfection of a colossal convolvulus. It is filled to the brim with transparent liquid, which unravels the morning sunlight and paints upon the delicately-chased and snowy walls gorgeous opalescent tints, faintly lurking in mother-of-pearl, but yet incomparable in lavish opulence of color and diversity; so that the radiant effigy booms with beauty indescribable. The buoyancy of the water is phenomenal."



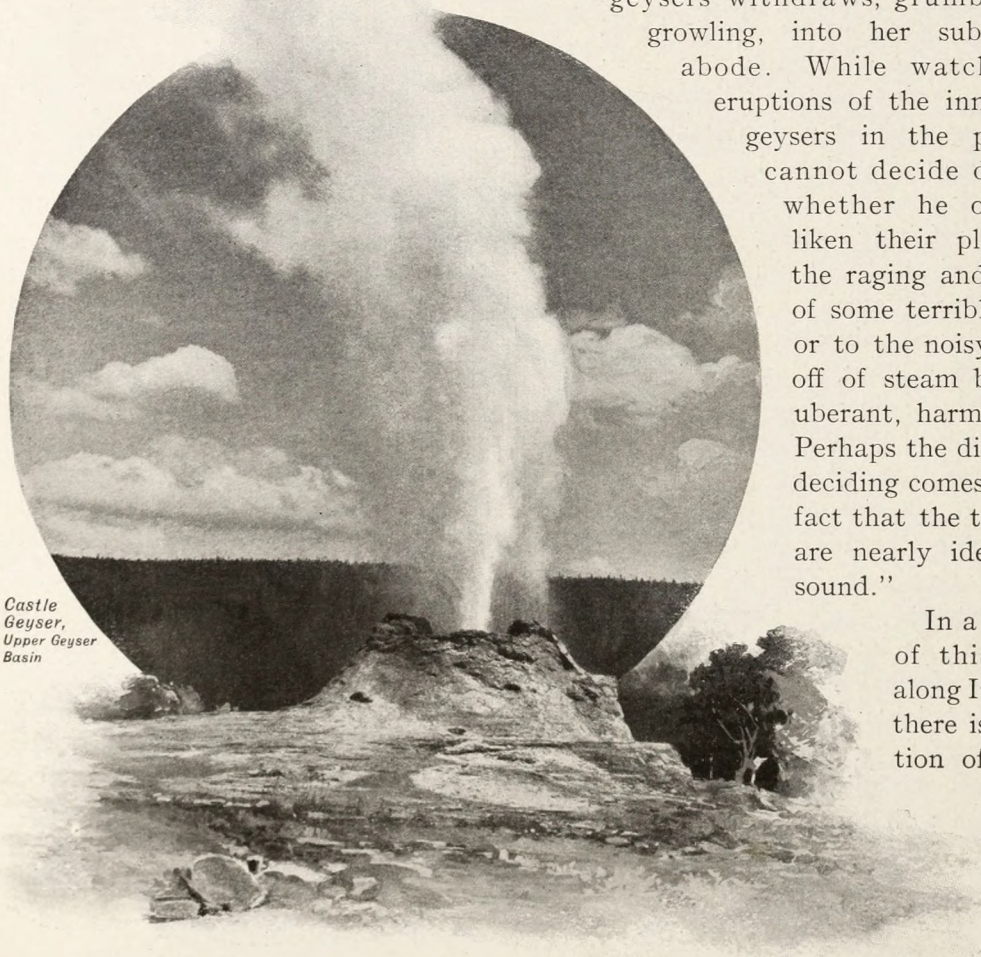
Old Faithful Geyser, near Old Faithful Inn, Upper Geyser Basin

As the coaches traverse the basin a high, rocky, castellated, fortification-like object comes into view. Perchance a column of water and steam may be playing from it. Whether this be so or not, its configuration suggests at a glance that it is the renowned Castle geyser, the most striking one, in its structure, in the park. Its performance may, to some, be somewhat disappointing in that it does not expel its contents to extreme heights, but it really makes amends for this in the variety and length of its eruption.

After all, the universal favorite among tourists is Old Faithful, whose name, given to it by the Washburn-Doane party as were the names of

the Grotto, Castle, Bee Hive, and those of most of the other geysers here, fitly denotes its faithful regularity of performance. Mr. Hugh Herdman in the *Oregonian*, Portland, Oregon, thus describes an eruption of this fine geyser:

"Old Faithful completed the day's enjoyment by playing superbly as we departed for camp. The sight of this geyser in eruption is one of the most remarkable to be seen in the park. First there are a few spasmodic spurts, and large quantities of steaming hot water are thrown out of the oblong crater. Then in a few minutes, without further warning, a huge column of water several feet in diameter is shot straight upward 150 feet or more. If the wind is blowing and the sun shining, as they were when last we saw the eruption, the view is enchanting. The wind carries the steam to one side of the column of water and this forms a snow-white veil of mist, from whose globules the rays of the sun are reflected and refracted with magical color effects. Then the column falls suddenly and with spurts, and the spirit of the most faithful of all the geysers withdraws, grumbling and growling, into her subterranean abode. While watching the eruptions of the innumerable geysers in the park, one cannot decide definitely whether he ought to liken their playing to the raging and snorting of some terrible dragon, or to the noisy blowing off of steam by an exuberant, harmless boy. Perhaps the difficulty in deciding comes from the fact that the two things are nearly identical in sound."



Castle Geyser, Upper Geyser Basin

In a sub-basin of this valley, along Iron creek, there is a collection of springs,

or pools, that words fail to describe. The most prominent of these are Black Sand basin, Emerald pool, and Sunset lake. The two last are in juxtaposition, are quite large, and are so utterly unlike as to perplex most persons as to their relative degrees of beauty.

Dr. L. B. Sperry, the well-known lecturer, in an article in the New York *Independent* regarding these pools, wrote: "The rainbow seems put to shame by the variety and delicacy of the shades of color which characterize the deposits about many of the hot pools, springs, and geysers in this region. Nowhere else in the world is there such beautifully tinted water, or such delicately colored rock. The waters of the Blue Grotto of Capri are tame and pale when compared with the Emerald pool of the Upper geyser basin."

Rudyard Kipling once visited the park and I quote a portion of what he wrote regarding the geysers in the Upper geyser basin:

"On this place of despair lay most of the big, bad geysers who know when there is trouble in Krakatoa, who tell the pines when there is a cyclone on the Atlantic seaboard, and who are exhibited to visitors under pretty and fanciful names.

"The first mound that I encountered belonged to a goblin who was splashing in his tub. I heard him kick, pull a shower bath on his shoulders, gasp, crack his joints and rub himself with a towel; then he let the water out of the bath, as a thoughtful man should, and it all sank down out of sight till another goblin arrived.

"Yet they called this place the Lioness and the Cubs. It lies not very far from the Lion, which is a sullen, roaring beast, and they say that when it is very active the other geysers presently follow suit.

"After Krakatoa all the geysers went mad together, spouting, spurting and bellowing till men feared that they would rip up the whole field. Mysterious sympathies exist among them and when the Giantess speaks they all hold their peace. She is a woman.

"I was watching a solitary spring, well within the line of the woods, catching at a pine branch overhead, when far across the fields and not more than a quarter of a mile from the hotel there stood up a plume of spun glass, incandescent and superb, against the sky.

"'That,' said the trooper, 'is Old Faithful.' * * * * * * *

"So we looked and we wondered at the Bee Hive, whose mouth is built up exactly like a hive, at the Turban, and at many, many other geysers, hot holes, and springs. Some of them rumbled, some hissed, some went off spasmodically and others lay dead still in sheets of sapphire and beryl."

The Upper basin will, henceforth, be a spot more sought by the tourist than heretofore. Until this year there has never been a hotel there, but this lack is now remedied. On the level plateau adjoining Old Faithful geyser there will greet the tourist of 1904 a new, modern, unique, and altogether fitting hostelry, the OLD FAITHFUL INN.

From the inn the entire geyser basin is, practically, in sight, thus providing a view from hotel piazzas and windows the like of which can be seen from no other hotel in the world.

The Continental Divide and Yellowstone Lake.

The road between the Upper basin and Yellowstone lake crosses the great continental divide twice, and the ride over the divide provides an entirely new experience for the traveler.

This divide is a sinuous one and on one side the waters drain to the Pacific, on the other to the Atlantic, ocean. The tourist sees a typical mountain country and road and experiences a thrill, on this part of his coaching trip, not previously experienced. The scene constantly changes, one vista following another rapidly. From Shoshone point a view such as can be found only in the mountains—clear, captivating, uplifting—becomes a cherished inheritance of the memory. The Three Tetons and Shoshone lake are in sight at the same time from this point, which is a projection from the mountains, on the continental divide, along the face of which the road runs.

Dr. H. C. White, of the University of Georgia, has described this trip, in the Atlanta *Constitution*, and I quote a part of his description which refers to another view to be obtained at or near the second crossing of the divide, beyond Shoshone point:

"The road follows the ridge for four miles and then descends to the plateau of the Yellowstone lake. Just as it turns to make the descent a most glorious view is opened to sight. A few miles away, imbedded in settings of the richest green, surrounded by deep, dense forests of mountain pine, lie two large lakes, one on either side of the great divide, and for a moment one may catch a glimpse of both their glistening surfaces at once. The living green everywhere clothing the surrounding hills, the freshness and sparkle of the water, the snow-topped mountains in the distance, make up a picture of enchanting beauty, the loveliness of which is, no doubt, accentuated by comparison with the grim barrenness and death of the great geyser basin from which the beholder has just emerged. One of the lakes is the Shoshone, whose waters are drained, through the Snake river, into the Columbia; the other is the Yellowstone whose sole outlet is the Yellowstone river, a tribu-

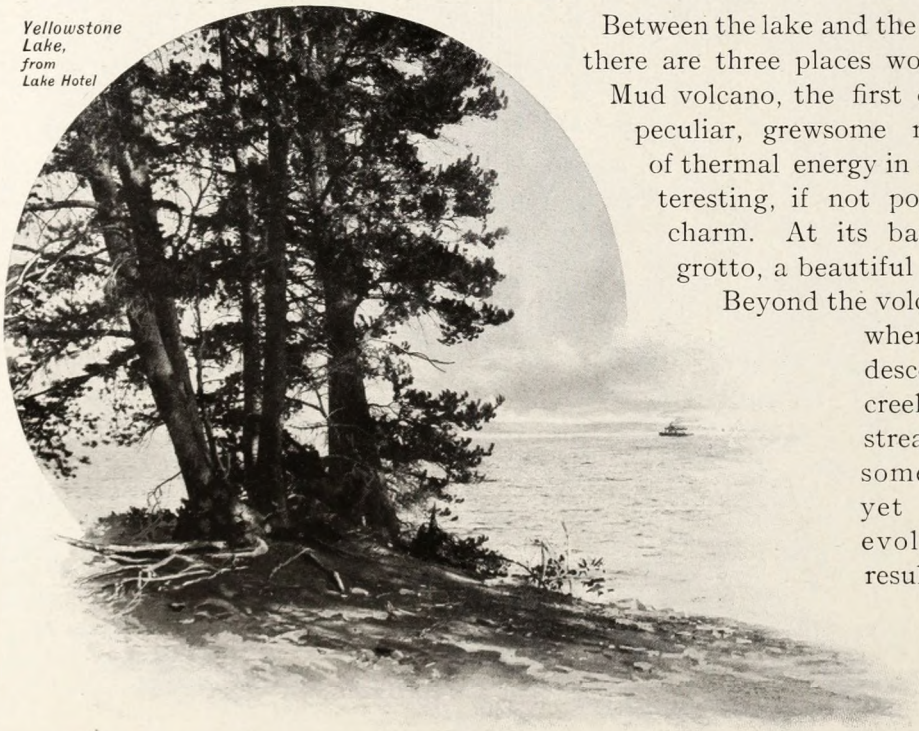
Old Faithful Inn, Upper Geyser Basin, Yellowstone Park

hed Rock, Grand Cañon of the Yellowstone

tary of the Missouri. One is, therefore, looking at two bodies of water whose final destinations are the two oceans separated by the width of the great continent. Yellowstone lake is a large body of water covering an area of 140 square miles, irregular in shape and somewhat resembling in outline the human hand. Its elevation is 7,721 feet above the sea level and it is, therefore, with one possible exception, the largest body of water in the world at so high an altitude. Its waters are deep (thirty to forty feet), clear, cold, and of a beautiful color. Its surface is dotted with a number of small islands, the hills enclosing it are covered with a dense forest growth, and it is surrounded by peaks and ridges of lofty mountains covered with perpetual snow. In many respects it closely resembles the famous mountain lakes of northern Italy, and none of them is more beautiful."

South of the lake looms Mount Sheridan and on the eastern shore rises the Absaroka range. Along the shore near the lunch station are many hot springs and paint pots and the well-known Hot Spring Fishing Cone, the latter a hot pool within a geyserite cone rising out of the cold waters of the lake.

At the outlet of the lake stands the Yellowstone Lake hotel, newly rebuilt, enlarged, dignified, and beautified. This is the most restful spot in the park. The shimmering lake, the fine salmon trout fishing, the never tiresome, always restful, soothing view of lake and mountain combine to lend a charm to this fine hotel and its environs not felt at any other place in the park.



Yellowstone Lake, from Lake Hotel

The Falls and Grand Cañon

Between the lake and the Grand cañon there are three places worthy of note. Mud volcano, the first of these, is a peculiar, grewsome manifestation of thermal energy in a hillside, interesting, if not possessing any charm. At its base is Gothic grotto, a beautiful thing.

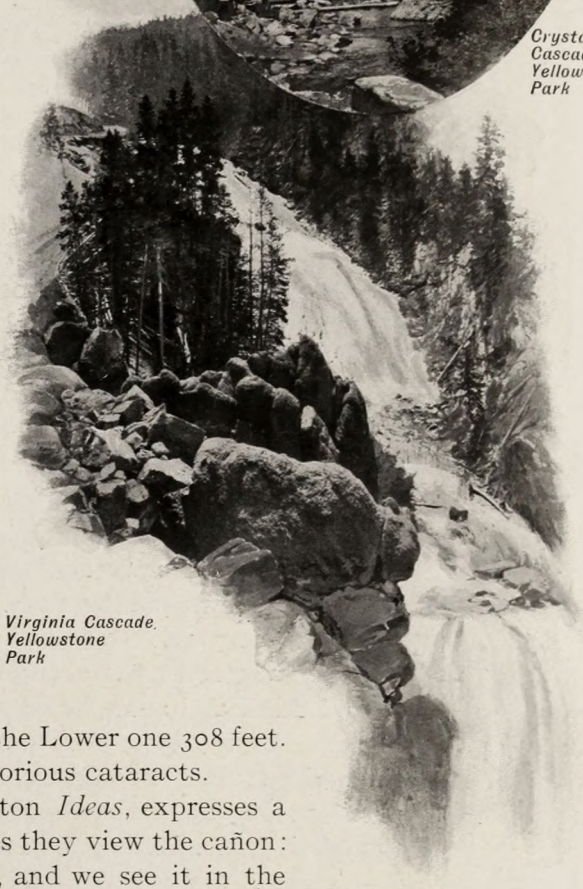
Beyond the volcano and just where the road descends to Trout creek, the little stream performs some graceful, yet wonderful, evolutions that result in forming,

on the ground, a perfect representation of the peculiar configuration seen in the trade-mark of the Northern Pacific railway, a device invented in the eleventh century, A. D., by a Chinaman to illustrate a Chinese system of philosophy established 3,000 years B. C. The resemblance is very striking.

The third spot is Sulphur mountain, or Crater hills, with Chrome spring, of boiling sulphur, and a mud lake just beyond the spring, which brings to mind Beauty and the Beast.

The consummation of wonder, if indeed not of grandeur, is reached at the Grand cañon. I think that travelers always approach this spot with unusual expectancy and I have never known one to be disappointed. Within a year noteworthy changes have been made. The road, near the junction one mile from the hotel, has been changed and the descent to the bridge at Crystal cascade is now avoided. A very fine and beautiful bridge of steel and concrete construction now spans the Yellowstone river just above the Upper fall. This bridge meets a long-desired need and enables the tourist to cross the river and view the cañon and the falls from the south side.

Crystal Cascade, Yellowstone Park

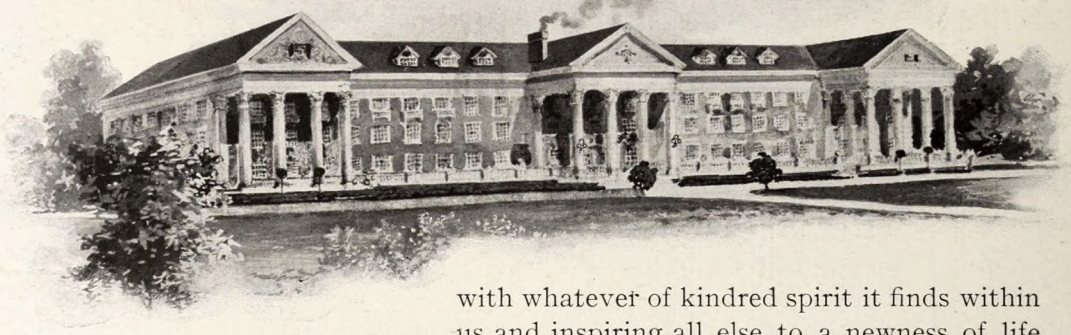


Virginia Cascade, Yellowstone Park

The Upper fall is 109 feet high and the Lower one 308 feet. They are as unlike as can be, and are glorious cataracts.

Miss Caroline T. Pillsbury, in Boston *Ideas*, expresses a phase of thought which comes to many as they view the cañon:

"The place really pulsates with life, and we see it in the glory of the Lower falls, the vast yawning majesty of the cañon within whose depths the blue-green river wends its way, the steep, rocky sides of the cañon with their wealth of color — a wealth of color so limitless and so richly graded that the mind feels helpless in attempting to comprehend how marvelous it all is. The gorge is so marvelously splendid a display of colors, of all colors, as to defy all description. We can simply absorb it into our thought and feeling as a whole, knowing that its greatness will dwell with us forever, assimilating



Yellowstone Lake Hotel

with whatever of kindred spirit it finds within us and inspiring all else to a newness of life that will have inevitably gathered both largeness and greatness from association therewith."

The one overpowering, startling note in the cañon is its color. There are several other features, all of them marvelous, but the sea of color drowns the rest. To quote again from Dr. Sperry:

"It is no wonder that Dr. Hayden stood with folded arms and tear-filled eyes, gazing upon this marvelous sculpturing and coloring, or that Bierstadt stood speechless upon the brink, and when aroused to consciousness and words said: 'Well! I always thought that Moran, in that picture of his in the Capitol at Washington, had certainly exaggerated the coloring of this place; but *no artist can exaggerate the beauty of this scene.*'"

Some years ago when a bill relating to the park was under consideration in the House of Representatives at Washington, Hon. D. B. Henderson, of Iowa, enlivened the proceedings and enlightened his associates by a few remarks upon the park and cañon which I reproduce from the Congressional Record:

"I have stood by that Grand cañon at an elevated point and I have looked down and seen the eagles standing by their nests far above the bottom of the cañon below, and they looked like sparrows, although their wings from tip to tip measured seven feet. The Yellowstone river passing along at the bottom of the cañon was like a quivering thread, though it had all the ambition and impetus of Niagara, lacking only its volume. On every side there are beauties in the sand along the face of this cañon that baffle the pencil of the greatest artist. At one place rocks that look like veiled nuns are grouped together as

Northern Pacific Trade-mark formed by Trout Creek, Hayden Valley, Yellowstone Park

New Concrete Bridge across Yellowstone River above Upper Fall, at Grand Cañon

though worshipping the God that created this wonderful cañon." [Applause.]

"I want to say to you, gentlemen, that few of you know what the Yellowstone park is. It is well named 'Wonderland.' I have visited the World's Fair, and we all know something of what that was; but, great as it was, that was only the work of simple, powerless man. The Yellowstone park stands there a marvelous creation, as though God himself were a competitor for first prize for wonderful productions, and earth furnishes no parallel to the splendors of that wonderful park. One of the noblest men in my own State, Mr. Henry L. Stout, a man of few words, when he heard that I was going to visit the park last summer, said: 'It is the most wonderful thing on earth, and if it was anywhere in Europe they would build an impassable wall around it and open their treasuries to protect and beautify it.'

"The marvels of that park defy description, and I am glad that this house has had the wisdom to let this bill come up for consideration, in order that additional comforts may be provided for people who visit that region, so that millions may enjoy a trip which will give them pleasure, education, and powers of language which even my friend from Maine [Mr. Reed], who asked for this explanation, does not yet dream of." [Laughter and applause.]

Congress has finally seen the wisdom of at least partially following out the idea of Mr. Stout, and it is now wisely carrying forward a systematic and comprehensive plan of improvements.

Mr. Trumbull, one of the members of the Washburn party, thus referred to the Lower fall, in the *Overland Monthly* for May, 1871:

"The volume of water is about half as great as that which passes over the American fall, at Niagara, and it falls more than twice the distance. The adjacent scenery is infinitely grander. Having passed over the precipice, the clear, unbroken, greenish mass is in an instant transformed by the jagged edges of the precipice into many streams, apparently separated, yet still united, and having the appearance of molten silver. These streams, or jets, are shaped like a comet, with nucleus and trailing *coma*, following in quick succession; or they look like foaming, crested tongues, constantly overlapping each other. The outer jets decrease in size as they descend, curl outward, and break into mist. In the sunlight, a rainbow constantly spans the chasm. The foot of the falls is enveloped in mist, which conceals the river for more than a hundred yards below. These falls are exactly the same in height as the Vernal falls in the Yosemite valley, but the volume of water is at least five times as great."

The word picture that L. W. B. draws of the cañon will touch a responsive chord in the heart of all who have seen it.

"Grand as is the architecture of this cañon of the Yellowstone, which opens like a yawning crack in the earth, and beautiful as are the great falls which plunge into it, there is something more inspiring than both in the colors that Nature has here used with such opulence, and at the same time with such artistic effect. * * * * * * * *

"The colors there laid over every bit of rugged rock, every pinnacle and tower, every foot of the great chasm extending for miles, are so perfect that terror is driven out by the beauty of the scene, and you stand, or cling to the rock, entranced by the brilliancy and the perfect loveliness of the picture. It is such a place as Aladdin might have found in the cave where he discovered his wonderful lamp. It is, therefore, not surprising that only the eagle, with an eye to face the sun, ventures into this grand cañon to face the most wonderfully painted walls and pinnacles that were ever found in the work of Nature or that of Art."

Rev. Dr. Henry M. Field who has "traveled the wide world o'er," did not attempt to "describe the indescribable" after seeing the cañon, but he could not help giving expression to a thought that I reprint from his "Our Western Archipelago." "But while we are 'shivering on the brink,' the clouds break, and instantly there is a revelation of what was hidden by the darkness. The river, in digging its way through countless ages down into the heart of the earth, has uncovered the strata

Towers and Pinnacles on the Wall of the Grand Cañon

one after another, till the veins of rock are like veins of blood, streaked upon the old walls, which instantly flash with such brilliancy of color that the whole cañon is lighted up with ineffable splendor. It is for the moment as if the veil were drawn aside; as if the gates were opened; and we saw things invisible to the natural eye."

No matter what other cañons one may seek or see there is, as Stoddard the lecturer has said, "*none like this.*" The combination required to produce a perfect creation is found here as nowhere else, and the result is the incomparable Grand Cañon of the Yellowstone.

The Great, or Lower, Fall, Yellowstone Park

Sawmill Geyser, Yellowstone Park

Mount Washburn—Trout—Wild Animals.

All sorts of people visit the park and many of them like to season their scenic feasts with something of a different sort. A delightful trip is one from the Cañon hotel to the summit of Mount Washburn. The ride is a pleasurable one and the view from the mountain includes a large part of the park, particularly of the northern and eastern parts.

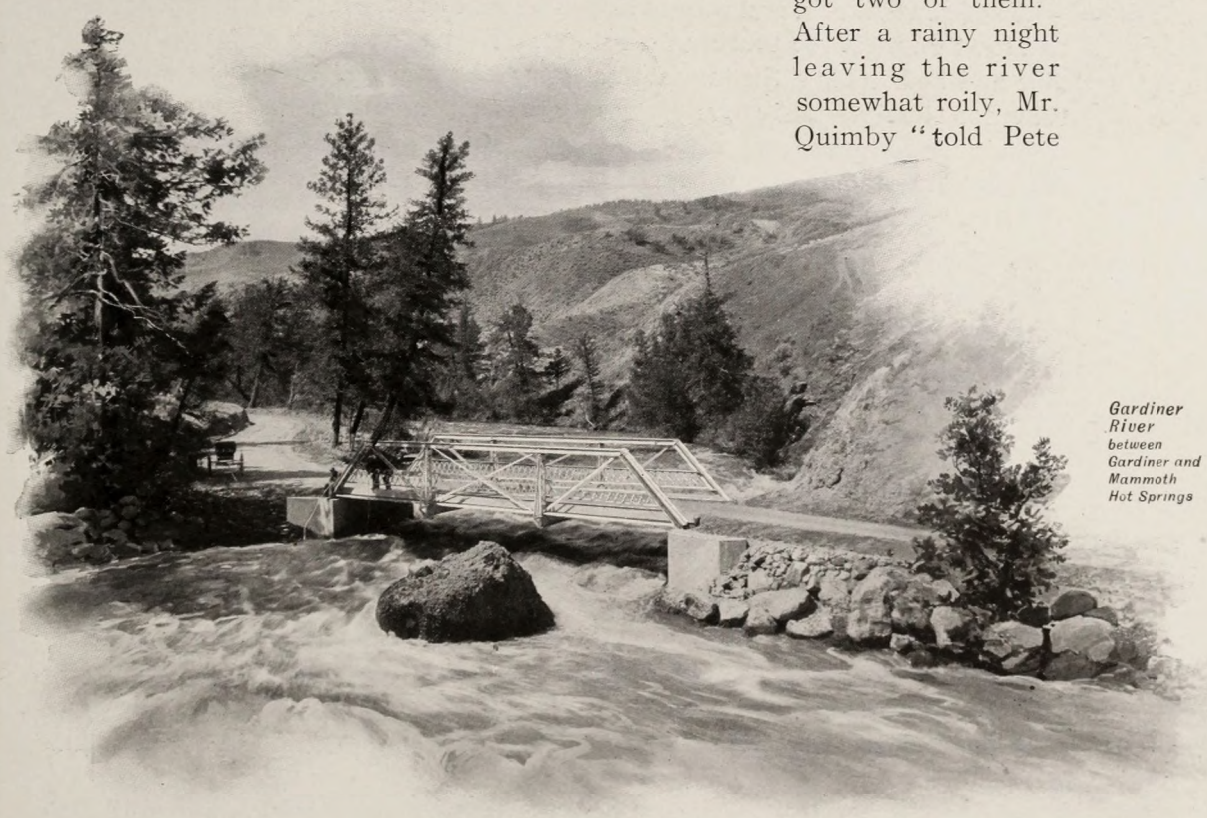
The fishing in the park is unusually fine and it is open to all and hedged about with few restrictions, and none onerous. Rocky mountain, Loch Leven, Von Baer, rainbow, salmon, and eastern brook trout, white fish and grayling are found in the park and no one, adept or tyro, need go hungry for sport or fish. An experience for many is that of trouting in the warm waters of the Firehole river at the Upper basin. Within two minutes' walk of the new inn and of Old Faithful, and almost at the base of the Bee Hive geyser, I have seen trout after trout pulled out of the stream, and mighty fine eating they were. E. R. J. in the

Minneapolis *Times* thus recounts some of his experiences in angling in the park:

"My friend caught two at a time, each fish weighing more than a pound and a half, in three successive casts. Are they gamy? Well, if you have any experience and get a "rainbow" weighing nearly two pounds on one fly and a "silver-side" but little, if any, smaller on the other, you'll be apt to discover whether your tackle is all right or not. The salmon trout, so plentiful in all the Rocky mountain streams, is not a long fighter, but the other varieties are not only game to the death, but are far more savory when served.

"If you are fond of an element of danger you can climb down into the cañon of the Yellowstone, about a thousand feet, and catch some half-pound speckled beauties, such as frequent the Brule or the Nipigon, almost in the spray of the Upper falls. The scenery will repay you for the exertion, even should the fish refuse your lures."

Mr. H. C. Quimby of Liverpool, England, enjoyed some rare sport at the outlet of Yellowstone lake. "We pulled to about half a mile down the river, and there we sat, my wife and I, for a few minutes, spell-bound at the sight of, literally, thousands of fish rising about us, some of them throwing themselves fairly out of the water; wherever we looked the water was alive with rising fish. . . . . Several times I had two fish on at once, and twice I had three on, and each time got two of them." After a rainy night leaving the river somewhat roily, Mr. Quimby "told Pete



Gardiner River between Gardiner and Mammoth Hot Springs

I was going to try trolling on the lake. He was sure it would not do, but I persuaded him to go there, and I put on a blue phantom with a very fine swivel trace. The result was that I had a three-pound fish on directly, and eight more before the time came when Pete must be on board his steamer."

More and more each year the animals of the park become less wild and seclusive. It is rare indeed that the tourist does not see deer or elk either in the woods or parks along-side the road, or grazing in the open spaces about the hotels. These animals, the deer especially, are almost fearless and will scarcely lift their heads, at times, to notice one. The writer saw eighteen deer file down from Snow pass at Mammoth Hot Springs one evening early in last October, to the plaza about the big hotel, where they remained all night, and leisurely betook themselves back to the hills the following morning.

The elk are a little more wary and during the summer are found more on the heights and in the remoter valleys. They are usually seen in large bands in Hayden valley and about Mount Washburn and Dunraven peak.

The traveler on the Northern Pacific during the fall, winter, or spring, if he has time to stop a day or two, can, by going from Livingston to Gardiner, see deer, elk, and mountain sheep in large numbers as then they go down into the valleys and remain there during the winter.

The brown, black, and grizzly bears frequent the vicinity of the hotels and feast on what the tourists do not eat. They are perfectly approachable and kodakable if the tourist uses common sense and does not crowd them too closely. They can be seen around the garbage heaps every evening, in number from two to twenty, old bears and cubs, and some of them are magnificent fellows. If the tourists leave the bears alone the latter will not molest the former.

WHAT TRAVELERS SAY of the "NORTH COAST LIMITED

THE "North Coast Limited" train, which we call, and honestly believe to be, the Crack Train of the Northwest, was first placed in service in the spring of 1900. There was then little expectation that it would be kept on during the winter months. The train, however, became so popular that it has now become an all-the-year-round train, and an eminently successful and money-making one.

The train is pre-eminently a train for cosmopolitan travel. It is indeed a high-toned train for high-toned travelers, but it is just as truly a train for the everyday, unpretentious element that is satisfied, for one reason or another, with less luxury, particularly if it costs more, than are many of the traveling public. This difference in persons and the cosmopolitan nature of the train are shown in the fact that both a standard Pullman and a Tourist Sleeping Car are a part of the train and each is usually well filled.

While this is, therefore, everybody's train, first and second class paid tickets—no advertising or free transportation of any sort is honored on this train—both being accepted for passage, still, each class travels by itself and passes the time in its own way.

The "North Coast Limited" is wide vestibuled, electric lighted, and steam heated, and usually consists of eight cars, but on certain portions of the road a ninth is added. Besides the usual equipment of a Baggage and Express Car, Combination Coach and Smoking Car, and a large, modern, easy-riding first-class Day Coach, there are cars deserving special mention.

The Tourist Sleeping Car is equal or superior to the first-class sleeping cars of twenty years ago. It is a sixteen-section, electric-lighted car, with very large toilet rooms for both sexes. There is no plush used, nor is there much attempt at ornamentation. The cars are mahogany finished, leather upholstered, finely ventilated, are unsurpassed for com-

Lake Superior Limited

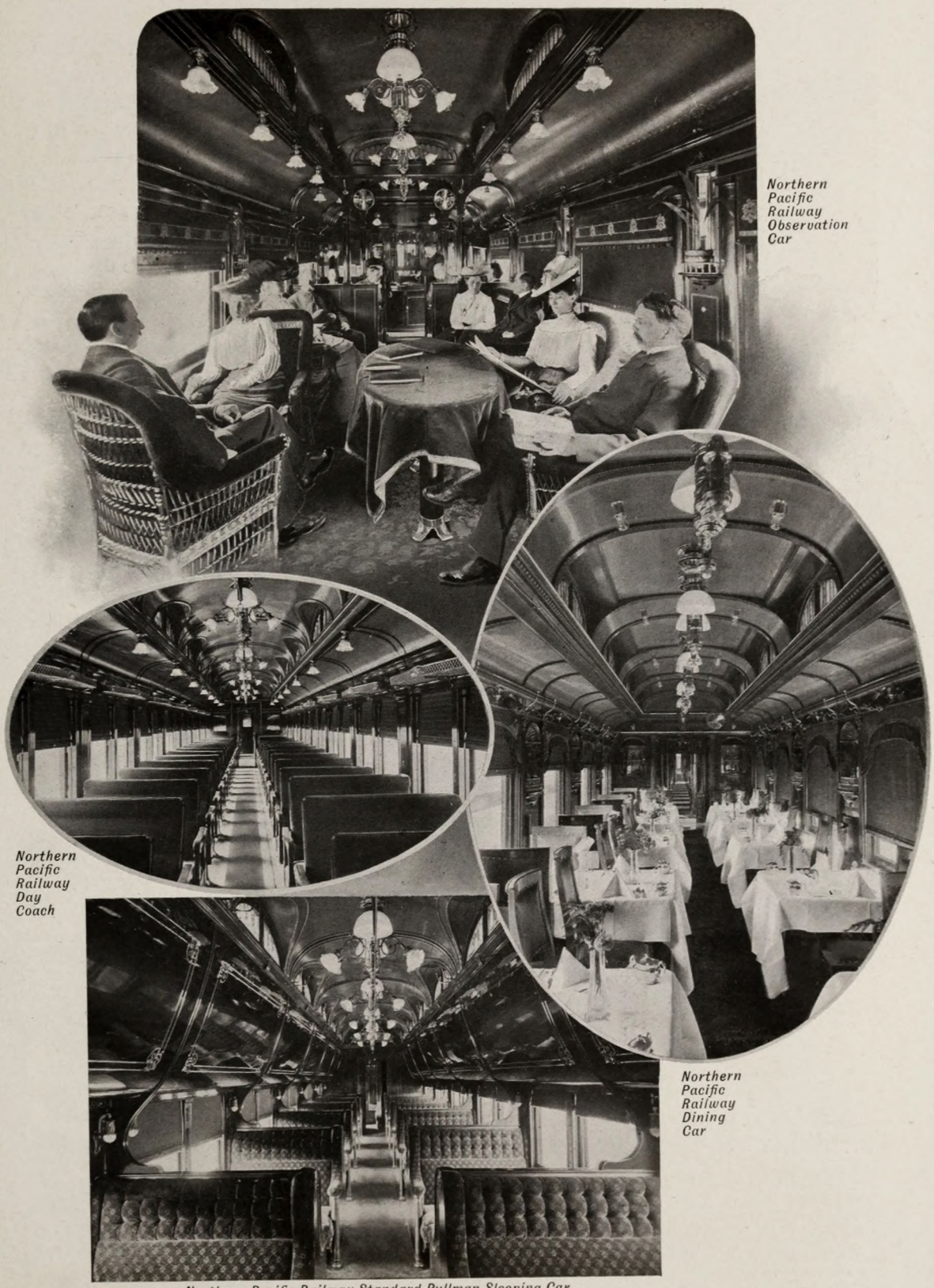
fort and cleanliness, have cooking ranges in them free for the use of passengers, and are deservedly popular with travelers.

The Dining Cars are new, of standard Northern Pacific design, combine the latest ideas and improvements, being provided with both large and small tables, and are manned by the best help it is possible to obtain. Breakfast and luncheon are *a la carte*, dinner is served *table d'hote*, at the price of $1.00.

The standard Pullman Sleeping Cars are also new, and combine the modern Pullman improvements in sleeping cars. The interiors are richly finished in mahogany, there is no superfluous ornamentation, and each section is provided with two berth lights that can be used at will as the occupant desires. The toilet rooms are models of their kind, and those for use of the women are supplied with the latest accessories for the mysteries of the female toilet.

The Observation Cars are of a pattern designed particularly for transcontinental service. From the front end a corridor runs along one side of the car for forty feet to the parlor. Opening from this corridor are two smoking and card rooms for men, a buffet, barber shop, bath room, and a women's toilet room. At the end of the corridor there is a library of one hundred forty well-selected volumes, and an alcove with a desk and "North Coast Limited" stationery, all for the free use of the occupants of the car. Here will also be found the current magazines and illustrated papers encased in leather covers. The parlor is a large room, richly, yet modestly, upholstered, the chairs are of wicker work with plush seats, and the windows are very large and of heavy plate glass. The observation platform is large, brass railed, supplied with camp stools, and has a large, electric-lighted dome overhead. On the outside of the railing is the unique Northern Pacific trade-mark, electrically illuminated at night.

Travelers holding paid Pullman tickets are entitled to the privileges



Northern Pacific Railway Observation Car

Northern Pacific Railway Day Coach

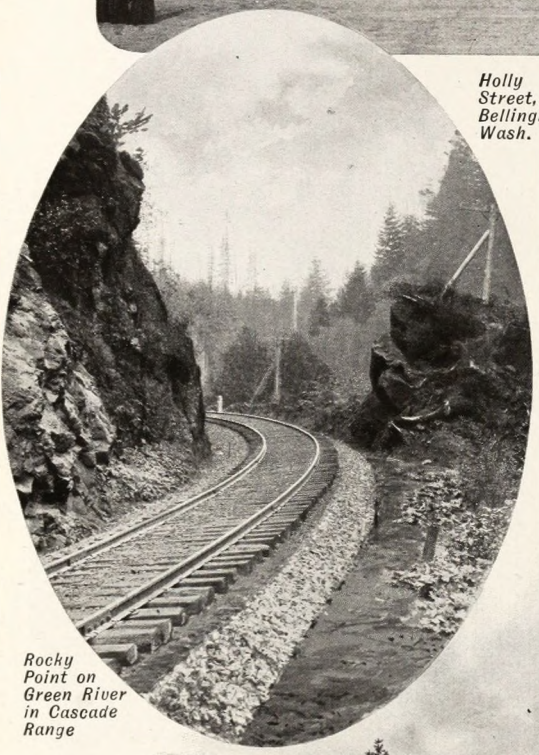
Northern Pacific Railway Dining Car

Northern Pacific Railway Standard Pullman Sleeping Car

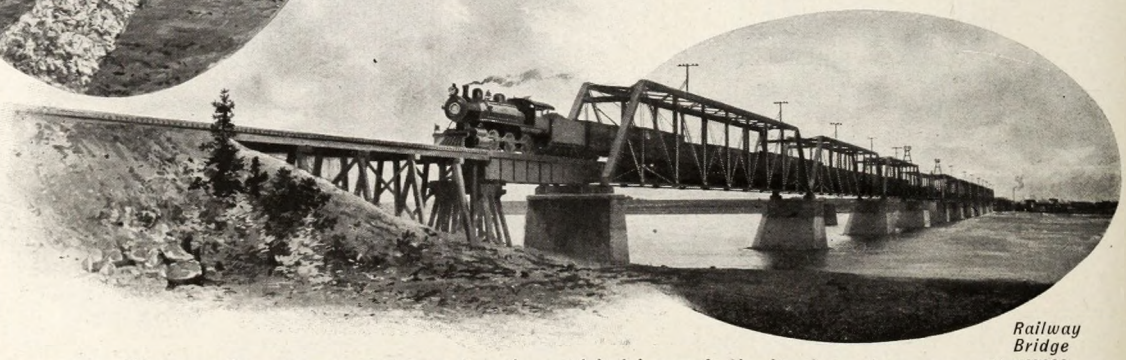
Holly Street, Bellingham, Wash.

of the Observation Cars without extra charge. All others holding first-class transportation can enjoy the comforts of these cars upon payment of a reasonable additional fare graduated upon the distance traveled.

Besides the barber shop, buffet, and bath, which are open to all first-class passengers at a reasonable charge, there is a feature connected with the "North Coast Limited" that is, perhaps, not found on any other train in the country. This is the privilege of having one's suit of clothes, or any part thereof, pressed and kept in trim *en route*. While the traveler is asleep in his berth at night the porter on the Observation Car will, for a reasonable charge, if desired, press and clean his clothes and have them ready and at his berth in the morning. This innovation will be appreciated by those who wish to reach their journey's end in spick and span condition.



Rocky Point on Green River in Cascade Range



Railway Bridge across Columbia River, Kennewick, Wash.

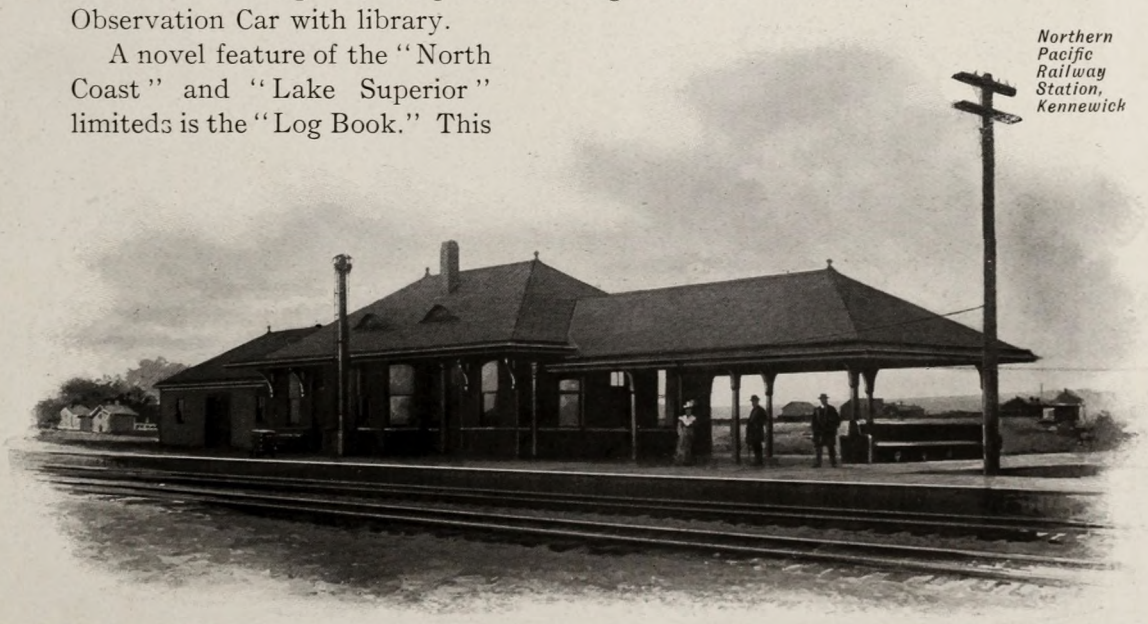
Those who are accustomed, when thinking of limited trains, to call to mind the moderate sized trains of eastern roads, with comparatively short runs through thickly settled regions and large cities, will be surprised to know that the "North Coast Limited," with its eight or nine cars, runs as a solid train, an elongated, vestibuled unit, for more than 2,000 miles, across a thinly populated country. Instead of terminals

like New York, Boston, Chicago, St. Louis, there are St. Paul, Minneapolis, Tacoma, Seattle, Portland; instead of cities like Philadelphia, Baltimore, Washington, Buffalo, Pittsburg, Cleveland to draw patronage from there are found Fargo, Helena, Butte, Missoula, Spokane. The cities through which the "North Coast Limited" takes its way are growing and prosperous and are all right, but the congestion of population is not found in them as in the other communities named. It is also worthy of remark that on a railway like the Northern Pacific, when planning for the advent of such a transcontinental train, it is necessary to arrange for several of them. Each day there are at least six of these trains in continuous operation at one time, and a slight rearrangement of the time schedule might easily add from one to three more. When the train was first put on there were nine trains thus in motion. It will be seen that there are fifty-four cars, of all kinds, required to supply the necessities of these several limited trains, at a given moment of time, without making any provision for reserve equipment, which means a heavy expense in providing and maintaining such a train.

Besides the "North Coast Limited" the Northern Pacific operates two other limited trains similar thereto but varying in some particulars. These trains are the "Puget Sound Limited," which runs daily between Seattle and Tacoma on Puget Sound, and Portland, Oregon, and the "Lake Superior Limited" which, on the "Duluth Short Line," daily covers the distance between St. Paul and Minneapolis at one end, and Duluth and Superior at the other extremity, of the run.

In addition to the usual and ordinary equipment necessary, the "Puget Sound Limited" carries a Dining and an Observation Car. The "Lake Superior Limited," a dainty and fast train, has as its special features a Parlor Car of special design and having movable chairs, and a Café-Observation Car with library.

A novel feature of the "North Coast" and "Lake Superior" limiteds is the "Log Book." This



Northern Pacific Railway Station, Kennewick

is a large blank book in leather covers, conveniently placed and for the free use of passengers, in which criticisms, suggestions, and remarks in general, regarding the character of the train and the train service, the deportment of the employes, the scenery, the meals, improvements possible, etc., may be set down for the benefit of the management. Here our patrons can express themselves, certain that any suggestion or criticism that seems of real value will be given careful consideration.

All classes certainly have availed themselves of the privilege accorded by the "Log Book," with the result that few if any unkind sentiments or captious criticisms have been expressed. Many facetious sayings, many amusing rhymes, many pat drawings or sketches, many commendatory and encouraging remarks have been recorded with, at long intervals, a squib that indicated that the writer was a trifle pessimistically inclined, or that something unwisely eaten, perhaps, in the Dining Car was not being digested in the usual, happy, "North Coast Limited" manner.

Some of these sayings and productions are gathered here for the delectation of others than ourselves. We are sure that they will be appreciated and weighed at their real value as being the expressions of those who write whereof they know and who have thus written voluntarily.

These selections are taken at random from the log books of different "Limiteds" and extend over the several years that the trains have been

Along the Green River, Wash. Two bridges, a tunnel, and a third bridge beyond

Northern Pacific Railway Double Track Along Puyallup River, between Tacoma and Seattle

in operation, and they are representative of the contents of all the log books.

Mr. and Mrs. Beckwith of Oberlin, Ohio, thus expressed themselves:

The New York Central Railroad is spoken of as the greatest in the world, but the Northern Pacific is just as wide and a great deal longer. Proctor Knott said at one time, "The N. P. R. R. runs from nowhere to nowhere, and is down grade both ways." We should judge this not to be the fact, by the way all the world is settling up the railroad's lands and spreading civilization from lake to ocean. It now runs the grandest trains mankind has ever seen, up grade as well as down, from Everywhere to Everywhere.

CHAS. T. BECKWITH,
President Citizens National Bank,
Oberlin, Ohio.

Ride on it *once*, ride on it *always*.

Mrs. C. T. BECKWITH,
President "Oberlin Sorosis."

A San Franciscan, a world traveler, writes tersely but to the point:

Have traveled all over the world—never rode in better equipped cars, or over a road so pleasant in scenery or where the attention from employes was so considerate.

EUGENE D. BERRI,
San Francisco, Calif.

The southern clergy too seem to enjoy the Limited:

I left Knoxville, Tennessee, one month ago to-day, and since that time have traveled seven thousand miles. The "North Coast Limited" is superior to any other train traveled on.

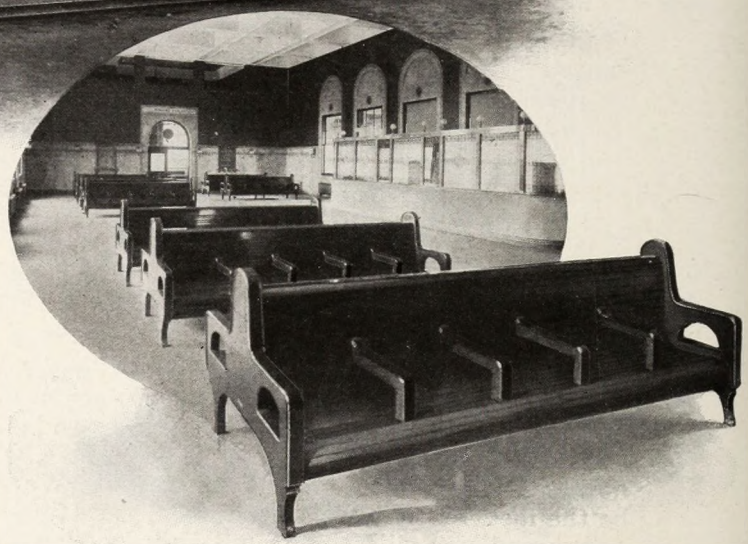
J. M. MELEAR,
Pastor Luttrell Street M. E. Church,
Knoxville, Tenn.

The stranger from abroad evidently is pleased with such service as the "Limited" affords, if this "log book" chronicle is any criterion:

I am very contented over my travel by the Northern Pacific Line. Service, consumption, sleepers the best I saw on my trip by the United States.

E. H. BEGEMANN,
Helmond, Holland.

Northern Pacific Railway Station, Livingston, Mont.



Livingston Station, Interior

Chicagoans, some of them, travel a good deal, and occasionally record their thoughts.

I left St. Paul on the "North Coast Limited" on June 4, 1901, and have now passed through the Cascade Tunnel, and well down the west slope of the mountains.

I am most pleased to state that, notwithstanding I have passed over the entire length of the Northern Pacific road not less than thirty-five times before, and the other Pacific roads an aggregate of as many more times, I have never before enjoyed the trip more, nor had as good service—noteworthy from the gentlemanly porter of the most excellent Observation Car No. 958.

ORRIN B. PECK,
Chicago.

Texas is a long way from Illinois and Chicago, and even farther from the route of the "North Coast Limited," but some "Gentleman from Texas" seems to have found himself on the train and hasn't hesitated to proclaim that fact.

I left my home in Corsicana, Texas, on the 15th of July and have been traveling almost continually since through many states and over numerous railroads and I have no hesitation in pronouncing the "North Coast Limited" the best train I have yet been on.

CHAS. H. MILLS,
Corsicana, Texas.

Pittsburg has had its fears of long-distance travel allayed, apparently, while Washington, D. C., in the person of Justice McKenna of the Supreme Court, who makes a brief but pertinent and pleasing comment, seems satisfied with northwestern train service.

The journey from Seattle to St. Paul via "North Coast Limited" has dispelled my dread of long trips by rail, and leaving your Observation

Car at end of journey is like parting with an old friend. Until my next western trip I give it and the company "Auf Wedersehn."

JNO. J. LYONS,
2d and McKean Sts., Pittsburg, Pa.

An admirably appointed train, and the service on it is excellent.

JOSEPH MCKENNA,
Washington, D. C.

Madame Schumann Heink, the famous operatic singer, traveled on the "Lake Superior Limited" in 1903 and imparted to the log book her opinion of the train.

The original of Madame Schumann Heink's leaf in the log book is reproduced, and a translation of it is also printed.

That our own people are loyal to us is proved by this "log book" excerpt penned by a Tacoma, Wash., gentleman.

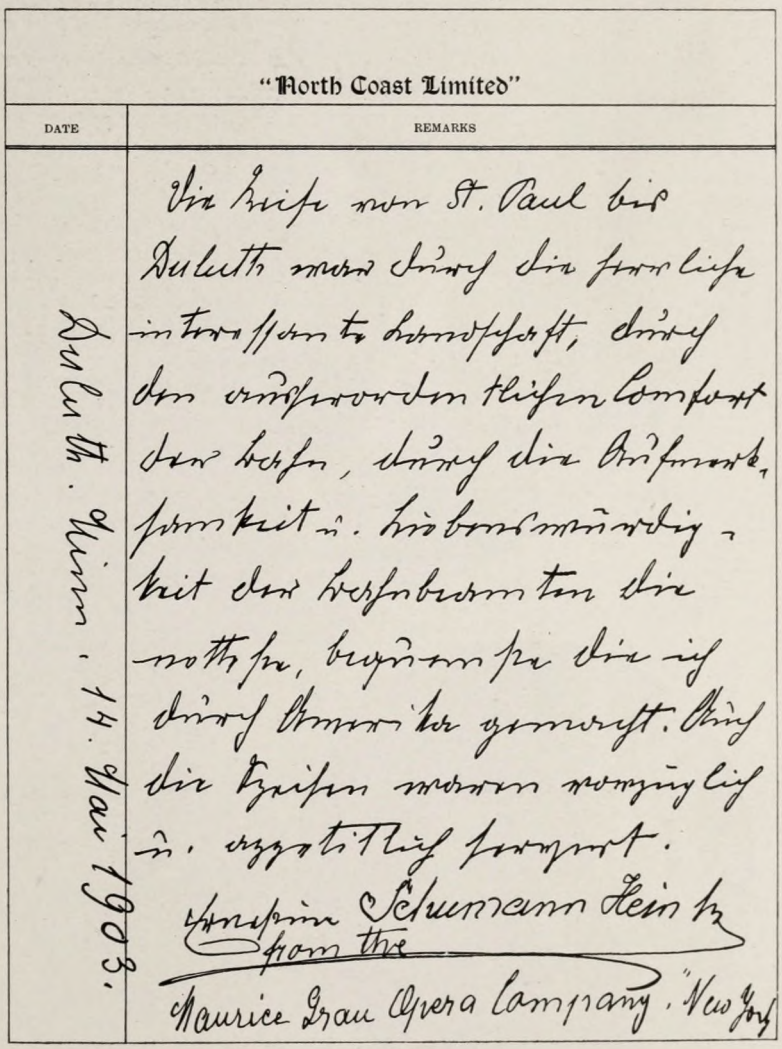
To know the real pleasure in traveling one needs to take the "North Coast Limited." From personal experience on each of the transcontinental roads I have no hesitation in saying there is none comparable to the Northern Pacific.

A. H. KIRKPATRICK,
Tacoma, Wash.

And Col. Goodale, an army officer of Fort Vancouver, Wash., near Portland, Oregon, expresses his conclusions tersely and in a military way, thus:

Superb. Three days of most luxurious travel.

G. A. GOODALE,
Colonel 17th U. S. Infantry.



"North Coast Limited"

DATE	REMARKS
Duluth. Minn. 14. Mai 1903.	Die Reise von St. Paul bis Duluth war durch die herrliche interessante Landschaft, durch den außerordentlichen Comfort der Bahn, durch die Aufmerksamkeit u. liebenswürdigkeit der Beamten die nettste, bequemste die ich durch Amerika gemacht. Auch die Speisen waren vorzüglich u. appetitlich serviert. Ernestine Schumann Heink from the Maurice Grau Opera Company. New York

TRANSLATION

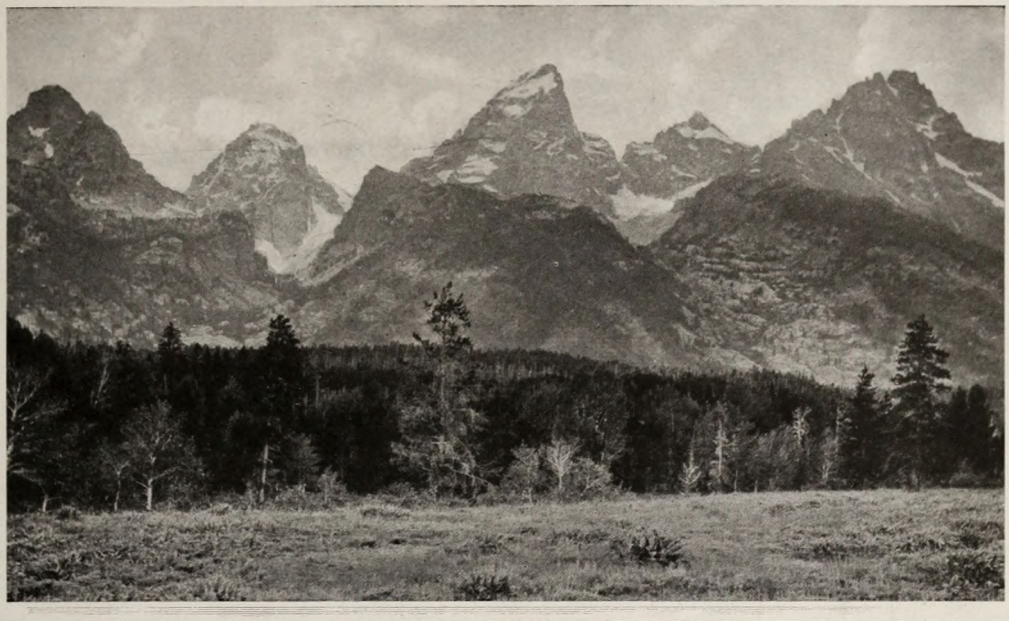
The trip from St. Paul to Duluth was through a beautiful and interesting country. The unusual comfort of the train, added to the civility and kind attention of the trainmen, made this trip the pleasantest of my experience in America. The food was excellent, and was appetizingly served.

SCHUMANN HEINK.

Blasting Rock on Northern Pacific Railway at Lombard, Mont.

Northern Pacific Railway Steel Bridge, across Missouri River at Townsend, Mont.

"North Coast Limited," at Livingston



The Tetons, from Jackson Hole. Seen also from Shoshone Point, Yellowstone Park

Ah! here is one, in rhyme, by a Denverite, that draws a picture that will call up memories of the past to many a one. Our friend has a keen sense of contrast and has made the difference between *then* and *now* plain.

Did you ever stop to think of how our "Daddys" crossed the plains in "49";
Of the troubles they encountered and the hardships they endured, yours and mine,
As they made the toilsome journey over mountain, plain, and hill,
With nothing they could cuss except the ox team, Joe and Bill?

Those were the times that tried men's souls and made them cuss for fair,
With the Indians waiting 'round at night for a chance to raise their hair;
But the day of the "Prairie Schooner" has passed like a dream at night,
And now when we go to Portland, we certainly travel right.

How do we do it? You ask me, and I'll tell you in language plain,
When you go from St. Paul to Portland take the "*North Coast Limited*" train.
For elegance, pleasure, and comfort this train is a perfect gem,
And if once you travel by this route you will surely come again.

Yours in the faith,

R. C. STOUT,

1732 Champa St., Denver, Colo.

Even the Bostonese admit that the East does not possess a monopoly of fine trains.

Northern Pacific Ry. Co., Passenger Department.

GENTLEMEN:—It affords me very much pleasure to sing words of praise for this "Celebrated North Coast Limited Train." I have traveled

many times across our country and without doubt this is the finest train across the continent. I shall cheerfully recommend it to my many friends.

Sincerely yours,

F. H. NEWTON,

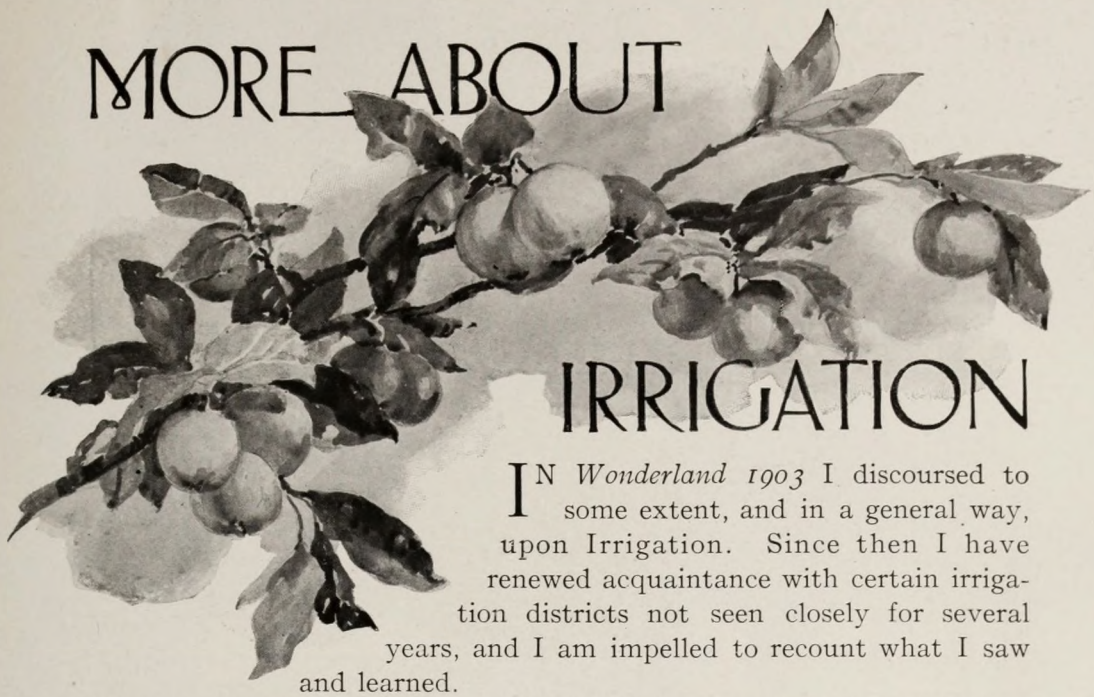
7 and 8 Haymarket Sq., Boston, Mass.

We all remember Miss Ellen M. Stone's experiences at the hands of the brigands in Turkey, and her miraculous rescue. We can thus understand her feelings as she penned the following lines in the "log book."

"North Coast Limited"

DATE	REMARKS
May 5, 1903.	To one fresh from the slow-moving trains in use in Turkey, which are devoid of attractiveness and of necessities even the luxurious cars and service of the N. C. L. seem the perfection of comfort and of all that can be desired in railroading. This ample and thoroughly equipped Observation Car is the delight of the writer and the book-lover, while the courteous attendants place all its facilities at his service. Ellen M. Stone, Salonica, Turkey in Europe.
Train speeding.	

MORE ABOUT IRRIGATION



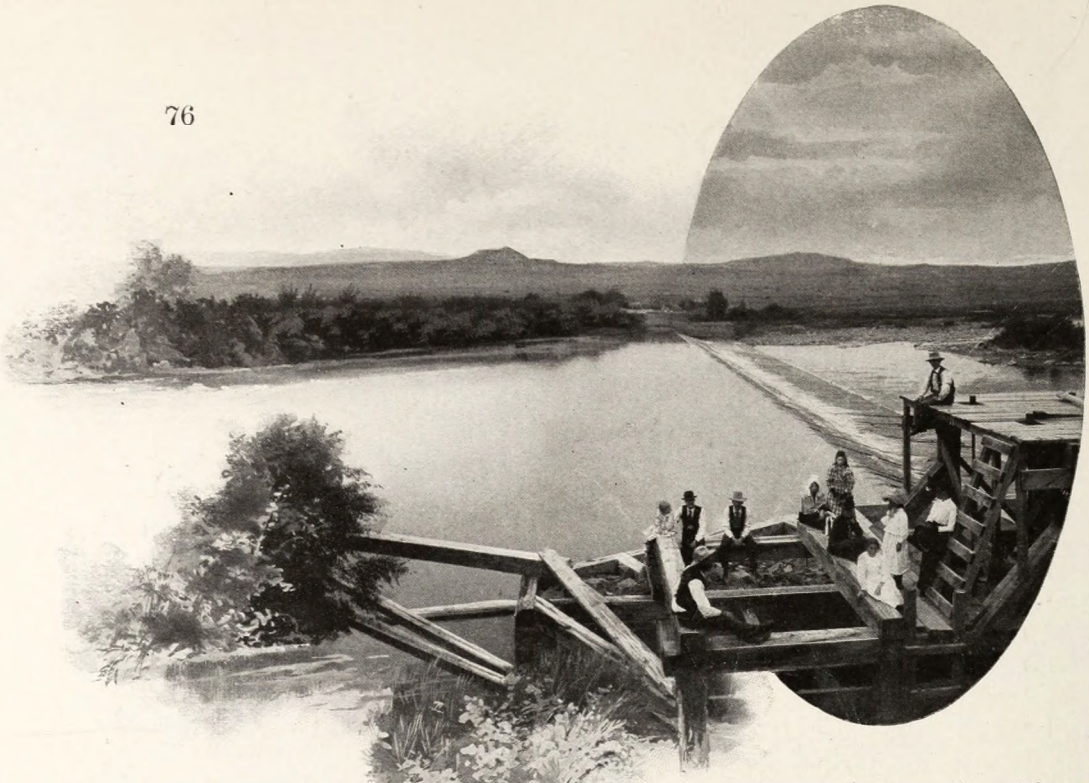
IN *Wonderland 1903* I discoursed to some extent, and in a general way, upon Irrigation. Since then I have renewed acquaintance with certain irrigation districts not seen closely for several years, and I am impelled to recount what I saw and learned.

I doubt if there are many of the far eastern population of the United States who have even a glimmering of what irrigation means to this country. And when I write "this country" I mean the whole of it, for the East is bound to benefit by irrigation as much as does the West, as a matter of fact. Irrigation is a large subject. It comprehends a vast amount of health, wealth, energy, happiness, economy, and power. It means conquest of a fascinating sort. There is activity, humanity, life in it. Farming has become a combination of work directed by intelligence, business ability, and science, and this applies just as strongly to irrigation, as to ordinary, farming. But there is a peculiar element of humanity and life in farming under irrigation.

There the farmer is, to a marvelous extent, the director, the controller of his crops and fortunes. His plants become almost as children to him, and his care and solicitude for them, his joy and pride in their steady progress and growth are something akin to that felt in watching the unfolding of the child. How carefully he studies his fields and crops, opening the tiny water furrows here, and shutting the little water holes in the flumes there, or, perchance, flooding one part of a field or garden, and giving a bit of extra cultivation to another part.

This paternal feeling is a thing impossible, certainly in the same way and to the same degree, to the farmer who is wholly dependent upon the shining of the sun and the coming of the rain. He has really no agency in the matter

Cutting Alfalfa, Yellowstone Valley



The Tongue River Dam, which supplies the water for the Miles City Canal

except to plant and cultivate when he can and be thankful if the rains come and the sun shines in a way to benefit the crops the most. But the irrigator is in a different position. For him the sun almost always shines. As for the rain he cares little whether it comes or not, save as it lays the dust in the roads and is thus a convenience. His irrigation canal, with its many lateral flumes and furrows, enables *him* to supply the needed moisture just when it is needed, and he can thus force or retard the growth of his plants or trees as he chooses. This ability to control and govern growth, therefore, provides an added interest of a paternal sort in the irrigation farmer's work. Then, too, irrigation farming is not hard work. The soil is invariably deep, rich, and powdery, so that plowing and cultivation are easy. Irrigation itself is a simple process requiring little physical exertion but much judgment. In many cases it is mere child's play and the good wife or the boys and girls take a turn at it as a matter of recreation.

One of the first lessons for the irrigator to learn, and one of the hardest, is not to over-irrigate. The tendency, at first, is to use too much water and thus do damage rather than good. More cultivation and less irrigation is what the experienced irrigationist practices and preaches.

While irrigation will, ultimately, be extended more or less over the whole United States, it is in the far West that it will reclaim the great areas of waste land and achieve its triumphs.

Along the line of the Northern Pacific the Missouri river forms,

roughly speaking, the eastern border of the region where irrigation becomes necessary. Along the Missouri, in portions of the Yellowstone, Gallatin, and Bitterroot valleys, and in the Palouse and Big Bend regions irrigation is not absolutely essential, but, as a rule, from the Missouri valley to the Cascade range, successful crop cultivation is dependent upon irrigation.

The methods of irrigation employed depend entirely upon the resources and peculiarities of the region. Where flowing streams with sufficient fall abound, the large irrigation canal with laterals is the natural method.

In North Dakota, and in the Big Bend region west from Spokane, where water courses are few and the country more or less elevated and hilly, such irrigation as is needed must usually be obtained from wells. In such cases the windmill is generally made to serve as the motive power, but gasoline engines provide an economical power, and in North Dakota the low-priced and widespread lignite coal will prove an efficient means of producing a cheap steam power.

There is no reason why the somewhat crude, but very effective, home-made wind-power mills used in Kansas and Nebraska may not be employed on the North Dakota prairies. In these cases the mills are of many styles and are constructed principally from cast-off farm machinery at an expense, aside from the farmer's labor, of but a few cents, or a few dollars at the most. There are many localities in the country served by the Northern Pacific, particularly in western North Dakota and eastern Montana, where water is easily obtained through wells and in stable and sufficient quantity, to thus cheaply and materially aid, by irrigation, the scant rainfall of those sections. Inexpensive distributing reservoirs, consisting either of elevated tanks or excavations on commanding knolls, will enable one to store and distribute a considerable quantity of well water throughout the season of irrigation, thus providing a moderate but steady supply of water.

As examples of what can be and what is being done in irrigation in the Northwest, I will cite two valleys, one in Montana the other in Washington.

Scene on a Horse Ranch, Yellowstone Valley

Stacking Alfalfa in Yellowstone Valley

The Yellowstone Valley.

The Northern Pacific railway traverses the Yellowstone valley for three hundred forty-one miles, from Glendive to Livingston, passing through Miles City, Forsyth, Billings, Columbus, and Big Timber. For reasons, perhaps not entirely easy of explanation, this valley has been slowly settled, but it now appears to have "struck its gait" and a new era is in store for it. It is a flat valley of fine bottom lands, bordered for nearly its entire length by bluffs of splendid building stone. The bottoms are from two to five or six miles in width, and back from the bluffs on either side extends the wide, rolling, upland plains region so common to the West. This plains country is a great cattle and sheep range, much of the stock pasturing on it being driven in to the bottom lands and fed on alfalfa during the winter.

The bottom lands are well timbered along the river, principally with cottonwoods, and they require little or no preparation for irrigation. The river supplies an enormous quantity of water, sufficient to irrigate not only the valley proper but a wide area of the bench lands above the bluffs.

At all the larger towns in the valley irrigation enterprises are in successful operation.

The Miles City irrigation canal is one of the earliest enterprises of its kind inaugurated in eastern Montana.

In 1882 the construction of a dam on Tongue river, fourteen miles south from Miles City, was begun. Ice gorges, freshets, and financial difficulties played havoc with the earlier work, and it was not until 1885 or 1886 that the present dam was completed. It is a costly and very substantial structure, three hundred twenty feet long, nine feet high, and thirty-seven feet wide at its base.

The canal has been enlarged and extended from year to year until there are now twenty-seven miles of main canal which is twenty feet wide at the bottom with a depth of four feet. This canal supplies water for 14,000 acres of bottom and first bench land, and, practically, all of it is under cultivation and immensely productive. The products may be described as all those possible to Iowa, for example, and alfalfa in addition. This plant reaches perfection here, four crops annually being cut,

and not infrequently this is done from the first year's seeding. Sugar beets yield well and show 19 1-2 per cent sugar. Plums, gooseberries, and currants are indigenous, and cultivated fruits are seldom equaled.

This canal and its appurtenances represent a total outlay of more than $150,000, and the canal is taxed to its full capacity in furnishing water at a price of $2.00 per acre for land under cultivation, and of $1.50 per acre for hay lands.

At Forsyth, Livingston, and other points, irrigation canals may be seen winding down the valley.

Billings is the point where irrigation centers. Twenty years ago the Billings canal was excavated and this waters a large tract of valley land below Rapids siding. The change brought about in the valley by the construction of this canal is a striking one. To ride out upon the bench above Billings and see the tremendous area fertilized and vivified by the canal is a lesson. Green fields of alfalfa, grain fields in varying colors, acres of potatoes, with hundreds of farm houses and barns like dots upon the landscape, sing long and loud the praises of irrigation. It is a beautiful picture; a picture of fertile farms, comfortable homes, thrift, content, prosperity, and happiness. Herds of fat, sturdy, western horses, sleek cattle, and pensive sheep are seen.

The hum of the mower may be heard as it lays low the ripe alfalfa, and like magic the hillocks of cured hay rise upon the landscape.

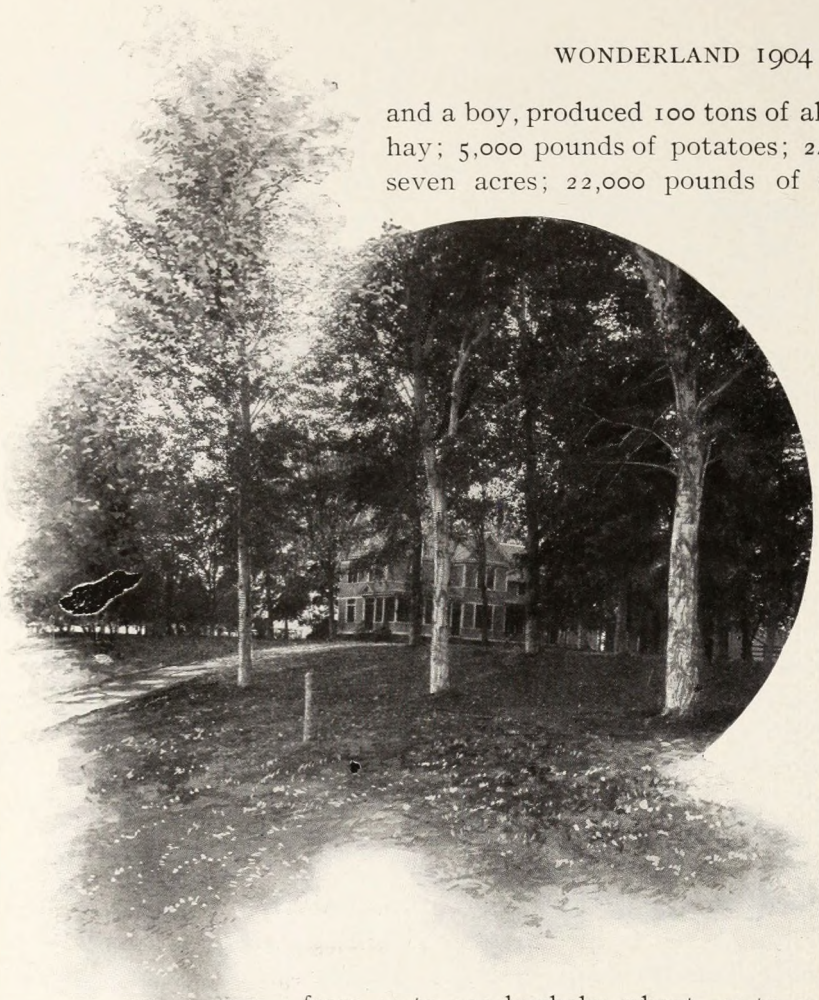
From a good position a sweep of valley ten or fifteen miles in length by five or seven in width may be brought into this view, and this is but a part of what the "Billings canal" has transformed from a useless, valueless, unresponsive flat into a community of fine, valuable farms, or ranches and homes.

A new enterprise upon which work has recently been started is the Huntley Flats project. This has for its object the irrigation of a large area near Huntley Station below Billings, where the valley is very wide and of such a character as to be easily adapted to successful irrigation. The main canal will be fifty miles in length and will be carried down the valley at such an elevation above it as to bring "under the canal" the largest acreage possible, some 200,000 acres or more. A feature of it will be a tunnel 1,800 feet long, necessitating the removal of 4,000 yards of rock.

In the Billings region eighty acres seems to be a favorable unit for a farm for one man, under ordinary conditions. The small acreage farms, of ten and twenty acres, do not seem to be in favor. Diversified farming is largely practiced here and not much, comparatively, has as yet been attempted in fruit, on a large scale, which probably accounts for the difference in the size of farms.

Farms of 160 acres and more are very common. A homestead of 160 acres near Billings, a small part of which only is farmed by the owner

and a boy, produced 100 tons of alfalfa; 50 tons of timothy hay; 5,000 pounds of potatoes; 240 bushels of wheat from seven acres; 22,000 pounds of oats; besides about 800 pounds of butter worth 33 cents a pound and more than 300 dozen of eggs at 30 cents a dozen, in one year.



Farm Residence, near North Yakima (Mead Residence)

Of course all tables of acreage yields are to be taken with some allowance. The yield of a farm or field depends upon so many contingencies and, largely, upon the ability and energy of the farmer, that such tables can only serve as very general indices. An average table of yields per acre as given for irrigated lands in this part of the Yellowstone valley is: Oats, from 40 to 100 bushels; wheat, 25 to 50 bushels; corn, 50 to 100 bushels; potatoes, 250 to 1,000 bushels; alfalfa, 5 to 7 tons; timothy, 2 to 4 tons. Small fruits and vegetables grow to perfection. An annual crop return from a certain fifty-five acres near Billings was: 240 bushels of oats from five acres; 100 tons of alfalfa; 41 bushels of wheat per acre; 150 bushels of corn; 2,100 quarts of strawberries; 1,200 quarts of raspberries; 1,900 quarts of blackberries; 300 dozen bunches of celery; 8,000 cabbages, besides tomatoes, melons, carrots, etc.

Fruit growing here is in its infancy, but apples, plums, grapes, cherries, etc., appear to thrive, and certainly the more hardy fruits are sure to prove a success, judging from all experiences in the valley.

What has well been called the king forage plant of irrigation regions is alfalfa, a plant little known east of the Missouri river. It is an imported grass known, in its early days, as lucern, and its value to the West is beyond statement in figures. The color of the plant is a deep, rich green, and it bears a beautiful purple flower. An alfalfa landscape is one to be remembered. Alfalfa fields, in a general or stock farming

region, are usually quite large, and the scenic effect of a series of these, either in continuous or checkerboard arrangement, is far and away beyond that of timothy or clover fields. They add an emphasis and a beauty to the landscape that cannot be described in an adequate manner.

In alternation with grain fields in varying stages of maturity the effect is tremendous. From the car windows one will watch mile after mile of such contrasting fields and grow more enthusiastic as the miles come and go.

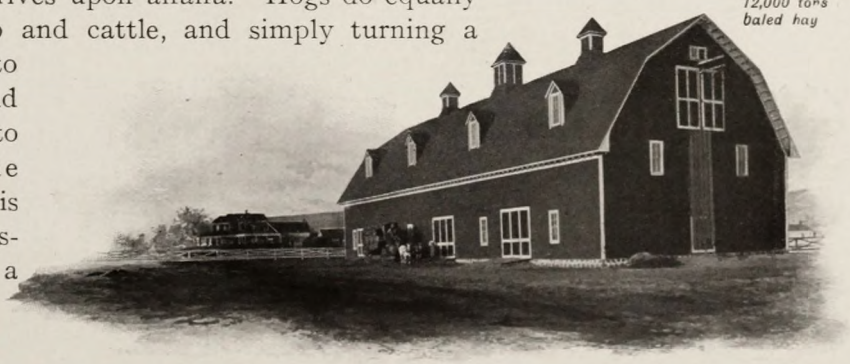
In good practice and under ordinary conditions not less than three crops per year are taken from an alfalfa meadow, and then there will remain ample fall pasturage for horses, cattle, or hogs. Four crops are frequently cut in a season, and sometimes more, but the best farmers are content with three or, at the most, four cuttings. Five or six tons of hay per acre is an average yield.

In appearance the plant is something of a cross between clover and the pea vine. The stem has a somewhat woody fiber and stock eat the plant entire. The plant is hardy, grows deep and rapidly, is hard to kill, and is the most valuable plant of the sort known, probably, for fattening stock. Bees also make delicious honey from it.

Alfalfa hay sells in the stack for an average price of $4.50 per ton. An eighty-acre farm entirely seeded to alfalfa, with the yield and price per ton here named, would produce a yearly income of $1,800 or more if the hay were sold outright.

In the fall and winter hundreds of thousands of sheep and cattle are driven from the higher ranges down to the farms in the Yellowstone valley, or are shipped in from other localities, and fed and fattened on the alfalfa which is everywhere stacked up. There are 100,000 or more tons of alfalfa thus fed each year, and the tonnage increases. The soil of this valley and of its tributary valleys seems peculiarly adapted to alfalfa. It is a strong, sandy loam mixed with decayed vegetation and is very rich. The elevation of the valley is a little over 3,000 feet above the sea and with the protecting hills, bluffs, and mountains, and the influence of the Chinook winds, so common throughout Montana, I look to see this valley, eventually, become the greatest producer of alfalfa and of fat, prime beef, bacon, mutton, and poultry, in the Northwest.

Live stock thrives upon alfalfa. Hogs do equally as well as sheep and cattle, and simply turning a drove of them into an alfalfa field and allowing them to feed upon the growing plants is all that is necessary to impart a



Hay Barn, North Yakima, capacity, 72,000 tons baled hay

vigorous and fine growth of substance. The result of all this will be that the Yellowstone valley will, very likely, be principally devoted to stock-raising. The flocks and herds found upon the adjacent ranges during the summer, with additional thousands of sheep and steers shipped in from outside points, will, during the autumn and winter, be fattened off upon alfalfa for the eastern markets. Montana is now the greatest wool-producing State in the United States and Billings the greatest primary wool-shipping point in the world. There is now something like 15,000,000 pounds of wool shipped from this point annually.

Dairying should be a very profitable mode of farming in the Yellowstone valley. Alfalfa butter has a great reputation wherever it is known, and with the good climate, the pure water, plenty of alfalfa, and good markets the intelligent dairyman should be able to make a complete success of it here.

The beet sugar industry is gradually extending itself in the Northwest, and Montana and the Yellowstone valley will in due time have their share of beet fields and sugar factories. Those interested in this, or in the dairying proposition, may well investigate the prevailing conditions and prospects.

There is, perhaps, no valley of extended area within the irrigation belt where land can now be purchased at as low prices as in the Yellowstone valley. There is plenty of it and there is room there for an enormous population. Land can be bought for $35.00 per acre, including a perpetual water right. A small amount of money down, the remainder on long time, enables the thrifty farmer of moderate means to buy his ranch and virtually make it pay for itself.

What I have said of the Yellowstone valley applies in equal degree to its tributary valleys, for the conditions are the same. There is a fine opportunity here for the young eastern farmer to plant a new family tree. In most of the larger towns there are commercial clubs, boards of trade, or similar organizations, inquiry of whom will result in obtaining information more in detail than is here recorded, and such inquiries are solicited and prompt attention given to them.

Regarding other regions in Montana and Idaho, the Gallatin, Madison, Jefferson, Bitterroot, Clark Fork, etc., valleys, and the well-known Lewiston, or Clearwater country, these valleys are equally valuable and productive, but they are, for various reasons, much better settled and land is, as a rule, higher in price. They are farther advanced in irrigation, in some respects, and the conditions obtaining are quite different, as regards size, elevation, variety of products, etc. Splendid markets are found right at home, in the mining camps, for bacon, dairy products, poultry, etc., from all these localities.

The Yakima Valley.

Passing by the well-known Palouse country south from Spokane, a well-settled country where irrigation is unnecessary, and the Big Bend region west of Spokane and east of the Columbia river, where irrigation can be utilized to advantage but is not a *sine qua non*, we reach the Yakima valley at Kennewick. This little town is, strictly speaking, in the valley of the Columbia river, but the Yakima flows into the Columbia a short distance above Kennewick and the water used for irrigation comes from the Yakima river.

In a North Yakima Apple Orchard

A Field of Monstrous Pumpkins, near North Yakima

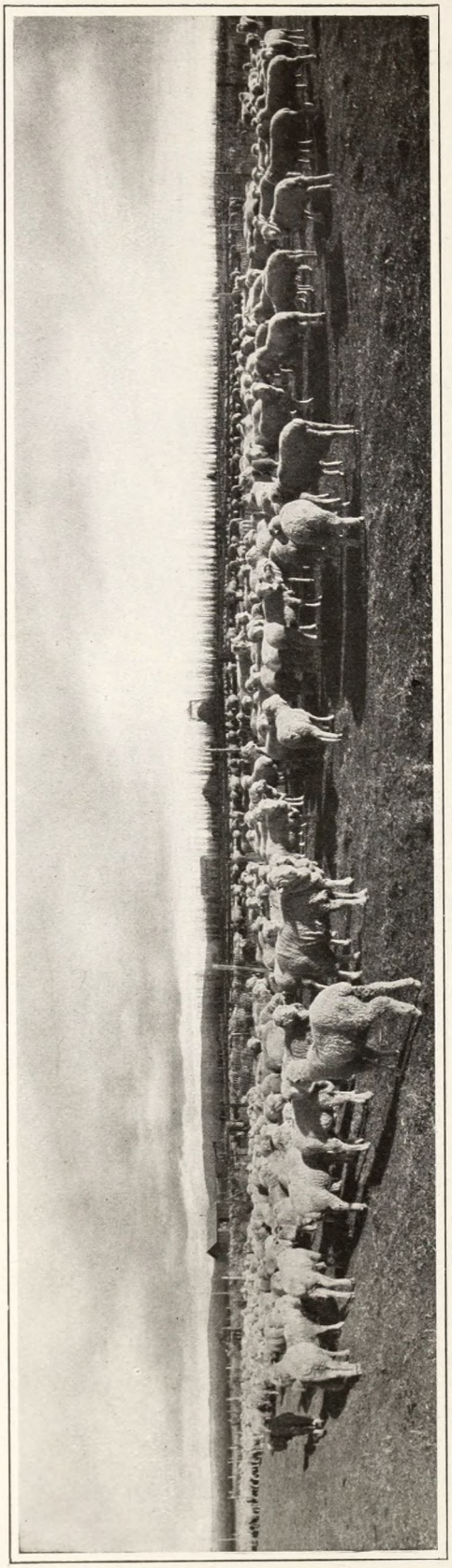
Residence at Kennewick

Business Block at Kennewick

The Yakima river has its sources in some small lakes in the Cascade range. It flows southeast at first, gradually veering to the east, and it waters a valley of 150 miles in length.

There is a radical contrast in nearly every way between the Yellowstone and Yakima valleys, and yet irrigation is the source of prosperity for each. Topography, climate, soil, elevation are all markedly different, but without the irrigation canal each valley is practically valueless to mankind.

The Northern Pacific railway skirts the Yakima river the entire length of the valley from Kennewick to Clealum, passing through Kiona, Prosser, Mabton, Toppenish, North Yakima, and Ellensburg. That portion of the greater valley in which Ellensburg is found is locally designated as the Kittitas valley. The country has been visited in ages past by volcanic outflows which, through erosion, have left mountains and ridges and plateaus. Many of these, lying athwart the valley easterly and westerly, have divided the valley proper into subordinate valleys, or sections, known for convenience by local names.



Four Thousand Sheep, North Yakima

The elevation of Kennewick is about 350 feet above the sea; that of Prosser, 650 feet; North Yakima, 990 feet, and Ellensburg, 1,510 feet, so that the climatic differences can easily be figured out.

These towns are all of an enterprising sort, and are firm believers in the future of the Yakima valley, in their own destinies, and in irrigation, for all of which they give cogent and convincing reasons. One feature worthy, I think, of special remark is the almost total absence, as it seems to me, of petty jealousies among them. While they are rivals, they appear to understand that there is a unity and a real community of interest binding them together, and that while some incomers will prefer this section and others that, yet whatever benefits one part of the valley redounds to the common glory of all, and I have seen little evidence of any policy that seeks to advance one place at the expense of another.

The soil of the valley is a decomposed volcanic ash, treeless, gray in color, of great depth and fertility, soft, and easily plowed, cultivated, and irrigated, and almost entirely void of alkaline constituents. It is an ideal soil in every way. Allied to this is a plentiful supply of water. According to the United States Geological Survey this valley is exceptionally favored in this respect, more so than any other region in the West, with one exception. There is a supply of water ample to irrigate all the arable land in the valley.

The season for irrigation extends from April 1st to November 1st, very little water being required during September and October. The average flow of the river at Union Gap, according to

official reports, varies from about 16,000 cubic feet per second in May to 900 cubic feet in September.

With soil and water stable, or constant factors, throughout the valley, the difference in products depends almost entirely upon elevation. The region from Prosser to Kennewick being lowest both in latitude and elevation the season naturally opens the earliest there, being followed in regular gradation by the Sunnyside, North Yakima, and Kittitas portions of the valley. It is claimed that in the lowest part of the Yakima valley, about Kennewick, the vegetables and fruits mature earlier, by a decided interval, than in any portion of the State.

The eastern man preparing to seek a new home in the West will be interested in knowing that there are no thunder storms or tornadoes in this region, that the roads are unusually good for a new country, and that telephone and electric lines, rural postal delivery, and kindred improvements are being as rapidly extended as is justifiable, in the more populous parts of the valley.

Something like ten years ago I made an extended trip through this valley, then in its first blush of development. Since then things "have been doing" and in the fall of 1903 I made another somewhat hasty visit there.

Kennewick.

The region about Kennewick was the last to start its irrigation enterprises. Ill luck, in the shape of financial difficulties and expensive and poor canal construction, attended them, and not until a year ago were matters placed in satisfactory shape and the canal rebuilt and extended.

This canal is about thirty miles long and is well constructed, being concrete lined at places, and it supplies water for a wide area of sage-brush land—some 15,000 acres—that requires slight preparation to fit it for irrigation farming.

The town itself, while small, is full of energy and vim and is rapidly growing. An academy has recently been established, under able educators, on a sightly spot and in a fine building.

Pretty nearly anything that will grow in the ground can be raised here. While there will be more or less alfalfa grown, I think that the Kennewick and Kiona country, with that about Prosser following close after, will take front rank in the production of small fruits, the more delicate of the larger fruits—cherries, peaches, apricots—and melons, and the more popular garden vegetables. The very early maturity, which the products of the lower valley attain, gives this locality an undoubted advantage in the early marketing of those vegetables and fruits which the spring palate craves. Contiguity to the railway emphasizes this advantage, to the great benefit of the purses of the irrigationists. I much mistake the situation if within the next year or two the traveler passing Kennewick may not look out upon some tremendous strawberry and

Farm House, near Prosser, Wash.

melon fields, for example, and in time the people of Chicago, Duluth, and St. Paul be inquiring eagerly when Kennewick cantaloupes and berries will be in the markets. Strawberries, which are a prolific crop anywhere in Washington, have proved remarkably adapted to the Kennewick region and "there's millions in it" in strawberry culture here. Peaches and apricots find a congenial home on the Kennewick bottoms. The Pennsylvania or Massachusetts horticulturist would be surprised to see Mr. Owen's apricot trees growing lustily in what he would call an old sandpile. They are there, however, the picture of health and strength.

Business Block at Prosser, Wash.

The season here is said to be two or three weeks earlier than at higher altitudes, and berries, peaches, and cherries will bring returns of many hundreds of dollars per acre as has been amply proven.

Alfalfa is cut four times per year and yields from seven to ten tons per acre.

Ten or twenty acres is an ample sized farm here, where farming is of the intensive sort.

Land is selling for $45 per acre and upwards, including a perpetual water right, and prices are advancing rapidly.

Kennewick is but five hours' ride from Spokane and only eight hours' ride from the Puget Sound cities.

Prosser.

Prosser is located at the falls of the Yakima river, and the topography is such that it forms the most attractive natural setting in the valley. The river, dammed by the ledge of rock which forms the fall, has all the effect of a long, narrow lake.

A beautiful strip of valley lies between the river and the plateau just to the south. This strip of valley is irrigated and the proposition is an unusual one. A powerful pumping plant raises the water to a reservoir on a hill near by from whence it is distributed by a main canal and

laterals over 3,000 acres of the finest land in the Yakima valley. The peculiar feature of this irrigation is the fact that the water is carried up the valley from the distributing plant thus reversing the usual program.

Episcopal Church, Zillah, Wash.

Prosser is a lively, progressive town with numerous stores, banks, a flouring mill, good schoolhouse, churches, water works, electric lights, etc., and it has a population of 1,000, and, I think, a strong future lies before it.

A climb to the hill above the irrigation canal discloses not only the situation and advantages of the locality, but a view most pleasing and satisfying as well. The valley under irrigation is revealed as a succession of ranches of alfalfa, fruit, melons, etc., in interesting variety, with the town a center of life and industry. The river winds as a green ribbon through the valley, disappearing behind a point to the west. Beyond the river, to the north, lies a large, brown stretch of land forming a remarkable contrast to the bright green in the foreground. It is the difference between the unirrigated and the irrigated, and the picture preaches a sermon in two minutes that a discourse of hours could not. Even as we wonder at the contrast and grasp the full meaning of *irrigation*, we note a series of tents some miles away and at the highest point of the bare slope. It is the surveying corps of the Sunnyside canal locating an extension of that fine waterway, and it means that

Vineyard, near Zillah, Wash.

Country School and Church, above Zillah, Wash.

Feeding Cattle in Yakima Valley, Wash.

Cherries, Cathildna Ranch, near Zillah, Wash.

A Young Orchard, near Sunnyside

Hops Raised by Irrigation

Bird's-eye View of Sunnyside, from Snipes Mountain

within two or three years the big, bare waste across the river will change color and become another bit of reclaimed desert, another example of the saving power of salvation by irrigation. This extension will add about 20,000 acres of irrigated farms to "Prosser's front yard," as the Prosserites put it.

South of Prosser lies a wide, high plateau which extends to the Columbia river at Kennewick. This rejoices in the name of the Horse Heaven country. It is devoid of water, save perhaps an odd well here and there, lies 1,000 feet above the valley, and is a splendid wheat country, the farms being owned and farmed in large holdings. Large droves of horses formerly made this their favorite pasture, whence the name. There are about 300,000 acres of land included in the plateau.

All kinds of fruit and vegetables can be raised around Prosser, and as they mature very early in the season the prices received are always good. From the car windows one can see the fine alfalfa fields, symmetric, healthy orchards, and large, tempting melon patches which border the track.

It is expected that the year 1904 will see a beet sugar factory established here. This will require the cultivation of 4,500 acres of beets and from these there will be treated 500 tons of beets daily during the season.

Land in and about Prosser suitable for irrigation brings good prices. Wheat lands, however, range from $5 to $16 an acre and grazing lands are even less, but irrigation lands sell for from $50 to $200 an acre, depending upon location, etc., which includes the water right.

With the opening of the Sunnyside canal extension there is a splendid opportunity for those who wish to raise early vegetables and small fruits for the Butte, Spokane, and coast city markets to purchase good land convenient to the railway, at bottom prices.

When President Roosevelt made his well-remembered trip to the West he delivered a speech at Prosser, a portion of which I give as showing how one familiar with the results of irrigation was yet astounded at what he saw in this valley.

"It is a great pleasure to meet you, to be coming through this wonderful valley into your city, to see what you are doing with sheep, cattle, wheat, alfalfa, sugar, and fruit. *It is perfectly astounding.* I cannot sufficiently congratulate you and all your people on the way in which you have been able to make the wilderness *bloom as the rose.* * * * It would not seem possible to develop great wheat fields nor to develop sugar, which is going to be a tremendous industry; it would not have seemed possible to develop what you have been able to by the use of *water on this soil.*"

The Sunnyside.

In our progression up the valley we now reach that portion where the most startling changes have been made in recent years—the Sunny-

side. But a small part of the Sunnyside can be seen from the train. While the Sunnyside canal will soon be completed beyond Prosser, Mabton and Toppenish are the railway stations from which the locality to which this name applies are reached. The towns across the valley, which here is very wide, that correspond to the stations are Sunnyside and Zillah, the latter being the headquarters of the Washington Irrigation Company, which owns the Sunnyside canal.

For one who saw the Sunnyside country in 1893, just after the first forty miles of canal were completed and before many settlers had reached there, and then again in 1903, ten years later, it is hard to write soberly regarding the transformation effected simply by *water*.

In 1893 there were a few hundred settlers in the section served by the Sunnyside canal, and the improvements were all of the primitive order except those of the few families who had previously gone in and excavated the Konnewock canal, the immediate predecessor of the Sunnyside. Most of these families lived around Zillah where the peach and prune orchards and the hop and alfalfa fields of the Parker bottom were a standing indication of what could be accomplished. Now there are probably 5,000 people living "under the canal" and there are 20,000 acres of land being irrigated.

The Sunnyside canal is the fourth largest in the United States, and as originally planned was to be sixty miles in length and was to reclaim 64,000 acres of land. Forty-four miles were constructed before the panic of 1893 compelled a cessation of operations, and there were 300 miles of completed laterals, of various sizes, for distributing the water over the vast acreage. Of course, after the clouds rolled by and land sales again became active, all this canal construction was available in serving new tracts of territory. The canal is thirty feet wide at the bottom and sixty-two feet in width at the top. It winds over the country, really a small river, converting a worthless desert into a sightly, valuable farming region.

The area of irrigated land near Zillah has greatly expanded. Splendid orchards, huge squares of alfalfa, potato fields, here and there a corn patch, with onions, berries, grapes, etc., variegate the rolling landscape.

Down the valley, about the town of Sunnyside, where in 1893 there was scarcely a field of alfalfa in sight, there are now hundreds of farms, forming, with their vivid colorings, a beautiful landscape. Never was the fructifying, changing power of water more manifest than is to be seen from the hills around the town of Sunnyside. In whatever direction the eye wanders a revelation greets it. Each knoll is a new Patmos. From the south side of Snipe's mountain, looking towards Mabton, the valley has been metamorphosed, and the view is one of great interest and beauty.

Throughout the valley there are now to be seen many groves of

Apple Packing at Cathildna Ranch, near Zillah, Wash.

cottonwood and poplar trees. These, besides being ornamental, are useful as windbreaks.

The town of Sunnyside is well laid out, has a population of seven hundred, is well supplied with hotels, schools, churches, stores, and banks, and its streets are shaded by nice trees. The roads are good, the houses much superior to what one expects to find, and the class of settlers, largely from the middle West, and of American birth, are of the sort that do things and do them progressively. There are lines of architectural beauty and grace in many of the residences and in the schoolhouses. The saloon is *persona non grata.*

There is an Episcopal church at Zillah and another at Sunnyside; the Christians have a church at Zillah; the Presbyterians one in Parker bottom; the Dunkards have an edifice at Sunnyside, and there is also, at the latter place, a large Union, or Federate, church.

The climate of the Sunnyside is delightful—there is almost continuous sunshine—and from June to November scarcely any rain falls. There are, on an average, about thirty-three rainy days in a year, the rainfall averages less than six inches yearly, and the winters are very mild.

While a great variety of crops can be raised here there are few cereals grown, not much corn, more onions, and a good many potatoes. Onions and potatoes grow to perfection in the valley, and all the ordinary vegetables, melons, etc., are raised successfully.

Timothy and clover are grown and are prime crops, but without doubt the one crop which dwarfs everything else is alfalfa. It is a crop easily raised, yields splendidly, is of great worth, never fails, brings a good price, and, last but not least, beautifies and diversifies the landscape. It is cut three and, in many cases, four times a year, reaches its

Stacking Alfalfa, Sunnyside

highest state in the Yakima valley, yields from seven to ten tons per acre at a cost not exceeding $1.50 per ton, and sells for an average price of from $3.50 to $6.00 per ton in the stack, and frequently for very much more, in the spring the price sometimes reaching $15.00 a ton. The tonnage of the entire valley now amounts to 150,000 tons and upwards yearly.

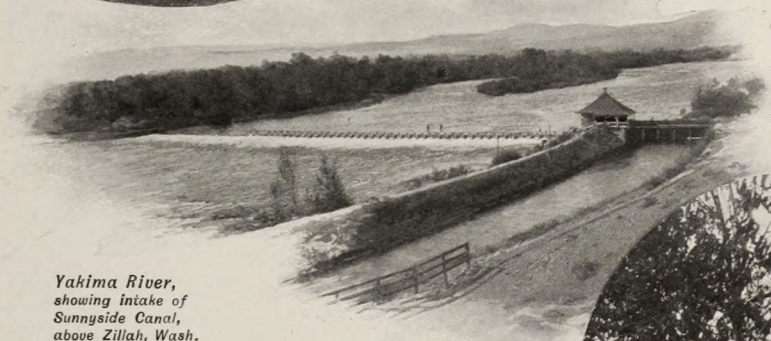
The most of the alfalfa is fed to stock that is driven in for fattening, the surplus being shipped to Puget Sound cities and the Orient. There are about 250,000 sheep fed here during the winter, besides a large number of cattle. Alfalfa is the one crop common to all parts of the valley from Kennewick to North Yakima. It is fed to all kinds of stock, including hogs and poultry, bees make choice honey from it, and alfalfa butter leads all other kinds.

Next to alfalfa, fruit is the principal product of the Sunnyside. Apples, peaches, apricots, pears, prunes, cherries, plums, grapes, and small fruits all grow to perfection. Ten years ago there were a great many prune orchards in the valley, but last year I noticed that many of them had been grubbed up and were being replaced by other fruits. Overproduction throughout the country, with consequent low prices, was the cause of it. While there are many peaches, and delicious ones, raised, also many pears and prunes and plums, winter apples are the favorite fruit. The trees bear luxuriantly and the fruit has fine color and flavor, bears shipment well, and always brings a high price in Butte, the Twin Cities, Winnipeg, Chicago, Boston, and other eastern markets, where it is shipped in car lots. Among the favorite varieties raised are the Ben Davis, Spitzenberg, Winesap, Baldwin, Jonathan, and Northern Spy. The

Wealthy, Gravenstein, and others, are desirable varieties grown successfully. The price of apples ranges from $1.00 to $1.50 per box, and profits range from $300 to $600 an acre.

A Sunnyside farmer, Mr. F. E. Thompson, who went into the valley in 1888, raised, in 1901, from seventy-five acres of orchard, thirty-one cars of fruit, and his farm of 160 acres produced 5,800 boxes Bartlett pears, 5,400 crates of plums and prunes, 2,600 boxes of apples, 7,000 boxes of peaches, 500 boxes of cherries, 55,000 pounds dried prunes, 39,000 pounds of hops, 1,100 sacks of potatoes, and 120 tons of hay. Mr. Thompson says: My average net profits for the past four years have been $5,000 per annum, while this season [1901] they have reached $9,000. I might add, as a side issue I have bought and shipped from various farms of this valley 22,600 boxes of apples, grown upon an aggregate of forty-four acres, which have been sold, f. o. b. cars at shipping station, at prices ranging from $1.10 to $1.50 per box.

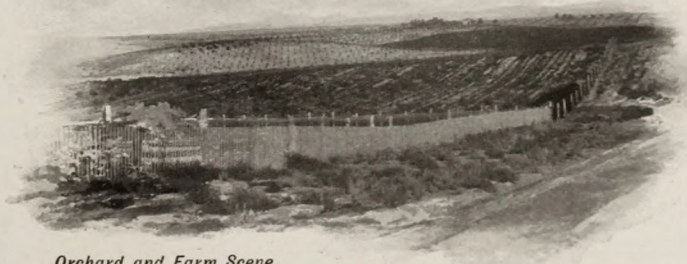
Row of Walnut Trees, Country Roadway, above Zillah, Wash.



Yakima River, showing intake of Sunnyside Canal, above Zillah, Wash.

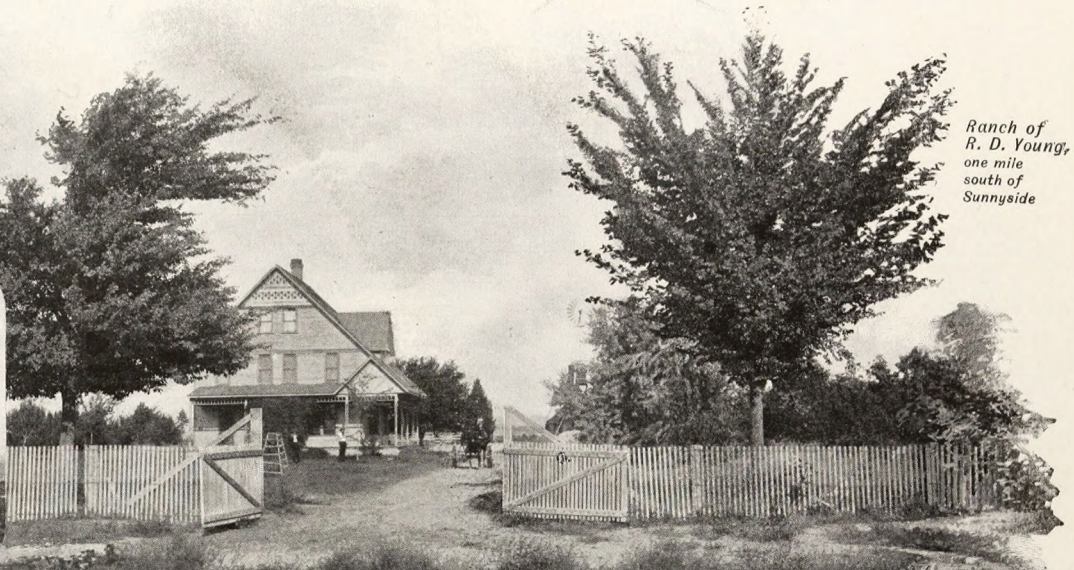
Peach Orchard, above Zillah, Wash.

Vermin in the orchards has to be fought, as elsewhere, but if done vigorously and intelligently it is effective.



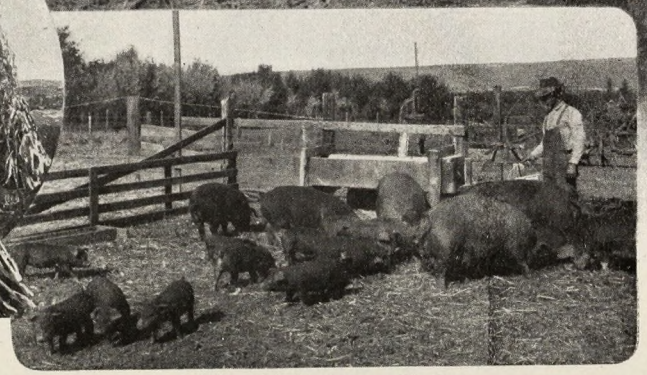
Orchard and Farm Scene, near Zillah, Wash.

A Sunnyside School Building



Ranch of R. D. Young, one mile south of Sunnyside

A Cornfield at Sunnyside



A Corner in Pork, Sunnyside, Wash.

Stock raising and dairying are destined to become most important features of farming in the Sunnyside as indeed they are even now. The stock are being grown more particularly for beef, mutton, and bacon because of the fine fattening and flavoring qualities of alfalfa.

Poultry is now generally raised. I was much impressed in my tour of the valley by the fact that so many little farms had their flocks of chickens and turkeys, lively and healthy, and I felt that it was a sign of thrift and prosperity.

The adaptability of the Sunnyside for the growing of a variety of garden vegetables for market is shown in the following extract from a letter from Mr. L. L. Higgins of Sunnyside, relating the results of his gardening for 1903.

"I have in garden one-half acre in the town of Sunnyside. I grow in it the following vegetables: Celery, tomatoes, lettuce, cauliflower, melons, egg plants, cucumbers, cabbage, onions, pepper beans, rhubarb, carrots, peas, radishes, turnips, beets, spinach, okra, and asparagus. My sales, so far, from the garden have been $397.97, and I have left on hand celery that will bring me over $125.00, also some cabbage, cauliflower, and tomatoes. In addition to this I had an abundant supply of choice vegetables for my family of four. I find this country especially adapted to growing celery, asparagus, and cauliflower, three vegetables that I found it difficult to raise in the East. We badly need here a canning and pickling establishment."

Land in the Sunnyside has greatly advanced in price of late. Raw land without water right can be bought for $25 an acre. Good land with water right can be purchased for from $50 to $75, for unimproved land, to $200 per acre for choice and improved tracts. Long time is given on land payments, with liberal discounts for cash. It costs on an average about $25 an acre to level, seed to alfalfa, and put the land under proper irrigation.

North Yakima.

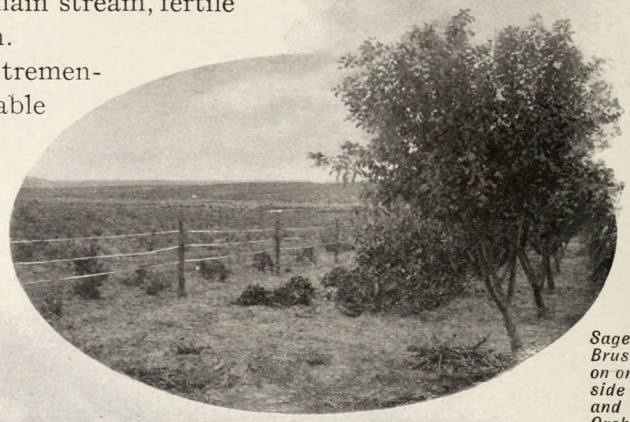
What has been written applies with equal truth to the picturesque region around North Yakima. The same general characteristics and products are found here, modified by increased elevation.

North Yakima is a splendid example of what irrigation and small land holdings will effect in constituting a large urban community of a countryside. Standing on one of the knolls south of town overlooking the Ahtanum, one has a view of the entire valley, clear across the Moxee to the north. It appears as if a large city were under observation. North Yakima has 5,000 population, but one seems to be overlooking a place of twice that size. It is the effect of small farms close together, and it is advantageous in many ways.

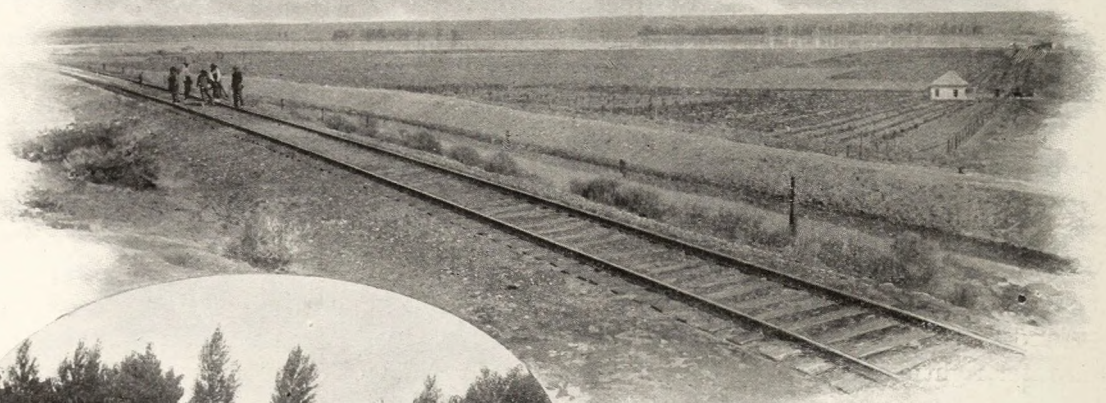
North Yakima is a strategic point. At or near there several important tributary streams join the Yakima river, and the valleys of these

streams are, like that of the main stream, fertile and under successful irrigation.

First of all, the locality is a tremendously healthy and pleasurable



Sage Brush on one side and Orchard on the other



Kennewick Land Co.'s Strawberry Gardens, three months after the sage brush was plowed up

Mr. Owen's Orchard, Kennewick

one. Mr. Fechter has well stated the situation:

"Perhaps a majority of those who migrate to the Pacific coast, do so to escape the rigors of the winter of the prairie, middle, and eastern States; to such, Yakima presents ideal attractions. The seasons are marked; there is not that monotony of weather that so many find objectionable in Southern California; the winters are short and comparatively mild; the only winter wind is the 'Chinook', blowing from the Pacific ocean and bringing with it the warmth of the Japan Current, before which the snow rapidly disappears. Spring usually comes in February; the summers are long and at intervals hot, but the nights are always cool, thus enabling one to enjoy a sweet and refreshing sleep.

"There are no sunstrokes, no thunder and lightning, no severe storms of any kind. The air is dry; the summers are rainless. This dryness of

the atmosphere, together with other favorable conditions, makes this section peculiarly beneficial to those who are afflicted with pulmonary, bronchial, and many other ailments."

For either a summer or winter residence North Yakima is surely a desirable place.

North Yakima is the emporium of the valley, a roomy, well laid-out, conservatively progressive little city. Its business streets are rapidly being well macadamized, its sidewalks reconstructed with concrete, and new and attractive stone and brick buildings are being erected. Its water supply is of the purest sort, the streets and buildings are electric lighted, and the more important streets have large shade trees and, in one or two instances, are boulevarded. There is a large business done in all branches of trade, and the people are warm-hearted and hospitable.

There are several irrigation canals supplying the different portions of the contiguous territory with water.

In the Moxee country, north of the town and across the Yakima river, there are numerous artesian wells that supply a wide area lying above the line of any of the existing canals. There are no unusual features of irrigation found here, perhaps, beyond the fact that one canal is carried across a valley by a so-called inverted siphon.

There is much coarse, gravelly soil in some parts of the valley about North Yakima, but it all raises crops of something or other when water is conducted over it.

There is, perhaps, more diversification of crops in this vicinity than at any other one point in the Yakima valley.

Among many interesting visits to orchards, berry patches, and hop fields, I have a most pleasurable recollection of a half hour spent in a south side grapery, and of an inspection of a field of enormous pumpkins.

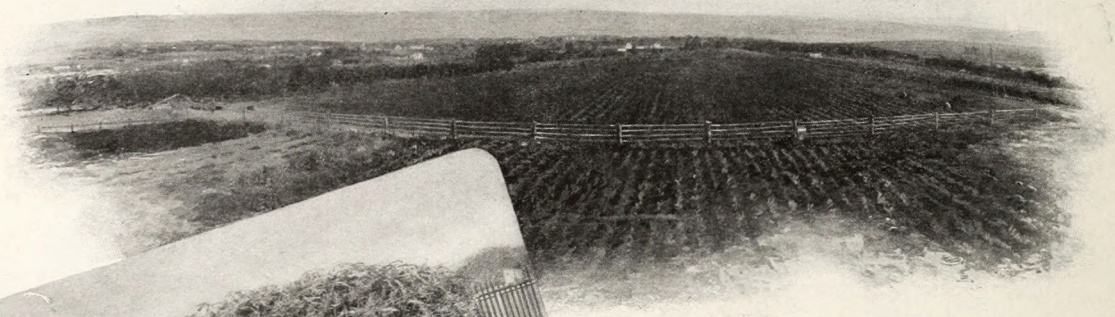
Besides many varieties of fruit and much alfalfa grown, hops are the

Business Street in North Yakima

most important product of the North Yakima region. There are a great number of hop fields, many of them of large dimensions, and they form a most interesting feature of irrigation farming. The long, hot, dry summers render the entire Yakima valley peculiarly adapted to hop culture, and around North Yakima, where population is greatest and where experimental irrigation farming is, possibly, more advanced, they have branched out into hop raising very extensively. The same is true in lesser degree about Zillah.

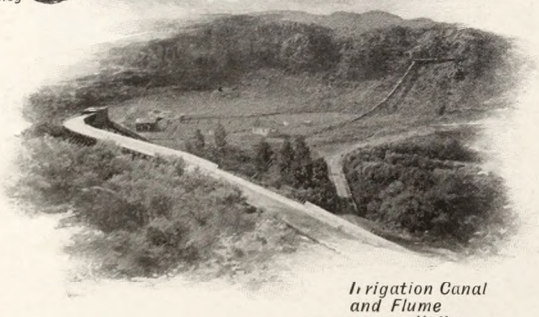
A Patch of Strawberries North Yakima

Yakima Valley Potatoes, $1,500 from three acres



North Yakima from the South

Sage Brush from Cleared Ground, utilized for fuel in Yakima Valley



Irrigation Canal and Flume across Valley, near North Yakima

Hop culture on a large scale requires considerable capital, the poles and wires needed alone representing quite a heavy outlay, but the returns seem to completely justify it here.

The hop louse is now found to some extent, but its ravages appear to be successfully overcome.

Mutton Chops, near Ellensburg

The prices of improved lands about North Yakima are very high, some choice pieces having brought $800 or $1,000 per acre. Unimproved land ranges at about the same prices that it does near Sunnyside, Prosser, etc.

Ellensburg.

Just beyond North Yakima the Yakima river issues from the Yakima cañon, a brown-black trough sawed down through a wide lava sheet by the stream itself. This cañon is about thirty miles long and at the upper end is the Kittitas valley, the first wide expansion of the Yakima valley proper below the mountains, and of which Ellensburg is the principal town.

Ellensburg is a railway division terminal, the county seat of Kittitas county, has a population of 3,000, and is well supplied with the usual accompaniments of a town of its size. The State Normal school is located here.

The valley is a beautiful one, some fifteen or twenty miles long and of proportionate width. Lying close to the Cascade range the outlook from this point is a beautiful one and includes within its scope Mount Adams, Mount Rainier, and Mount Stuart. The two former are the highest and finest of the snow peaks of the Cascades.

Irrigation is the soul of farming in the Kittitas also, but the variety of products is much less. The elevation, while it begets a climate and atmosphere most exhilarating, narrows the number and character of grains, fruits, etc., grown. Then, too, this part of the valley has proved so well adapted to the growth of timothy that this has become a staple crop and, logically, baled hay is an important article of shipment, and cattle and sheep are found in large numbers.

The valley is pre-eminently fitted for meadows and grazing, being as level as a floor.

Small fruits are easily raised here as are also the more hardy of the large fruits, apples doing particularly well.

A new canal has recently been constructed which makes available a portion of the valley several miles north of the town heretofore above any existing canal.

The Kittitas is well settled, and improved farms bring good prices. "Raw" land can be purchased at about the usual rates heretofore named or, possibly, for a little less.

It will be seen that there is much variety and choice of location in the Yakima valley between Kennewick and Ellensburg, one hundred twenty-four miles, so that all shades of desire might be easily satisfied it would seem.

The intending purchaser of an irrigation farm should look over the entire valley carefully and make his selection after personal inspection of each section.

Cheap fuel and lumber are common to the entire valley. Good soft coal is mined in enormous quantities at Clealum and Roslyn, twenty-five miles above Ellensburg, and lumber, shingles, etc., are obtained from the mills on Puget Sound.

Mount Rainier, from Puget Sound, 14,532 feet high

THE great exposition to be held at St. Louis in 1904, followed by another at Portland, Oregon, in 1905, are, naturally, drawing attention to the greater events of a century ago, upon which they are predicated.

The Louisiana Purchase, which forms the *raison d'etre* for the St. Louis exposition, and the expedition of Lewis and Clark, the centennial of which is to be celebrated at Portland, are much better known to, and understood by, the American people than they were a decade since, owing to the elaborate preparations that are being made for these festivals, the natural publicity thereby evoked, and the increased tendency to read the story of those days.

The exploration followed so closely—and logically—upon the Purchase that, without careful reading, one naturally concludes that it was the outcome of the latter. This is not true. The exploration was planned and the preparations were practically completed before the treaty of purchase was concluded in France, and Lewis had started from Washington before the treaty had been received by Jefferson for ratification. Long before the brain of Napoleon had probably conceived the sale of his Louisiana provinces to the young republic, Jefferson, who for years had dreamed and pondered over the exploration, had Congress pass an appropriation for it. Obstacles, indeed, compelled the explorers to halt at the mouth of the Missouri river and there to pass the winter of 1803–04, and thus the exploration, planned before the Purchase and entirely independent of it, became, apparently, one of the results of it.

As the Louisiana Purchase was the first and greatest territorial expansion of the United States, so was the Lewis and Clark expedition its first and greatest overland exploration.

One reason why this exploration, whose results were so momentous, has been so little known is that, until recently, our publishing houses have

A Young Umatilla Indian Matron and Papoose

devoted so little attention to the subject. During the years immediately following the return of the explorers, in 1806, there were several publications purporting to be reports of Lewis and Clark, but they were, almost without exception, spurious. The first authentic publication, which appeared in 1807, was by Sergeant Patrick Gass, one of the members of the expedition. Gass had permission from his leaders to publish his own journal and it was just what it claimed to be, his own simple, plain account of their adventures. The book passed through several editions — including one in the French language — between 1807 and 1812, and it is now a rare, quaint volume found, largely, only in the important libraries.

The official report of Lewis and Clark did not see the light of day until 1814, and then only through the throes of a most uncertain and severe literary childbirth. The Government, somewhat strangely, perhaps, as it appears to us now, allowed the two explorers the privilege of publishing their own journals, with such pecuniary recompense as might come from the venture, and their experiences with timid and bankrupt publishers were like to have prevented the publication. Lewis was murdered in Tennessee on his way to place the journals in the hands of the editors, and the entire burden of publication fell upon Clark, and instead of profits there was a slight deficit. This official report was, substantially, reprinted in England and Holland.

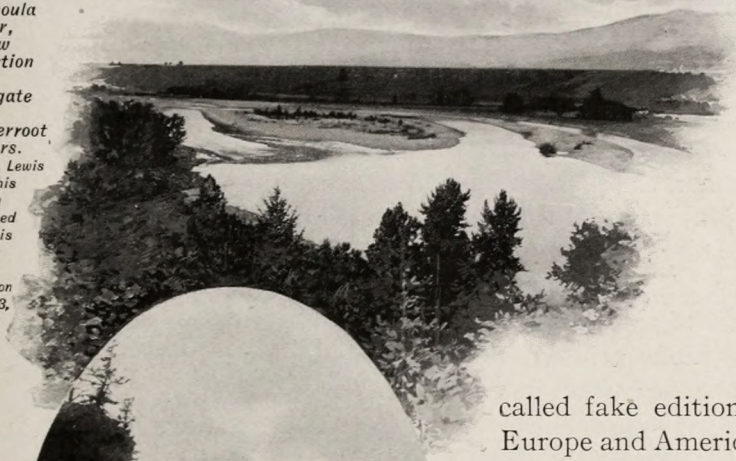
The edition of the original Lewis and Clark report in 1814 was a small one, probably expensive, and therefore the work could not have been widely distributed and read.

The report was edited by Biddle and Allen and published in Philadelphia. Clark, who was residing in St. Louis, apparently never saw the proofs, was only to be consulted at long range about doubtful or

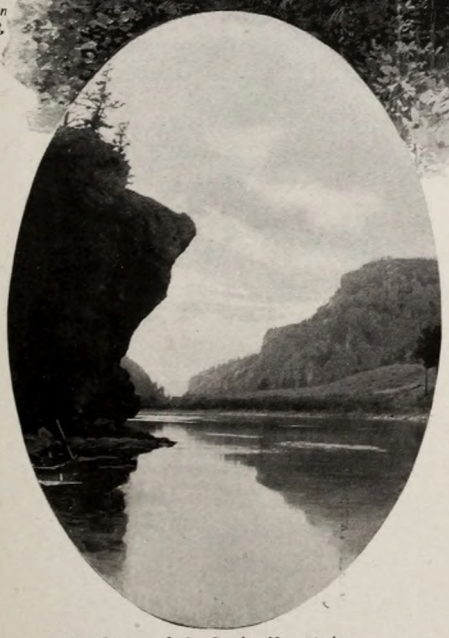
obscure points, and didn't see a copy of the work until some time after it was off the press. Shannon—afterwards a Federal Judge—one of the brightest members of the expedition, assisted the editors, and while the report was remarkably well edited and brought out, under all the circumstances, our present knowledge of their route and of their journals proves that considerable of interest and value was lost in the process of preparing the manuscript for publication.

Present-day Salish, or Flathead, Indians, Montana

On Weippe Prairie, Idaho, near where Lewis and Clark camped in 1805

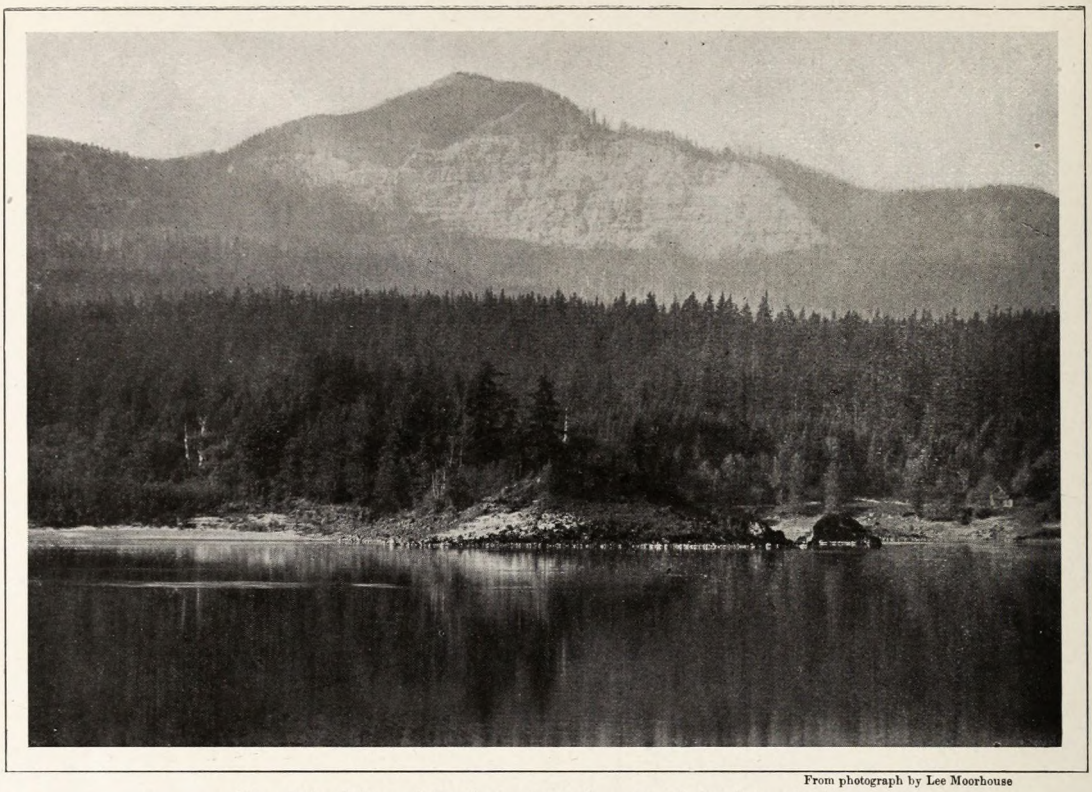


Rapids on the Missoula River, below Junction of Hellgate and Bitterroot Rivers. Capt. Lewis and his party crossed at this point on a raft on July 3, 1806



The Gates of the Rocky Mountains of Lewis and Clark

After the appearance of the real Lewis and Clark report, many what would now be called fake editions appeared, both in Europe and America. There was, without much doubt, a good deal of a certain sort of interest in the exploration then, and it is hard to understand how this interest ever waned, especially as the Government plunged so extensively into transcontinental exploration for a Pacific railway route in the 40's and 50's. This fact, one would think, would have produced a general demand for a good reprint of the original Lewis and Clark report, and would have stimulated the bookmen also, to republish



From photograph by Lee Moorhouse

Site of the Bridge of the Gods, at the Cascades of the Columbia River

the volumes. But the only publishing house that took up the matter was that of Harper & Brothers. In 1842 they brought out, in two small, greatly abridged volumes, the 1814 edition. The abridgment was, on the whole, well done by McVicar, and this edition stands to-day a very satisfactory report of the story of the exploration. For critical uses however it is utterly valueless. The Harpers issued this work in very limited editions and, between 1842 and 1904, while there have been between twenty and thirty editions printed these have not, probably, equaled 10,000 sets of two volumes each.

In recent years other houses have republished all or portions of the old report. The New Amsterdam Book Co., of New York, have given us a three-volume popular edition, daintily put out; A. C. McClurg & Co. have published a fine reprint of the 1814 edition in two volumes; Houghton, Mifflin & Co. have placed on sale another one-volume summarized edition, and "First Across the Continent," by the late Noah Brooks and published by Charles Scribner's Sons, New York, is a fourth work.

Undoubtedly the volume which has recently done more to revive the popular interest in Lewis and Clark and their work than any other is "The Conquest," by Mrs. Eva Emery Dye, published by A. C. McClurg & Co., Chicago.

While a considerable part of this volume has but a remote connection with the great exploration itself, Mrs. Dye has, in the other part, taken the story of the expedition and with added incidents and facts, gained by indefatigable research, given it a new and entirely different setting.

The great work on this exploration, to date, is that monumental one of the late Dr. Coues, in four large, splendidly printed volumes, published by Francis P. Harper, New York. This is a complete reprint not of the 1814 edition alone, but it is a revision of that checked by the original journals themselves, which were in Dr. Coues's possession at the time he was engaged at his labor. This edition, a limited and, necessarily, an expensive one unfortunately, is a critical work edited by one who possessed many admirable qualities for the task. The work is out of print but can be found in the principal libraries.

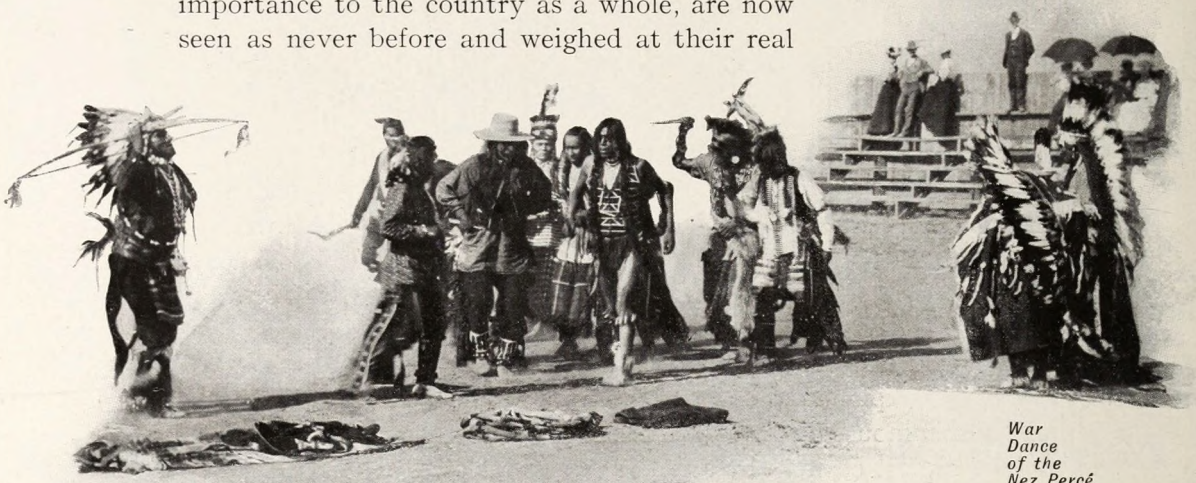
All students and historical readers will be rejoiced to know that the volumes by Dr. Coues will soon be supplemented, and in some degree superseded, by a series of volumes prepared by Reuben G. Thwaites, the accomplished historical scholar of Madison, Wis., and published by Dodd, Mead & Co. This will be, beyond question, the great work on this subject. It will consist of the publication of the "Original Journals of Lewis and Clark," as the explorers left them, complete and *verbatim et literatim*, with explanatory notes and annotations. The publication will be a voluminous, limited, and expensive one necessarily, and will be absorbed almost entirely by scholars and libraries.

Still another publication relating to the explorers, the exploration, and the explored, will be a two-volume edition to be brought out by G. P. Putnam's Sons, New York, entitled "The Trail of Lewis and Clark—1804-1904," and prepared by the writer. This edition, which will be issued in the spring of 1904, will be from the standpoint of one who, in studying the subject, has visited many of the places and tribes made memorable by Lewis and Clark, has followed trails and forded streams and crossed mountains and made camps—accompanied by photographers—where they traveled, forded, mountaineered and camped, and it will thus freely illustrate, from photographs and specially prepared maps and paintings, and describe, from personal knowledge and examination, the old trail and the changes of a hundred years. The work will be semi-critical, explanatory of many things heretofore enigmatical, will be suited to the popular taste and to the student as well, and will be published at a reasonable price.

Another and popular volume, also by Mr. Thwaites, and published by D. Appleton & Co., is " Rocky Mountain Exploration, with Especial Reference to the Expedition of Lewis and Clark."

A most interesting little volume anent this subject is "The Life and Times of Patrick Gass" by J. G. Jacob, Wellsburg, W. Va., a volume out of print and difficult to obtain. Gass, a sergeant of the expedition, lived to become a centenarian, led a rather remarkable existence, and at his death was undoubtedly the last surviving member of the Lewis and Clark party. Mr. Jacob, a fellow townsman, recounts pleasantly the incidents in the old veteran's career, and throughout, the story of the expedition is more or less woven as a thread.

The story of Lewis and Clark, it is safe to say, will now never lack in interest. With the marvelous upbuilding of the Northwest, the true proportions of that exploration in its relation to the development of that region, and its importance to the country as a whole, are now seen as never before and weighed at their real value. Look at it from whatever side one may the enterprise looms far beyond anything of the sort attempted by any country, and in its oneness it is considered by competent judges as ranking any similar exploration ever undertaken. The Northwest is particularly indebted to it. Scarcely a State there, some one or more of whose water courses, mountain ranges, valleys, or plains was not traversed by some portion of the Lewis and Clark party.



War Dance of the Nez Percé

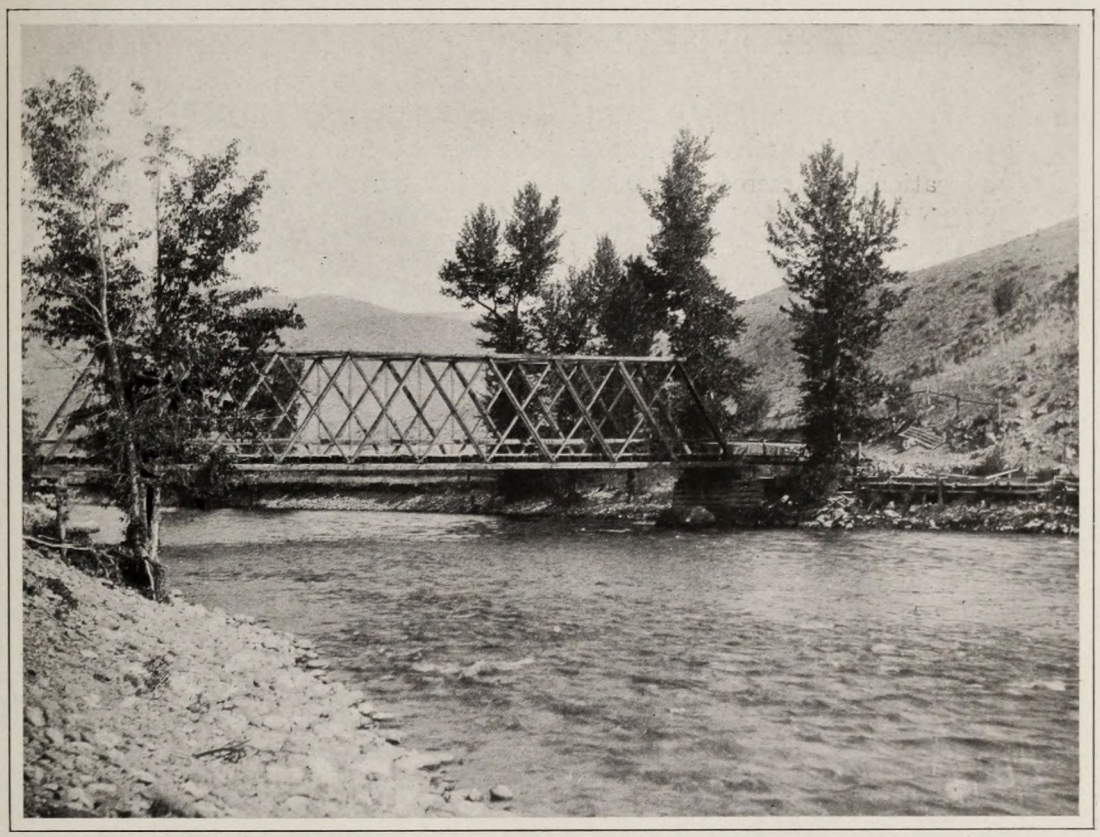
The descent of the Columbia river and the encampment during the winter of 1805–6 near its mouth proved an important link in the chain of discovery that years afterward held this region, the present State of Washington particularly, within the boundaries of the United States.

The site of that winter's dreary camp near Astoria, Oregon, is well known and easily visited by the shrine-hunting traveler. So, too, is the old, rude, weathered rock cairn, or furnace, on the sea coast near Seaside, Oregon, where, their supply of salt being exhausted, recourse was had by the explorers to evaporating sea water by boiling to replenish it.

The traveler on Northern Pacific main line trains passes over hundreds of miles of the trails of these explorers. A few of the important places seen from the car windows are here noted.

In the Yellowstone valley, Pompey's Pillar, east of Billings, is seen a mile to the north of the track, unchanged by the lapse of a hundred

years. The crossing of the railway from the Yellowstone to the Gallatin valley—Livingston to Bozeman—across the Rockies, is along the very trail and over the very pass used by Clark and his party in 1806 when homeward bound. Beyond Bozeman and Logan, Mont., the railway follows Gallatin river to its junction with the Madison and Jefferson rivers, the Three Forks, where the Missouri is formed, and the junction and the historic Fort Rock of Lewis and Clark is within a stone's throw of the trains as they round the rocky bluff into the cañon of the Missouri. At Pasco and Kennewick, Washington, as the train crosses the bridge over the Columbia river, the mouth of the Snake river, where Lewis and Clark first viewed the former river, lies just below and in view. The



The East Fork of the Bitterroot River, Montana, on the Route of Lewis and Clark

explorers ascended the Columbia to the mouth of the Yakima river and found the banks lined with Indians whose supply of fuel was comprised mostly of salmon caught in the river and dried on scaffolds.

The lower Columbia, from the Dalles to Astoria and Cape Disappointment, is redolent of these explorers. Their experiences here were many and varied and they are given fully, yet modestly, in their immortal

narrative. On the return voyage up the river in 1806, when camped above the mouth of the Willamette river, which, being hidden by islands, the party had entirely missed, the explorers saw two Indians of a tribe unknown to them who lived on the banks of the latter river. Immediately Clark detailed a crew and, under the guidance of these two Indians, away he went down the Columbia and up the Willamette to visit this new Indian tribe and explore the new river.

On an eminence in the outskirts of Portland, nearly, or perhaps quite, overlooking the farthest point up the stream reached by Clark, the commemorative exposition of 1905 will be held. It is beautiful for situation and commands a wide view with those superb, white mantled peaks of the Cascades, Rainier, St. Helens, Adams, and Hood dotting the horizon. The 385 acres of grounds and water are laid out in most tasteful, yet simple, designs under the direction of able landscape architects, and no mistake will be made in planning to visit this spot in 1905. The buildings and their contents will be a revelation to easterners as will the cities and the people themselves. A revelation of manners, customs, industries, education, commerce, progress, civilization on that western coast, of which the New Englander, for example, of this day has little or no real conception.

The country drained by the mighty river that Gray of Boston discovered—the mightiest and grandest river of our country—and that Lewis and Clark explored, has been redeemed from savagery and to-day no fairer nor better can be found.

The great centennial of Lewis and Clark will be as well an exposition of the wonderful progress of the old Oregon of Webster and Benton and which was such a nightmare to the statesmen of a half century ago.

NORTHERN PACIFIC RAILWAY

Rates and Arrangements for the Tourist Season of 1904.

(SUBJECT TO CHANGE WITHOUT NOTICE.)

MINNESOTA SUMMER RESORTS

During the summer season the Northern Pacific Railway will sell round-trip excursion tickets from St. Paul or Minneapolis to Glenwood (Lake Minnewaska) at $5.20; Henning, $7; Battle Lake, $7.50; Fergus Falls, $7.50; Pequot, $6.35; Pine River, $6.75; Backus, $7.10; Walker, $7.95; Bemidji, $9.20; Turtle, $9.60; Tenstrike, $9.85; Blackduck, $10.15; Perham, $7.75; Detroit Lake, $9.15; Minnewaukan (Devils Lake), $18.65; Winnipeg, $22.50. From Duluth to Deerwood, $3.80; Henning, $7; Battle Lake, $7.50; Fergus Falls, $7.50; Pequot, $5.35; Pine River, $6.65; Backus, $6.65; Walker, $6.65; Bemidji, $6.65; Turtle, $7.10; Tenstrike, $7.35; Blackduck, $7.65; Perham, $7.75; Detroit Lake, $9.15; Minnewaukan, $18.65; Winnipeg, $22.50. From Ashland, Wis., to Henning, $8.50; Battle Lake, $9; Fergus Falls, $9; Pequot, $6.85; Pine River, $8.15; Backus, $8.15; Walker, $8.15; Bemidji, $8.15; Turtle, $8.60; Tenstrike, $8.85; Blackduck, $9.15; Perham, $9.25; Detroit Lake, $10.65; Minnewaukan, $20.15; Winnipeg, $22.50. Transit limits to Minnesota resorts one day (from Ashland two days), to Minnewaukan (Devils Lake) and Winnipeg two days in each direction. Good to return on or before October 31st.

Round-trip summer excursion tickets will be sold from St. Paul, Minneapolis, or Stillwater to resorts on the "Duluth Short Line" as follows: Forest Lake, $1; Wyoming, $1.20; Chisago City, $1.45; Lindstrom, $1.55; Centre City, $1.60; Taylors Falls, $1.80; Rush City, $2.15; Pine City, $2.55. Tickets on sale daily; limit, ten days. From St. Paul or Minneapolis to White Bear and return, 50 cents; Bald Eagle or Dellwood and return, 55 cents; Mahtomedi and return, 60 cents. Tickets on sale daily; limit, thirty days. Summer excursion rates from St. Paul, Minneapolis, or Stillwater to White Bear Lake points or Bald Eagle and return, tickets on sale week days, going and returning on date of sale, 35 cents; tickets on sale Sundays, going and returning on date of sale, 25 cents.

YELLOWSTONE PARK RATES

$5 TICKET.—Includes rail and stage transportation Livingston to Mammoth Hot Springs and return.

$7 TICKET.—Includes rail and stage transportation Livingston to Mammoth Hot Springs and return and two meals (lunch and dinner) at Mammoth Hot Springs Hotel.

$28 TICKET.—Includes rail transportation Livingston to Gardiner and return, and stage transportation Gardiner to Mammoth Hot Springs, Norris, Lower and Upper Geyser Basins, Yellowstone Lake, Grand Cañon and Falls of the Yellowstone and return. This ticket does not cover hotel accommodations.

$49.50 Ticket.— Includes rail transportation Livingston to Gardiner and return, stage transportation Gardiner to Mammoth Hot Springs, Norris, Lower and Upper Geyser Basins, Yellowstone Lake, Grand Cañon and Falls of the Yellowstone and return, and not to exceed five and one-half days' accommodations at the Park Association hotels.

$52.50 Ticket.— Includes rail and stage transportation from St. Paul, Minneapolis, Duluth, or the Superiors to Mammoth Hot Springs and return to any one of the above named points, or via Billings and the B. & M. R. R. R. to Missouri River.

$55 Ticket.— Includes rail transportation from St. Paul, Minneapolis, Duluth, or the Superiors to Gardiner and return to any one of the above named points, or via Billings and the B. & M. R. R. R. to the Missouri River, and stage transportation Gardiner to Mammoth Hot Springs, Norris, Lower and Upper Geyser Basins, Yellowstone Lake, Grand Cañon and Falls of the Yellowstone and return. This ticket does not cover hotel accommodations.

$75 Ticket.— Includes rail transportation from St. Paul, Minneapolis, Duluth, or the Superiors to Gardiner and return to any one of the above named points, or via Billings and the B. & M. R. R. R. to the Missouri River; stage transportation Gardiner to Mammoth Hot Springs, Norris, Lower and Upper Geyser Basins, Yellowstone Lake, Grand Cañon and Falls of the Yellowstone and return, and not to exceed five and one-half days' accommodations at Yellowstone Park Association hotels.

$105 Ticket.— Includes rail transportation from St. Paul, Minneapolis, Duluth, or the Superiors to Gardiner, stage transportation Gardiner to Mammoth Hot Springs, Norris, Lower and Upper Geyser Basins, Yellowstone Lake, Grand Cañon, Falls of the Yellowstone and Monida, hotel accommodations for not to exceed six and one-quarter days, between Gardiner and Monida, and rail transportation from Monida, either via Oregon Short Line R. R. and Union Pacific to Missouri River points, or via O. S. L. R. R. to Ogden, any line Ogden to Denver, thence via either the B. & M. R. R. R., Union Pacific, A., T. & S. F. Ry., C., R. I. & P. Ry., or Missouri Pacific Ry. to Missouri River terminals.

$84 Ticket.— Same as the $105 ticket, except that it covers rail and stage transportation only, meals and lodging not being included therein.

The $5 and $7 tickets will be sold at Livingston May 31 to October 4, 1904, inclusive, and at St. Paul, Minneapolis, Duluth, and the Superiors, and at western terminals May 29 to October 2, 1904, inclusive. Tickets must be used from Livingston not later than morning train of October 4, 1904.

The $28 and $49.50 tickets will be sold at Livingston May 31 to September 29, 1904, inclusive, and at St. Paul, Minneapolis, Duluth, and the Superiors, and at western terminals May 29 to September 27, 1904, inclusive. Tickets must be used from Livingston not later than morning train of September 29, 1904.

The $52.50 tickets will be sold at St. Paul, Minneapolis, Duluth, and the Superiors May 29 to October 2, 1904, inclusive; the $55, $75, $84, and $105 tickets will be sold at St. Paul, Minneapolis, Duluth, and the Superiors May 29 to September 27, 1904, inclusive. These tickets will bear going transit limit thirty days; return transit limit ten days; final return limit ninety days, but not exceeding limit of October 4, 1904, for trip through the park, and extreme final limit of October 14, 1904. Stopovers allowed within limits. The trip through the park must be completed by October 4, 1904.

Half of the $5, $28, $52.50, $55, and $84 rates will be made for children five years of age or over and under twelve years of age. Half of the $7, $49.50, $75, and $105 rates will not be made for children, but children five years of age or over and under ten years of age will be granted half rates locally at the Yellowstone Park Association hotels.

The $52.50 ticket must be validated for return passage at Mammoth Hot Springs Hotel and presented on train on or within one day of such date. The $55, $75, $84, and $105 tickets must be validated for return passage at Grand Cañon Hotel.

From Chicago and St. Louis round trip tickets corresponding to the above will be sold at rates $10 higher than from St. Paul.

The hotel rates in the park will be $4 per day up to seven days; after seven days, $3.50 per day.

Above rates, etc., subject to change without notice.

Stop-overs on railroad and sleeping-car tickets are given at Livingston, Mont., during the season, to enable our patrons to visit Yellowstone Park.

MONTANA, EASTERN WASHINGTON, AND EASTERN BRITISH COLUMBIA POINTS

The Northern Pacific Railway has on sale, at reduced rates, round-trip excursion tickets from St. Paul, Minneapolis, or Duluth to Billings, Springdale, Livingston, and Bozeman, Mont.; Helena, Butte, and Anaconda, Mont. (choice of routes returning from Helena, Butte and Anaconda, via Northern Pacific, or Great Northern Railway, or from Butte at a higher rate, via Oregon Short Line and connections); Missoula, Mont.; Spokane, Wash. (choice of routes returning, via Oregon Railroad & Navigation Company and its connections, or via the Great Northern, or Northern Pacific Lines); Medical Lake, Pasco, Walla Walla, Kennewick, and Toppenish, Wash.; Nelson, Trail, Rossland, Ainsworth, Kaslo, and Sandon, B. C., and Coulee City, North Yakima, and Ellensburg, Wash.

These tickets are of ironclad signature form; require identification of purchaser at return starting point.

Any of the above tickets may read to return via Billings direct to the Missouri River, or when destination is Helena, or Butte, Mont., or a point west thereof, via Billings, Denver, and any direct line to the Missouri River except that Helena, Butte, Anaconda, and Missoula tickets will not be good for return via Billings, Denver, and the Union Pacific Railway.

NORTH PACIFIC COAST EXCURSIONS

A $90 round-trip individual excursion ticket, St. Paul, Minneapolis, or Duluth to Tacoma, Portland, Seattle, Everett, Bellingham (Whatcom), Vancouver, or Victoria, is on sale daily at points first named and by Eastern lines.

Tacoma, Seattle, Everett, Bellingham (Whatcom), Victoria, Vancouver, or Portland tickets, at above rates, will be issued, going via Northern Pacific, returning via same route, or Great Northern, or Soo-Pacific to St. Paul, Minneapolis, or Duluth; or via Canadian Pacific to Winnipeg or Port Arthur; or via Billings to the Missouri River, either direct or via Denver; Portland tickets will also be issued, returning via Oregon Railroad & Navigation Company and its connections to either Omaha or Kansas City, or to St. Paul via Sioux City.

Above tickets limited to nine months from date of sale, good going ninety days to first point en route in State of Washington. Stop-overs allowed within limits.

ALASKA EXCURSIONS

An excursion ticket will be sold from Eastern termini named to Sitka, Alaska (not good on steamer Spokane), at $150, which rate includes meals and berth on the steamer.

The steamer Spokane will make six Alaska excursion trips, leaving Tacoma and Seattle early in the morning on June 7th and 21st, July 5th and 19th, and August 2d and 16th, 1904; arriving at those points on the return about twelve days later. The route will be especially arranged to give passengers an opportunity to see all interesting and accessible glaciers and the most important ports. Round-trip rate from St. Paul, Minneapolis, or Duluth, including meals and berth on steamer Spokane, $190.

Tickets on sale May 1st to September 30th. Limit, nine months, good going ninety days to first point en route in State of Washington, returning within final limit, holder to leave Sitka on or before October 31st. Tickets will be issued to

return either via the Northern Pacific, Soo-Pacific, or Great Northern lines to St. Paul or Minneapolis, or via Canadian Pacific Railway to Winnipeg or Port Arthur, or via Billings to the Missouri River, either direct or via Denver. Usual stop-over privileges granted. Steamer accommodations can be secured in advance by application to any of the agents named on appended list. Diagrams of steamers at office of General Passenger Agent at St. Paul. Only the steamer Spokane will call at Glacier Bay.

The opening of the White Pass and Yukon route from Skaguay across the White Pass opens a new and inviting field to the tourist, by rail and boat, down the Yukon River to Dawson and into the Atlin region. Tourist accommodations are entirely satisfactory as to quality and reasonable as to price.

CALIFORNIA EXCURSION RATES

The Northern Pacific Railway will sell round-trip excursion tickets from St. Paul, Minneapolis, or Duluth as follows:

To San Francisco, going via the Northern Pacific, Seattle, and steamer, or Portland and the Shasta Route, or the ocean to San Francisco; returning via rail or steamer to Portland, or via steamer to Seattle or Victoria, and the Northern Pacific, Great Northern, or Soo-Pacific lines to St. Paul or Minneapolis; or via Canadian Pacific to Winnipeg or Port Arthur; or via Billings to the Missouri River, either direct or via Denver; or via rail or steamer Portland and Huntington to the Missouri River; or returning by the southern lines to Council Bluffs, Omaha, Kansas City, Mineola, or Houston, at $105; to New Orleans or St. Louis, at $111.

To Los Angeles, going via Portland and Shasta Route, and returning via rail, Portland and the Northern Pacific, Great Northern, or Soo-Pacific lines to St. Paul or Minneapolis; or via Billings or Huntington to the Missouri River, at $124; or going via Portland and Shasta Route and returning via San Francisco and Ogden to Council Bluffs, Omaha, or Kansas City, at $114.50; to St. Louis, at $120.50.

To San Diego, going via Portland and rail through Los Angeles, and returning via rail, Portland and the Northern Pacific, Great Northern, or Soo-Pacific lines to St. Paul or Minneapolis; or via Canadian Pacific to Winnipeg or Port Arthur; or via Billings or Huntington to the Missouri River, at $130.50; or going via Portland and Shasta Route and returning via San Francisco and Ogden to Council Bluffs, Omaha, or Kansas City, at $121; to St. Louis, at $127.

Tickets via ocean include meals and berth on steamer.

At the eastern termini of the southern transcontinental lines excursion tickets will be sold, or orders exchanged, for tickets to San Francisco, returning via either the Shasta Route, the all-rail line to Portland, or the ocean and the Northern Pacific to St. Paul, Minneapolis, or Duluth, at a rate $15 higher than the current excursion rate in effect between Missouri River points, Mineola, or Houston and San Francisco. The steamship coupon includes first-class cabin passage and meals between San Francisco and Portland.

These excursion tickets allow nine months' time for the round trip; ninety days allowed for west-bound trip up to first station en route in State of Washington; return any time within final limit.

GENERAL AND DISTRICT PASSENGER AGENTS.

BOSTON, MASS.—207 Old South Building.
C. E. FOSTER.....District Passenger Agent.

BUFFALO, N. Y.—215 Ellicott Square.
W. G. MASON.....District Passenger Agent.

BUTTE, MONT.—Cor. Park and Main Streets.
W. H. MERRIMAN.....General Agent.

CHICAGO—208 South Clark Street.
C. A. MATTHEWS.....General Agent Passenger Department.
J. C. THOMPSON.....District Passenger Agent.

CINCINNATI, OHIO—40 East Fourth Street.
J. J. FERRY.....District Passenger Agent.
D. L. ROBB.....Traveling Freight and Passenger Agent.

DES MOINES, IOWA—318-319 Citizens Bank Building.
E. D. ROCKWELL.....District Passenger Agent.

DETROIT, MICH.—153 Jefferson Avenue.
W. H. WHITAKER.....District Passenger Agent.

DULUTH, MINN.—332 West Superior Street.
T. E. BLANCHE.....General Agent.

HELENA, MONT.—Main and Grand Streets.
E. S. RICHARDS.....Acting General Agent.

INDIANAPOLIS, IND.—42 Jackson Place.
P. W. PUMMILL.....District Passenger Agent.

LOS ANGELES, CAL.—125 West Third Street.
C. E. JOHNSON.....Traveling Passenger Agent.

MILWAUKEE, WIS.—316-317 Herman Building.
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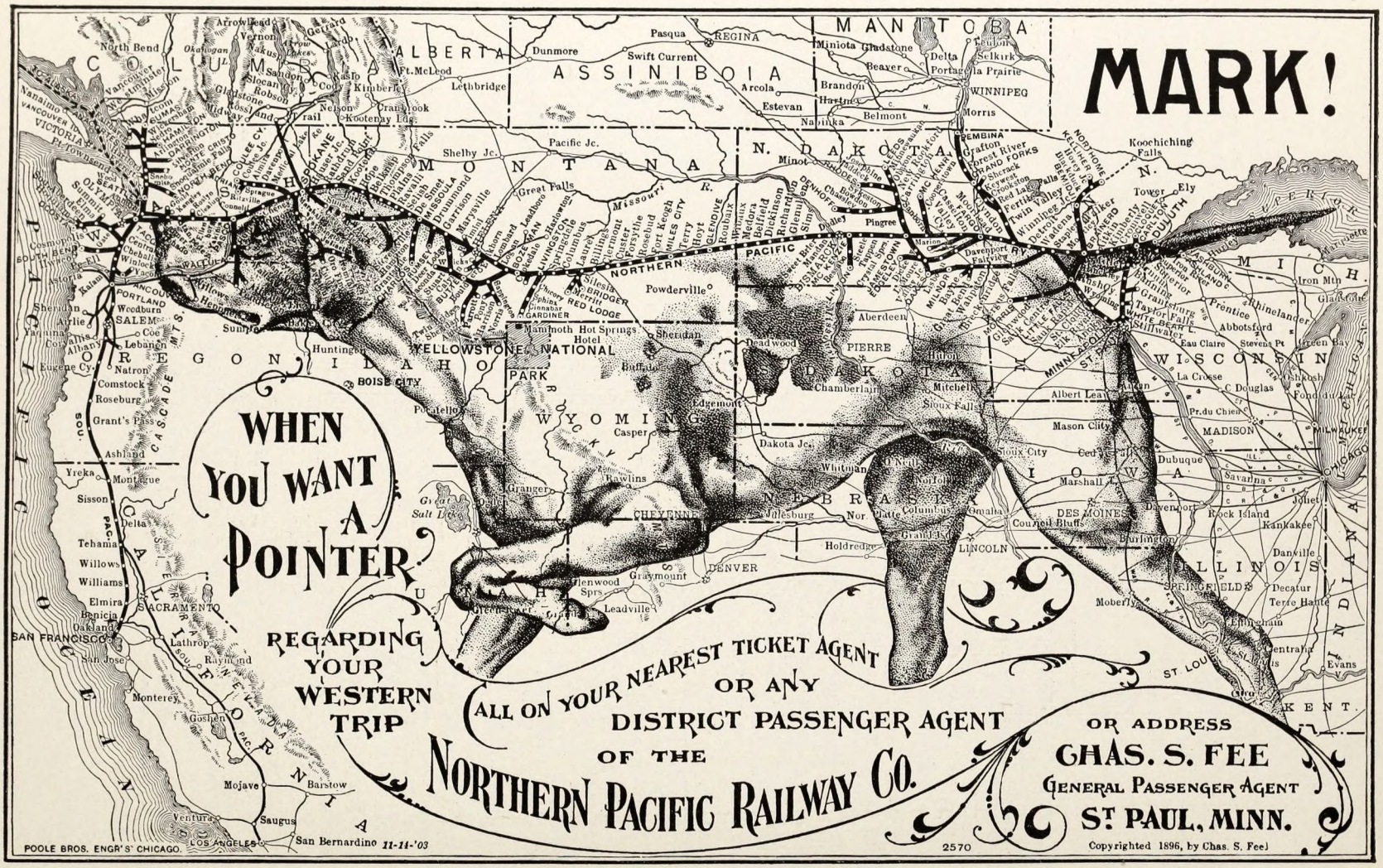
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