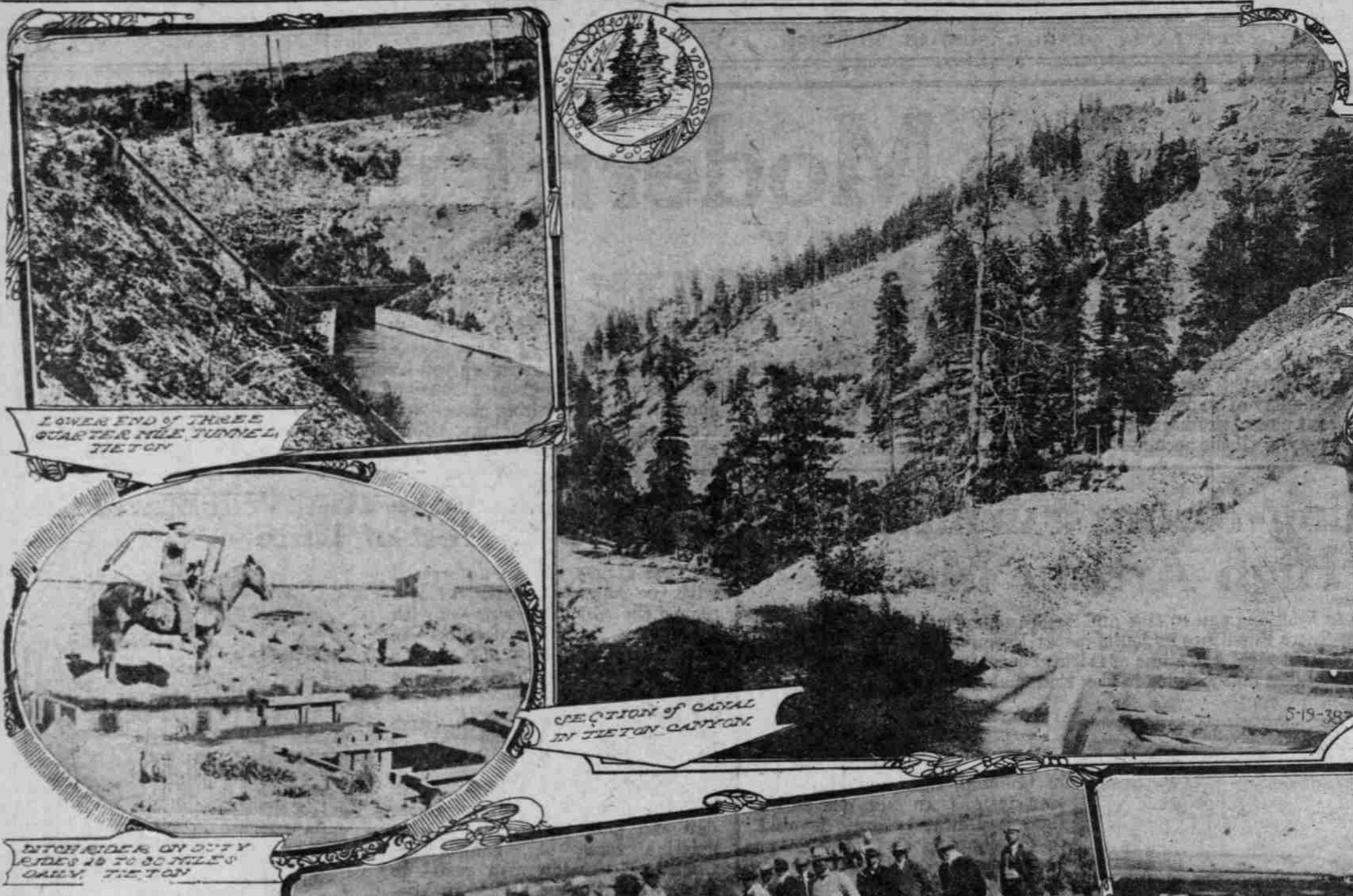


TIETON PROJECT MODERN MIRACLE

Wonder Wrought by Water on Near-Desert Lands Is Seen on Government Reclamation Work in South Central Washington.



LOWER END OF THREE QUARTER MILE TUNNEL, TIETON

DITCH RIDER ON DUTY RIDES 10 TO 20 MILES DAILY, TIETON

BY RANDALL N. HOWARD.

THIS is the first of a series of eight or more articles, to be published weekly, that will deal intimately with the present status of the great United States reclamation projects of the West. Each article will discuss a special phase of the work of the reclamation service, and the difficult problems of one project. Among the projects to be visited and described, are: The Tieton and the Sunnyside, Washington; the Payette-Hohe and the Minooka, Idaho; the Truckee-Carson, Nevada; the Orland, California; and the Umatilla and the Klamath, Oregon.

The canals, laterals and large ditches of these projects have a total approximate length of one and three-fifths times the distance around the world, not including the many thousands of miles of smaller ditches that will distribute the immense volume of formerly wasted water that is being conserved by the reclamation service. Counting a fifth or four to every ten acres, these water-created districts will support a population of more than half a million people.

Law Approved by Roosevelt.

The reclamation act was made a law by the signature of President Roosevelt June 17, 1902. The substance of the act is that all moneys received from the sale and disposal of public lands in Arizona, California, Colorado, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Utah, Washington and Wyoming, beginning with the fiscal year ending June 30, 1902, including the surplus of fees and commissions in excess of allowances to registers and receivers, and exceeding 2 per cent of the proceeds of the sale of land, and of all other moneys, should be appropriated as a special fund in the Treasury, to be known as the "reclamation fund," to be used for the examination and survey for and the construction and maintenance of irrigation works for the storage, diversion and distribution of waters for the reclamation of arid and semi-arid lands in the said states and territories.

A bridge view of the various projects provided for by the act of Congress follows:

Tieton Project—Area, 25,000 acres; altitude, about 2100 feet; canals and laterals, 294 miles in length; farm units, 40 acres; location, Central Washington; opened November 7, 1910; products, hops, alfalfa, fruit, vegetables, prairie; average annual rainfall, 11.8 inches; soil, sandy loam and volcanic ash and gravel.

Umatilla Project—Area, first unit, 20,440 acres; altitude, about 4700 feet; canals and laterals, 150 miles in length; dams, storage, length, 2,890 feet; farm units, 19 to 40 acres; location, Northeastern Oregon; maintenance, annual fee per acre, \$1.25; opened, first unit, December 27, 1907; products, hay, fruit, vegetables, poultry, dairymen; average annual rainfall, 17.4 inches; soil, sandy loam and volcanic ash and water supply, Umatilla River.

Sunnyside Project—Area, 100,000 acres; altitude, about 1000 feet; canals and laterals, 410 miles in length; construction cost, \$2 per acre; farm units, 40 to 80 acres; location, Central Washington; opened November 18, 1903; precipitation, eight inches; products, alfalfa, fruit, vegetables, melons, hops; soil, deep volcanic ash and gravel.

Work Shown in Operation.

One of the most daring of the irrigation plans of the United States Reclamation Service is the Tieton project of South Central Washington. Here may be seen the practical working out of many Government reclamation theories.

SECRETARY DALLINGER AND PARTY INSPECTING LAND UNDER TIETON PROJECT. (SECTY DALLINGER IN KHAKI IN FOREGROUND)

were in a tangle; litigation was threatened, water was considered separable from the land which it reclaimed. So the Reclamation Act had scarcely become law before the settlers in the Yakima Valley applied to the Government officials for help.

Land Values Rise.

So little faith did the investing public have in the reclamation of the district included in the Tieton unit of the Yakima project, that 10 years ago the railroad lands in this section were sold at as low as 50 cents an acre—land that has recently been resold at prices ranging from \$75 to \$200 and more an acre. It should be noted, too, that this price does not include the water-right charge of \$95 an acre which is the cost to the Government of reclaiming the land.

Contrast this former condition, also, with the singular struggle on the part of homesteaders to file homestead rights on the project. The total area of land included in the Tieton unit is 25,000 acres. Of this amount, about 2000 acres was public land. Early during the present year it was officially announced that on April 6, 1911, 12 homesteads would be open to entry under the terms of the Reclamation Act which demands five years residence on the land, and the payment of the water right in 10 equal installments. Three weeks before the date on which filings could be made, wealthy homesteaders began to line up at the district land office at North Yakima.

At the head of the human line that did not break for more than 20 nights and 25 days was a high school lad. It is said that the young man was offered \$1200 for his place in the line, and that this offer was later increased to \$1800, but he did not yield. One of the residents of the section told me that he "would have been willing to stand in line all Summer for \$1800," but the young man was working for a bigger reward, for when his five-years' residence is completed and his water payments made, he will be owner of a farm that has a present value of between \$4000 and \$6000.

Access Made Easy.

The Tieton project is one of the best to study the practical working out of the water theories of the Reclamation Service. The reclaimed area is west toward the Cascade Mountains from North Yakima, and the surface elevation is 1200 to 2100 feet. One may approach either on a branch steam railway or on an electric line. The office center of the project is the great rolling ridge from which one may look in all directions over newly-reclaimed land.

In reclamation parlance, the Government headquarters and the neat little village of offices, dwellings and stables that are traversed by the railroad station is a long, well-used warehouse, which is filled with machinery and electrical and engineering supplies for the final completion of the last small units of the project. The station and the various temporary and permanent camps are connected by good roads that are traversed by old-fashioned, true western, stage coaches and freight teams. Also, the automobile belonging to the office of the Supervising Engineer at North Yakima is constantly driven over the different units of the great Yakima project; and the buggy teams and the saddle horses of the officials and the employes of the Tieton unit average many miles

SECTION OF CANAL IN TIETON CANYON

GOVERNMENT STABLE AT NEAR QUARTERS, TIETON.

CANAL QUARTERS, TIETON

WATER USER AND THE LOCAL WATER USERS' ASSOCIATION, ARE SUMMARIZED AND EXPLAINED; ALSO, THE DUTIES AND RESPONSIBILITIES OF THE EMPLOYEES OF THE RECLAMATION SERVICE ARE STATED, SO THAT EACH IRRIGATOR MAY READ AND KNOW JUST WHAT HE MAY AND MAY NOT EXPECT FROM UNCLE SAM'S MAN WHO MEASURES AND WATCHES THE PORTION OF WATER THAT IS VITAL TO CROPS, THE LIFE-GIVING ELEMENT WHICH MEASURES THE DIFFERENCE BETWEEN A SCARED, DUSTY STRIP OF DESERT AND AN OASIS THAT WILL SUPPORT A PERSON ON EVERY TWO ACRES.

water user and the local Water Users' Association, are summarized and explained; also, the duties and the responsibilities of the employees of the Reclamation Service are stated, so that each irrigator may read and know just what he may and may not expect from Uncle Sam's man who measures and watches the portion of water that is vital to crops, the life-giving element which measures the difference between a scared, dusty strip of desert and an oasis that will support a person on every two acres.

At the end of each day the observations of the ditch patrolman are reduced to writing, and the reports sent to headquarters by reports, and the requests of the water users that are transmitted by telephone, are turned over to the clerk who carefully tabulates them. And the resulting daily water balance sheet would doubtless be classed as the most valuable record of the office—as important as the flicker tape in Wall street or the condensed budget of the great corporation.

The water balance sheet tells the whole tale of the working of the reclamation system. It indicates just how much water is used, and how much is wasted by seepage and through breaks in the ditches; whether enough water is leaving the upper diversion dam on the head of the reservoir to supply the known needs of the irrigators; or whether the lower water users must endure a day's water famine; it tells whether the farmers are playing the "water hog" by applying for and using more water than their legitimate shares for that particular period of the irrigation season; or whether they have learned the wise lesson of water economy and are in no danger of drowning out their crops which need water, but will be as surely injured by too much water as by too little.

Water Used Tabulated.

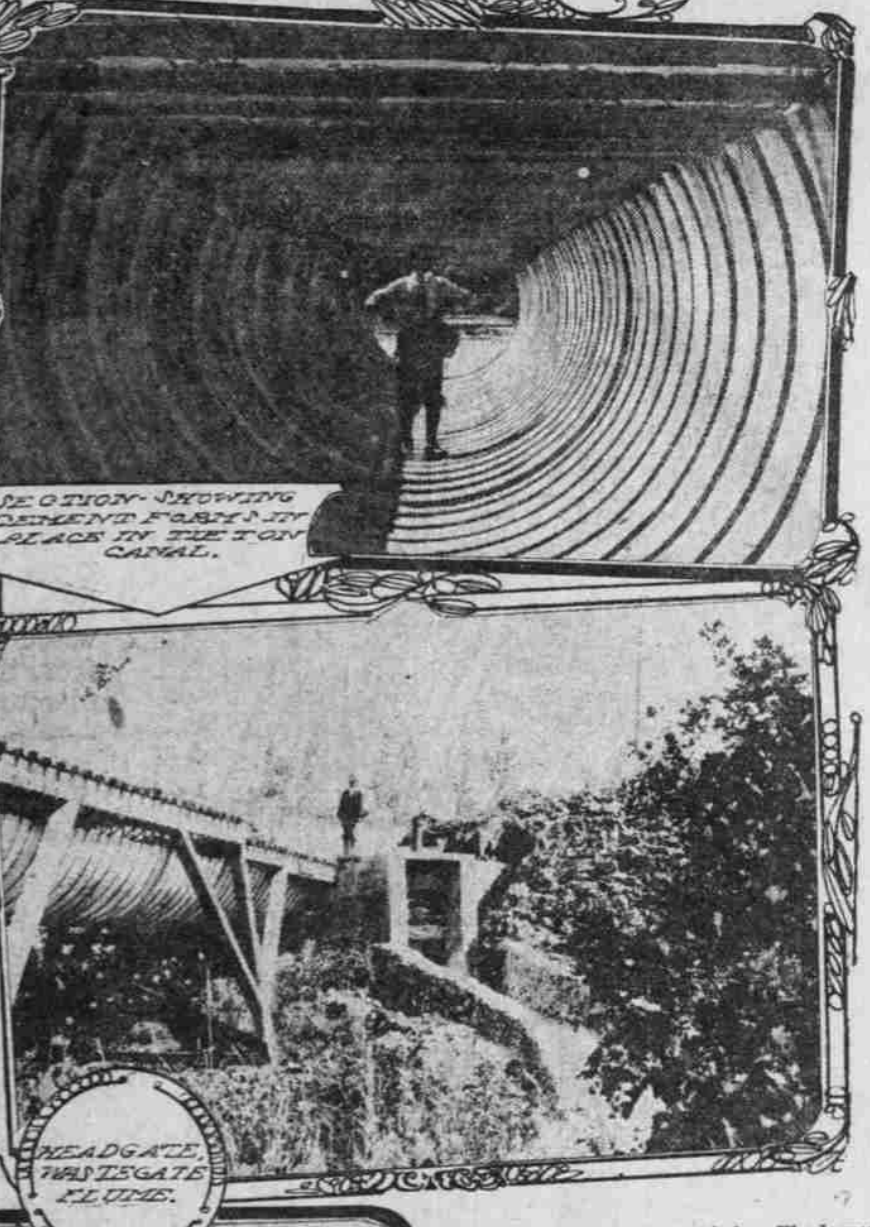
The chief trouble of the water clerk at the main office is to make his water summary balance. A definite amount of water is reported by telephone to have entered the head of the main canal or canals. Portions of this are diverted and redirected at specific points, and in accurately measured quantities. Some of it flows in open sandy and rocky-sided ditches; some in newly patented steel flumes; some in concrete canals along dangerous hillsides; some through rock-paved open ditches; some is dropped into hidden concrete or tarred-wood siphons, invisible until it has crossed the opposite side of the deep valley; and some of it is carried by wooden flumes to the highest point on the final irrigation unit.

A small percentage of water loss can be charged to evaporation and seepage. If this percentage is very large the loss must be traced. All of the headwaters, both large and small, are under lock, and it is a punishable offense to steal water on a reclamation project. But as one of the superintendents explained to me: "If there is any hog in a man, irrigation will bring it out."

Another of the reclamation officials commented that some persons still persist in thinking that water is a free

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TYPICAL "RANCH" SECOND YEAR, TIETON.



SE O'CONNOR SHOWING CEMENT PAVEMENT MADE IN TIETON CANAL.

HEADGATE, WEST GATE, N.E. QUARTERS.

which the water is carried. The lower tunnel is three-quarters of a mile long. It is a most surprising and a novel spectacle, this great spring of water bursting from the side of the mountain, apparently coming from nowhere. The upper end of the tunnel is high enough for a tall man to walk through, but it narrows funnel-like and is lower and entirely filled with water even when only one-third of the head is flowing.

Settlers have gathered on the Tieton project from all parts of the United States and from all kinds of previous occupations. For example, there are many former professional people. One ditch rider says for instance, that he supplies water to three former ministers; another fixes and locks the head-gate that supplies the ranch on the main point of each 40-acre unit of land, as well as a man who for 25 years was a proofreader on an influential publication of New York City.

Land on the Tieton project is selling at prices ranging from \$75 to \$250 and more an acre, not including the Government water right of \$95 an acre, which is payable in ten general installments without interest. It should be explained that the Government was petitioned to carry the water to the highest point of the entire West, and the cost of the construction of these sub-laterals has been included in the total water right charge. It has been roughly estimated that this extra work done for the settler has added about \$13 per acre to the water right charge.

Alfalfa is one of the big crops on the project, the yield being five to eight tons to the acre. The section alfalfa is also thought to be exceptionally fertile for the production of Winter apples. Other fruits, all kinds of berries, hops, grains and root crops grow prolifically. The fertility of the Tieton section is insured by the fact that this area is a part of the great Yakima Valley, sections of which are among the richest and most highly cultivated portions of the entire West, which valley will be described more in detail in another article.

EUROPE LEADS AMERICA IN CONSERVING TIMBER

Experts Say Taxation Should Be Removed From Our Virgin Forest Lands; Avert Fire Menace Among Growing Trees.

CAPTAIN JOHN B. WRIGHT, of Kansas City, and William H. Barnes, of St. Louis, have just left Paris for America, after passing several days here in a study of the systems of management of French forests, says the Paris edition of the New York Herald. Captain White is a member of the United States Conservation Commission and chairman of the executive committee of the Conservation Congress. Mr. Barnes is secretary of the Missouri Forestry Commission and editor of the Lumberman.

The tour, which was semi-official, embraced a considerable portion of Europe. Captain White and Mr. Barnes brought letters of introduction to forestry experts and Ambassadors, Ministers and Consuls, from Philander C. Knox, the Secretary of State; James Wilson, Secretary of Agriculture; H. S. Graves, Chief Forester of the United States; Clifford Binchot, formerly Chief Forester; and H. S. Hadley, Governor of Missouri.

England, Belgium, Austria, Hungary and Switzerland were visited before France was reached. Unfortunately the time at their disposal was so limited that Captain White and Mr. Barnes were forced to make a very hurried study of conditions in France. However, they found the systems here similar to those in other Continental countries. On their return to the United States they will submit reports to the Governor of Missouri and the Conservation Congress.

Some Recommendations.

"The United States has much to learn from Europe regarding the conservation of natural resources," said Captain White to a Herald correspondent at the Hotel Regina. "We shall recommend the adoption of methods of the nature of those which have been in successful operation here for many years. The taxation of American forests is a hardship which discourages the planting and cultivation of trees,

and with its abolishment a long step forward would be taken. A landowner is relieved of taxation for 20 years provided he grows trees on his property. The tax is imposed only when he starts cutting and begins to receive a return on his investment, and even then it is only nominal. In Switzerland forests, whatever their age, are always exempt from taxation.

"We need relief and encouragement of this character in the United States. Our contention is that, when only one crop of timber is produced in a generation, it is unfair and unwise to levy a tax annually, for 30 or 40 years, on timber lands. We believe timber should be treated like corn or wheat or any other crop that should be free from taxation until it is cut."

"The subject of forestry preservation should be removed entirely from the sphere of politics," said Mr. Barnes. "The United States should handle it as a business proposition, as is done in France, Germany and most of the other European countries. In Germany the first demand made upon the forests is for firewood. The nation has found that it is cheaper to import timber from Russia than to chop down its own trees by wholesale."

Zurich Owns Sawmills.

"The Sildard forest, in Switzerland, has been cultivated for more than a thousand years. The city of Zurich owns it and operates a sawmill. The municipality's profit, over and above the expenses of maintenance and replanting, is \$25,000 a year."

"Not only should the United States encourage forestry development by removing the taxation upon the forests, but it should adopt more stringent measures for the protection of its forests against fire. In Washington, Oregon and other pine-producing states in America probably as much timber has been burned as has been cut. We have been afforded an object lesson in our travels about Europe."