

IRRIGATION PLANS

About \$4,000,000 on Hand That Can Be Used.

ECONOMY WILL BE PRACTICED

Story of the Struggle That Has Finally Resulted in Victory for This Project.

From The Journal Bureau, Room 43, Post Building, Washington.

Washington, June 21.—When the president wrote his name at the bottom of the bill of congress last Tuesday night, he performed an act whose importance will be far-reaching. The bill which he signed was the famous Hansbrough irrigation bill, and from this time forward the government is committed to the policy of developing and making ready for settlement the arid and semi-arid lands on the eastern slopes of the Rocky mountains, and on the Pacific coast.

Several of the more prominent of the great newspapers, the New York Sun among them, have been indulging in heavy editorial assaults upon the bill, presumably in the hope that the president would be influenced by them. The Hansbrough bill—so they call it, and the right name is a vicious in principle, they say, and will impoverish the national treasury. The latter proposition is the one to which they give most emphasis; but there is no danger that they will become true prophets.

There are now \$4,000,000 of available cash in the treasury for irrigation purposes, and the president has pledged that it will be possible to irrigate half a million acres per annum, on an average, for the next quarter of a century. The work will be kept within proper limits for the first year, and the policy now initiated is to continue there must be proper management and strict economy. The president has something at stake in seeing a proper administration of the new law; Senator Hansbrough, as its author, has something at stake; for both have said, the former in his message to congress, in which irrigation was recommended, and the latter in his speeches to the senate and to senate committees, that the work should never be made an object of speculation, and that it should be accepted at once that there will be no extravagance in putting the new law into operation, and that the purpose of the administration to show that the anti-irrigationists of the eastern states have talked unadvisedly.

Several months ago Mr. Hill was in Washington, and he was there for several days. At the time it was suggested that his purpose in coming was to talk about the federal suits against the Northern Securities company. It is to be the purpose of his visit. He came to urge upon the senate the passage of the Hansbrough irrigation bill. The most important part of his speech was that he had discussed, looks to the irrigation and rapid settlement immediately thereafter of half a million acres of land in north central Montana, in north western North Dakota, along the line of the Great Northern railway. This is known as the St. Mary's project, and if carried out, it will add immensely to the population and material wealth of the country, and in that way increase Mr. Hill's income.

The second largest project east of the Rockies has to do with an extensive tract of land in south central Montana, known as the Yellowstone park project. It will fertilize a large tract of land tributary to the Northern Pacific railway. Mr. Hill is interested, also, in irrigation schemes west of the Rockies, in Idaho, Oregon and Washington, but these need not be discussed in the present article.

Western senators and members of congress who were interested in irrigation made their first definite organization for concerted action at the beginning of the fifty-sixth congress, in December, 1899. At that time a meeting was held at the home of Representative Newlands, in this city, attended by about 18 men. An elaborate dinner was served, and over the cigars and wine the subject of irrigation was discussed fully, and Senator Hansbrough was unanimously selected to represent the new movement in the senate. This congress came to his because the fifty-fifth congress he had made a strenuous effort to attach an irrigation rider to a general appropriation bill. He failed, being voted out on a point of order, but the matter went far enough to attract the attention of both houses and to mark Hansbrough as an earnest and aggressive irrigation advocate.

Nothing was accomplished in the fifty-sixth congress. Before the assembling of the fifty-seventh (the present) congress, President McKinley was assassinated. Early in October Senator Hansbrough came all the way to Washington from North Dakota to confer with the new president and urge upon him the advisability of recommending irrigation in his message. It was the first time the attention of President Roosevelt had been drawn to the subject in a concrete manner. He liked the suggestion, and acted upon it. After congress had assembled Senator Hansbrough drew up the bill, which, with certain minor amendments, is now the law, and introduced it. Then came a series of animated conferences, extending over a period of more than a month, between the western members of both houses who favored some irrigation government policy. They ultimately adopted the Hansbrough bill as the basis of their deliberations and, in the end, though differing widely as to methods, adopted it and it was passed through the senate. In the house the chief stumbling block in the way was the speaker, who, with the committee on rules, did not look kindly upon the proposed legislation, and announced that it should not come up with his approval. The house, by overwhelming vote, decided that the bill should come up, speaker or no speaker. The leaders went down to defeat, and a day was fixed for the consideration and vote.

The irrigation states the irrigation forces were early divided into two forces, one wanting state supervision and control of the reservoirs and ditches, and the other standing for federal control. The latter side won. The former represented the immense cattle ranges of the west, the latter the small homesteaders. It was on this point that the friends of irrigation almost permitted their ship to go to pieces. Senator Hansbrough stood with the side which favored federal control, and caused the extended conferences between the irrigation members referred to above.

Among those who favored state control were the members from Wyoming, a great cattle grazing state. After their defeat, the cattle members tried to prevent the passage of an irrigation bill. Seeing utility in favor of the Hansbrough bill, they prevailed, they fell into line, and during the past month of the legislative career of the bill, the gift of the pen was a small matter, and Mr. Mendell was permitted to bear it away in triumph.

It was the pressure from the White House which brought victory in the house. Messrs. Cannon and Payne, for instance, two of the stalwart leaders on the republican side, the one the chairman of the committee on irrigation, and the other of the great committee on ways and means, were steadfastly opposed to irrigation. The president took them in hand, and finally they yielded to him to the extent of being willing to refrain from speaking against the bill. They were silent during the whole of the debate, but the roll call on final passage voted in the affirmative, and the bill was passed. The presidential influence was great enough to reach enough of them to insure favorable action.

Incidentally, it is believed that the president will know pretty well what his plans for the present season will be. With \$4,000,000 in cash available for the purpose, and the understanding that considerable preliminary progress can be made this year. It is the president's desire to make a start at once, and he is to consult with the secretary of the interior regarding the means of going ahead. Before that, however, as already has been stated, he will formulate a general policy in connection with the irrigation bill, and probably the leading irrigation expert in the senate.

Incidentally, the president is pleased to see that the irrigation bill is to be put into operation by the republican party. It will probably furnish effective political capital for years in the irrigation states, and the bill went wrong during the free silver craze.

North Dakota will be largely benefited by the new law. Between the point in the western part of the state where the Yellowstone empties into the Red river, and the point east of it where the Fort Berthold military reservation begins, there are numerous points where small reservoirs can be constructed, and the irrigation of small valleys on both sides of the Missouri river. In the southwestern section of the state, along the Little Missouri, another series of small reservoirs can be placed to advantage, for the irrigation of land on which alfalfa and forage crops can be grown.

In the southern part of the state, a line of improvement similar to that suggested above for north Dakota, will be possible. The chief trouble in the Dakotas will be, not lack of land which needs irrigation, but lack of water. Save the Yellowstone and the Missouri, their rivers are small. Enough can be done, however, in both states to improve greatly the western plains and increase their population and wealth.

Under the terms of the new law, the money collected from the sales of public lands within a certain state are to be expended, so far as practicable, within that state. North Dakota, therefore, will derive a greater immediate benefit from the new law than any other state. It will be difficult for the secretary of the interior to find opportunities to expend within the state all the money now available there for irrigation works. Of course, those lands which are not irrigated are not used will be diverted into other states.

—W. W. Jermaine.

ARTIFICIAL ICE

It Excels the Natural Product in Point of Purity but Melts Sooner—How the Business Has Grown and How It is Conducted.

Boston Transcript.

Few American industries are so extraordinary in their character or make a more surprising exhibit of progress in the last year than the manufacture of ice.

Here is a commodity of which nearly two-thirds of the cost of production is in coal, about one-tenth in ammonia and practically none of it expending which actually enters into the product. Often a natural spring is secured in connection with an ice factory, but this must be largely for advertising purposes, and making "can ice," which is the usual process, any water must necessarily be distilled or the ice would be opaque. And distillation leaves the "hydrogen spring" no advance over the hydrant. Jack Frost can make crystals out of muddy water, but not the art of man.

The manufactured ice business started in New Orleans in 1868, and has been steadily moving northward, till to-day the country may be divided into three zones, in the southern of which the manufacture of ice is a business, in the middle of the northern the same thing is true of the natural product, while there is a middle zone where the two are in actual and more or less vigorous competition. These zones, the recently issued census office bulletin exhibits in a map, and by accompanying figures shows that the range of competition is moving northward. Ten years ago the distinctly southern states had three-fourths of the manufactured ice plants in operation in the country; to-day, although there has been a marked increase in the south, this has been much more than offset in other parts of the country, so that the southern total is now only 49 per cent of the establishments.

Some time before the natural ice industry became a factor of commercial importance attempts had been made to produce ice in the winter months, and to store it for use in the summer. The first ice machine for the manufacture of ice was invented in 1765 by Dr. William Cullen of Glasgow. The ultimate success of the creation of a vacuum increases the evaporation of water and by this means produces ice.

Professor A. C. Twining, of New Haven, Conn., took out a patent for an ice machine in England in 1850 and in the United States in 1853. In 1855 he operated a machine in Cleveland, Ohio, which produced over 1,000 pounds of ice in twenty-four hours, and was operated intermittently until 1857. He also discovered that ice frozen at a temperature slightly below freezing point would be transparent with the exception of the small porous corpus which it retained, and that if frozen at a lower temperature it would be opaque and porous throughout. In the infancy of the industry the ice was made by the use of distilled water. Captain David Smith of Chatham, Mass., was the originator of the plate-ice system. He erected in Oakland, Cal., the first machine of this character.

From the inception of the United States patent office to Jan. 1, 1902, there have been 4,237 patents granted for various processes of refrigeration. Of this number 851 have been issued for the manufacture of ice machines. One of the latest of these is the "Mott" device for the production of cooling rooms, which he believes can be made a commercial success. The midsummer sun has certainly found in this country a water which is not only constantly widening the area in which they are disputing the authority of the "King of the Day."

In the manufacture of ice there are two systems used, commonly known as the "compressor" and the "absorption" systems. The compressor system involves three successive steps, respectively called compression, condensation and expansion. Anhydrous ammonia, or ammonia which contains no water, is compressed into a gaseous form to a pressure of from 125 to 175 pounds per square inch, by the use of a power pump. The gas contains a certain amount of heat, and substantially one of this heat is collected by the gas as it next reduced to the liquid state by condensation. This is performed by passing the ammonia through coils of pipe in contact with cold water. The excess of heat is thus given up, and the ammonia, reduced to the liquid state, is then made to become gaseous in coils of pipe which are in contact with the water to be frozen. This reduces the temperature of the ammonia gas below the freezing point of water, and the ammonia absorbs from the water to be cooled the heat which was taken from the former during condensation. This results in freezing the water, owing to the well-known fact that if two substances of different temperatures are allowed to come in contact with each other the warmer body will impart its heat to the colder, until the temperature of the two are equalized. This is the principle of all refrigerating processes. The ammonia, having completed its cooling work, is then returned to the compressor, where it may be re-used repeatedly. There is, however, a small loss during each cycle of operations, and the supply must be replenished at intervals.

Practically all of the ice manufactured in the United States is produced by the can system or by the plate system. In the can system ice is formed either in stationary cells or in removable cans, the latter being the method in more general use. The time required for the formation of the ice varies from twenty to sixty-six hours, according to the thickness of the mold containing the water to be frozen and the temperature of the brine.

In the plate system a hollow iron plate is immersed in a tank containing the water to be frozen, and as the plate

contains coils for the freezing medium, the ice is formed on the two outer surfaces. It may be loosened in several ways, according to the system of refrigeration used. The production of the ice by the plate system is much slower, and for this reason the use of several plates is necessary for a continuous process. The cake may be of several sizes, the standard being sixteen feet long, eight feet wide and eleven inches thick.

The production of cold by artificial means, begun for the warmer climates, especially in India, China and Egypt—where ice and snow were not available.

History of the Business.

The year 1805 may be looked upon as marking the beginning of the natural ice industry in the United States. The pioneer was Frederick Tudor, of Boston, and in that year shipped a cargo of 150 tons of ice to the West Indies. Although the venture resulted in a loss, the cargo arrived at its destination in excellent condition. Two years later he sent 240 tons to Havana, but this was likewise unprofitable. About the year 1812 he was granted by Great Britain a monopoly of the ice trade with her colonies in the West Indies, and later received the same concessions from Spain. From 1817 to 1820 he extended the trade to Charleston, Savannah and New Orleans. The ultimate success of Mr. Tudor prompted competitors to enter the field as exporters. The growth in the exports of ice increased steadily until, although there had been a marked decrease in the year 1890 the number of tons exported was so insignificant that the foreign trade in ice may now be considered practically extinct.

Patents for Machines.

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WINNOWN WAIFS

It is proposed to connect Warsaw with the Baltic by ship canal.

Nicaragua's coffee crop this year will be worth about \$3,000,000.

Only 4.7 per cent of the strike in this country are "sympathetic strikes."

The mosquito eggs are, it is said, hatched in from four to seven days, according to the warmth of the weather.

The solano is a hot southeast wind, loaded with fine dust, which blows across Spain.

A government expert has found a Mexican cactus which grows in the mountains of the state of Yucatan, and which is said to be a source of rubber.

Heavy snowstorms and a severe frost, which have killed all the wheat in the north and hundreds of peasants in northeastern Italy.

Rice is the emblem of fertility, and the cult of the Japanese in Great Britain arose from a wish that they might be blessed with a large family.

You cannot swear at or abuse anybody in the Japanese language. The worst you can say of anybody is that he is a "fellow," and if you want to express your very, very indignation, you shout, "There, there!"

Grants is the lowest rock in the earth's crust. It is the bed rock of the world, and shows no evidence of animal or vegetable life; it is the parent rock from which all the rocks have been either directly or indirectly derived.

At a recent cooking exhibition in Paris, Prof. L. Lumina gave a speech in which he declared that one reason why so many foreigners like to visit Paris is that they are sure to get better things to eat than any where else in the world, and he exhorted the cooks to use their talent to maintain this supremacy for France.

Charles F. Lummis, the author, who is intensely interested in the Indian race, always has two Indian children at his home near Los Angeles, Cal. He chooses two children from among the children of the Indians, and for a year, and then exchanges them with other children. He contends that the little Indian child in a civilized home than in many years of attending school and living among their own people.

End of the Week Excursions—Low Rates.

Tickets on sale over Saturday and Sunday via Chicago Great Western railway, good to return by any train on following Monday. Rates for the round trip: Red Wing, \$1.52; Cannon Falls, \$1.17; Northfield, \$1.16; Faribault, \$1.57; Morrisville, \$1.58; Waterville, \$1.19; Elk River, \$2.14; Madison Lake, \$2.35. For further information inquire of L. C. Rains, agent Cor. Nicollet ave. and Fifth st., Minneapolis.

HARPER'S MAGAZINE FOR JULY

Summer is not the time for heavy literature. One wants plenty of light reading, and Harper's for July is full of that sort of delight.

There are eight short stories in this number—one of them daintily illustrated in color, is about an Angora cat named Zut, who lived in Paris and unwittingly stirred up a great deal of trouble between two families. It is by Guy Wetmore Carryl. Another excellent story of a more humorous turn is by Chester Bailey Fernald, and recites the adventures of a man in steel armor at Newport one hot night. Van Tassel Sutpen tells a delightful little love story centering about a humorous situation in which two lovers and two love letters are involved. "A Hermit of Arcadia" is an amusing and delightfully written story by Alice Brown, and there are other stories by Eugene R. White, Mrs. Stepany-Rawson, Roy Rolfe Gilson and Mary Knight Potter.

The articles in Harper's for July are on a wide range of subjects and all uncommonly good. Benjamin Ridgley writes of the idle and romantic "Summer Life in Andalusia." Lucius Hitchcock has illustrated this article delightfully in color. Another illustrated paper deals with the rare old sport of "Falconry" as it is practised to-day in France, and Professor Kirtledge of Harvard has written an intensely interesting article on the "Ways of Words in English Speech," in which he discusses many of the questions which come up in our talk every day.

These are only a few of the good things in the July Magazine. Mrs. Ward's novel goes on—Mr. Howells writes about Charles Dickens and the Dickens revival—there are fourteen pages of colored pictures in the number and twenty-eight separate contributions—an ideal hot weather magazine—and a book in size.

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IN MONTEAL TO LIVERPOOL. "DOMINION" Aug. 2-Sept. 6.

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Chicago, St. Paul & Northern Pacific Ry. Northfield, Faribault, 7:40 am 10:40 pm. Hayfield, Austin, Lytle, 7:40 am 10:40 pm.

Chicago, St. Paul & Northern Pacific Ry. Mason City, 4:35 pm 7:35 pm. Mason City, 4:35 pm 7:35 pm.

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