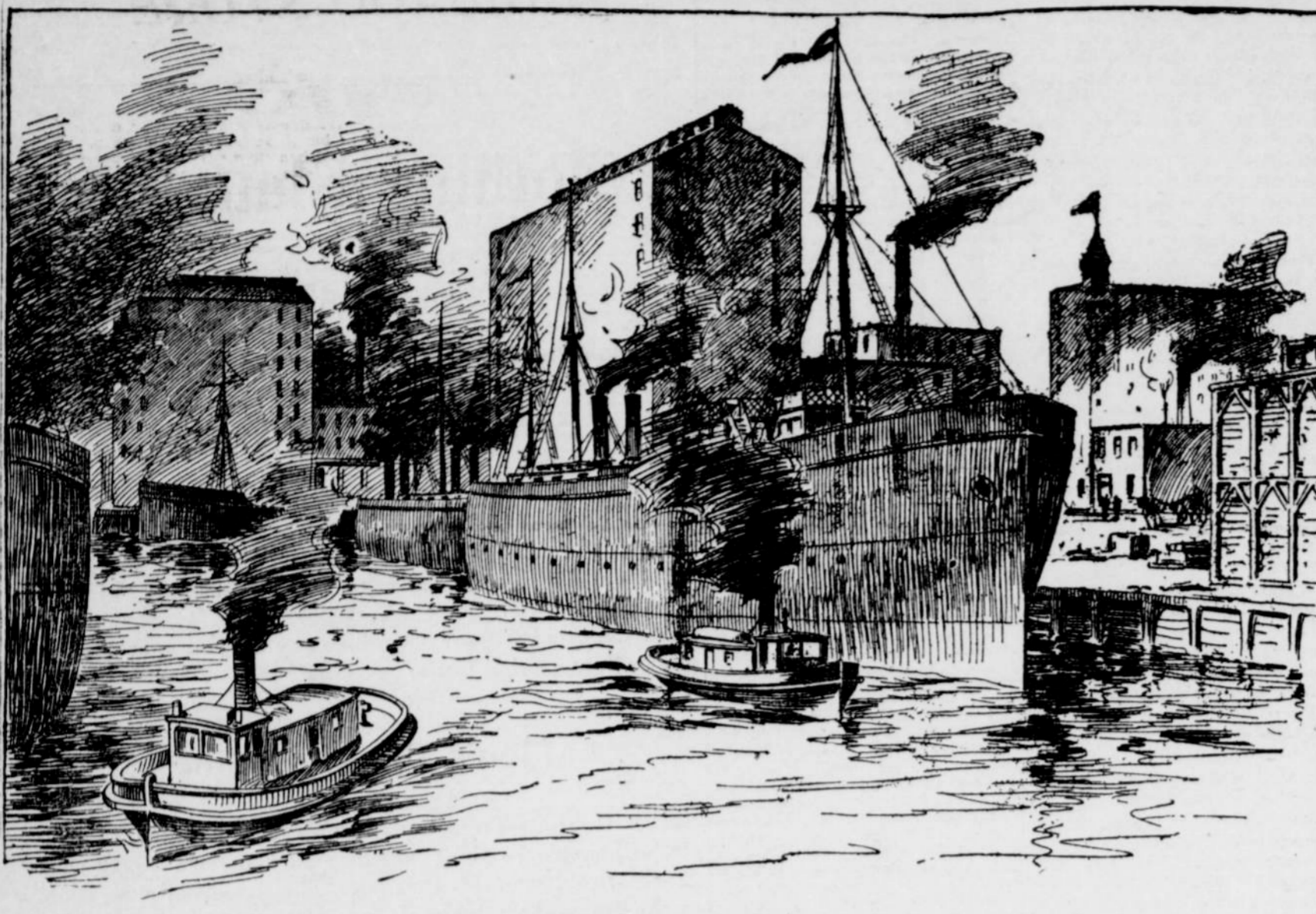


# Deep Water from Lakes to Gulf



OCEAN GOING FREIGHTERS LOADING IN CHICAGO.

WHEN the first water of the great Chicago drainage canal topped over the big bear-trap dam at Lockport, to most residents of the vicinity it signified the end of a titanic undertaking—the sanitary waterway had been completed, and there ended the job. When that water first plunged, hissing and writhing, down the valley of the Desplantes to its junction with the Illinois River on its way to the "Father of Waters," men who watched the work felt that a great lesson was ended.

An offering of some \$33,000,000 had been poured out by Chicago, ostensibly to purify the water supply, vitiated by a thousand sewer conduits. But the real service had not commenced, for the sanitary feature of the mighty canal was and is but a subsidiary element. The real object sought to be attained when the work was undertaken was and is the beginning of a ship canal to unite the chain of inland seas with the salt tide-water of the delta of the Mississippi River, some 1,200 miles away.

The opening of the mammoth channel, over 200 feet wide and deep enough in all its thirty miles to float the heaviest warship, was really the opening wedge of a project which has been

dreamed of, legislated upon and striven after for half a century. It means that the expressed fears of Federal engineers, of communities dreading water contagion, of shippers anticipating a loss of commercial prestige, the depletion of our lakes, have all been set at rest. It means that the Hennepin canal—the father of the sanitary canal—is in a fair way of accomplishment, and by the use of a grand natural waterway the largest chain of fresh water on the globe unites with one of the largest rivers in the world, piercing a mighty nation down its middle.

Never since the first hasty \$50,000 survey was made in the shallow Illinois has the general government been able to rid itself of the idea that the fruition of the plan would encompass the triumph of the grandest scheme of internal improvement ever undertaken in this land. The first great step to consummate all this is the proposed turning over of the Chicago River to the drainage canal trustees, to enlarge, to improve, to change, on the same principle that can make of the veriest creek in the land that would not float a skiff a channel wide enough and deep enough to float a warship of the first class with a draft of twenty-eight feet. Without a particle of improvement the Chicago River can to-day carry vessels which haul 100,000 bushels of grain—

that means something more than 4,000 ton of cargo. Brief work in the line done on the canal and an ocean highway is opened up for Chicago and the West, in meats, in grain, in all those commodities that now go to Liverpool by other and more expensive routes—for water carriage is much cheaper than rail carriage, and farmers who grow grain in Kansas, Nebraska and Iowa are to-day in a measure at the mercy of the rail lines. Ocean rates from Galveston and New Orleans would enable them to beat the sea-coast rates from New York by from 10 to 20 cents on a bushel.

It is said that nothing but money and the authority to go ahead is needed in the work south of Lockport. Half or \$25,000,000 would make the lower channel adequate. There is a great deal of boring and dredging to do; docking, and the straightening out of crooked courses; but competent engineers have been looking over the field, and the plan is simple when understood.

The lower Mississippi problem is one of the worst of the canal project. Many millions of dollars have been jumped into that river by succeeding Congresses and engineering boards without substantial improvement. The river has depth sufficient for present commerce, and no decided effort has been made to deepen it at certain "cross-

ings" where sand has piled up and the lightest vessels run danger of striking the bottom. Engineers of national reputation are a unit that the Government should begin the work of improvement, substituting docks of masonry for wooden wharfs.

The pace has been set by the drainage canal. It has been demonstrated to the world that ship highways can be constructed inland wide enough and deep enough to float any warship on the high seas. The West now offers the finished product of its efforts to that higher authority which alone can execute one of the grandest projects of internal improvement ever presented to a nation.

In this project every farmer in the West is vitally interested. The agriculturists of this section ship through Chicago nearly 40,000,000 bushels of grain a year. Upon this, should the transportation be made by the proposed route, the saving would be something enormous. Aside from the strict commercial interpretation, there is the problem of making the great lakes a useful body of water for defense. No outlet to the sea now exists, but Canada and Great Britain have an inlet which is controlled by them. The Mississippi project would be purely of the country and for the country, involving a new grand highway.

## HOW A PLANT FEEDS.

Van Helmont's Interesting Experiment Showing How a Tree Grows.

It is more than 2,000 years since philosophers began to speculate about the food of plants and what we may term their "digestive" processes, but it is only during the latter half of this century that really clear and definite notions concerning the food supplies of the vegetable world have been generally accepted by scientific men. As far as is known, says a writer in Knowledge, the first botanical experiment ever performed was conducted by Van Helmont. He placed in a pot 200 pounds of dried earth, and in it he planted a willow branch which weighed five pounds. He kept the whole covered up and daily watered the earth with rain water. After five years' growth the willow was taken up and again weighed, and was found to have gained 164 pounds. The earth in the pot dried and weighed, and had lost only two ounces.

Knowledge was not yet sufficiently advanced to enable Van Helmont to interpret these striking results correctly, and he came to the erroneous conclusion that the increased weight of the plant was due to the water which had been supplied to the roots. He therefore looked upon this experiment as supporting the theory which he had advanced, viz., that plants required no food but water. Stephen Hales advanced the subject a great step by indicating that much of the increase in weight of plants was derived from carbon dioxide in the air.

Vegetable cells contain a liquid known as "cell sap," which is water holding in solution various materials which have been taken up from without by the roots and leaves. These materials are thus brought in contact with the protoplasm, which causes them to undergo changes in composition which prepare them to be added to the substance of the plant. Thus it is in the protoplasm of the living cells of the plant that those "digestive" processes are carried on which Aristotle believed to occur in the soil. We see, then, that the living cells are microscopic laboratories in which the digestion of the food of the plant is carried on.

**Against the Current.**  
It is well known that salmon can swim against a strong current, and leap up falls, but it is not so well known

that trout are also famous jumpers. On the Beaverkill is a three-foot dam, with four inches of water on the breast, and a gentleman sat near and watched the trout go up. In many instances a first attempt failed, owing, however, more to an apparent want of judgment than lack of physical ability in the fish to accomplish the feat; the smaller fish, as a rule, failing to get over in the first attempt. The larger fish made a clean jump into the smooth water above the apron of the dam. These fish were enabled to swim straight up this down-pour of water by the great muscular power they possessed; there was no trick about it, but pure strength which is evidently centered in the tail and tail fin. The query naturally arises: If a ten-inch trout can swim up such a fall, what is the capacity of a forty-inch salmon under similar conditions?

**When Crowds Are Useful.**  
Quite a brisk business exists in the crowd line, said a well-dressed man to the writer, and I make a fairly good living by supplying them. All sorts of people find a crowd useful at times. For instance, a young man who is about to make his debut as a lecturer or musician can, by coming to me, make sure of having not only a numerically speaking—respectable, but highly appreciative, audience. Again, a big crowd outside the pit and gallery doors of a theater creates in the minds of passers-by the idea that the piece

must be worth seeing to attract so many patient waiters. A few shopkeepers, too, have found out that half a dozen well-dressed people, gazing intently into a shop window, leads others to do the same thing, and constitutes a far better "draw" than anything put in the window itself. I have even supplied spectators for a wedding, in a case where the bridegroom was a wealthy parvenu who had a great desire for popularity. An artist once hired from me about a dozen well-attired people to stand in front of his picture at an exhibition, the consequence being that his painting attracted considerable attention. Where do I get the people? Oh, there is no difficulty about that. Some of them are sandwich men in the daytime, and work for me at night; others work for me in the day, and appear on the stage as "supers" in the evening. I pay them so much per hour, and find the clothes. I have a most elaborate stock of garments, and can turn out quite an aristocratic looking crowd.

**Character in Red Hair.**  
Red-haired women are ardent and vivacious, especially if they have with it hazel eyes, in which case they have a bright and quick intelligence. They have a great deal of natural felicity for study and good memories. Red hair with blue eyes shows the same warmth of character, but not so much intelli-

gence; bright golden hair, of a rich, deep color and of a crisp and waving texture, growing thickly on the head and somewhat low on the brow, shows an ardent, poetic and somewhat artistic temperament. It is the signature of Apollo, the sun. People with reddish brown hair which is very thick, and redder over the ears and at temples than on the head, are courageous and energetic. This sort of hair gives sense of color in painters, force of language, and eloquence in poets, and power in musical composition.

**Offside Play.**  
Boney—Unable to increase Hawley's salary, and not desiring to lose his services, the Sharps have taken him into the firm.  
Skinnle—That's great!  
Boney—But then the firm is losing money daily.—Philadelphia North American.

**More Ornamental than Useful.**  
Dorothy—Papa, we girls have a new name for those men who call on us, but never take us out anywhere.  
Papa—What is it, daughter?  
"We call them 'froside companions.'—Life.

Nearly every man, when he goes to a strange town, has a better understanding of why a king travels incognito.

## CHINESE THE MOST WIDELY SPOKEN LANGUAGE.



CHINESE 300 Million. INDIAN 286 Million. AFRICAN 210 Million. ENGLISH 116 Million. RUSSIAN 80 Million. GERMAN 80 Million. FRENCH 82 Million. SPANISH 44 Million. JAPANESE 40 Million. ITALIAN 34 Million. The relative proportion of persons speaking the chief languages of the world is represented by this series of national types. The total population of the world is 1,452,000,000. The languages not represented in the above illustrations include Japanese, Turkish, Brazilian, etc.—all with less than 35,000,000.

## AMERICAN SAYINGS.

Phrases Originated in This Country Which Will Live.

"Don't swear; fight!" The phrase has the ring of sound metal.

The American army of invasion advancing upon Santiago de Cuba was preceded by a body of rough riders. Suddenly the Spaniards, who were lying in ambush, fired a deadly volley, and the startled rough riders replied with an outburst of curses. "Don't swear; fight!" called Col. Wood. The phrase still lives.

America is a big country; it is destined to become a great country, for there is manliness and vigor in the memorable phrases coined by celebrated Americans. It was Stephen Decatur who originated the toast, "Our country, right or wrong." Henry Clay said, "Sir, I would prefer to be right than be President." The last words of Nathan Hale were, "I only regret that I have but one life to lose for my country." William Penn coined the phrase, "I prefer the honestly simple to the ingeniously wicked." And it was Henry Ward Beecher who uttered the words, "The mother's heart is the child's school room."

When nations become artificially refined the phrases which their great men coin are generally either cynical or flippant. Thus to Talleyrand is attributed the phrase, "Mistrust first impressions, they are always good." Voltaire declared that "Ideas are like beards; children and women never wear them." To which might be added, "except when they are monstrosities." Antoine Rivarole said, "It is an immense advantage to have done nothing, but one should not abuse it." Samuel Rogers said, "When I was young I said good-natured things and nobody listened to me; now that I am old I say ill-natured things, and everybody listens to me." To Sidney Smith we are indebted for the following ungracious description of a fashionable woman: "Do not mind the caprices of fashionable women. They are as gross as poodles fed on milk and muffins."

Whether Col. Wood uttered them or not, the words, "Don't swear; but fight!" will ring for long in the memories of many generations.—London Truth.

## Highest Temperatures.

It is very curious that the great obstacle encountered in tunneling under the snow-covered Alps is the excessive high temperature. In the construction of the Mont Cenis tunnel the highest temperature recorded was 86 degrees Fahrenheit, which was reached at a point near the center of the tunnel. The St. Gothard was still hotter, a temperature of 95 degrees having been observed in the center for several days. Such a heat, in a moisture-laden and impure atmosphere, could be endured but five hours a day for two days in three; and so prostrating was the labor at Mont Cenis and St. Gothard that the physician who attended the workmen ten years reports the number of invalids to have been as great as sixty to the one hundred. Stranger still was the appearance of a tropical disease—due to intestinal parasites—that is known only in the hottest regions of the earth. Even greater rock tunnels are expected in the great tunnels projected in recent years—those of the Simplon, St. Bernard and Mont Blanc—experienced engineers predicting that under Mont Blanc a heat considerably greater than 100 degrees—possibly above 125 degrees—will be reached. Improved methods of ventilating, cooling and working will all contribute, however, toward overcoming the difficulties of working.

## Hook and Ladder Episode.

The new motorman was strong and willing, but he hadn't been in a city very much. He had done farm work up in northern Arrostook.

The other motorman was instructing him.

"If a fire alarm rings in," said the old hand, "remember that the department, the fire engine and the rest have the right of way. Hold right up and let 'em past. If you don't they'll run you down."

The second day an alarm of fire was rung in. The car was near a cross street where the department must pass.

"Hold up," said the instructor.

Over the electric track tore the hose teams, then the fire engine spouting flame and smoke. The new hand cast a look up the street and then spun his controller lever. The car started.

"You infernal fool, what are you doing?" howled the old hand. He jumped and the new man jumped and the hook and ladder truck tore the front platform off the car and disappeared in a cloud of dust and with its men yelling like fiends.

"Why didn't you wait?" howled the instructor.

"Ba gar," replied his pupil, white and gasping, "I no t'ink we have to bodder for dat gang of drunk house painters."—Lewiston Journal.

## The Finest Diamond.

Mrs. William Astor has a collection of diamonds worth a fortune. But the finest diamond in the world belongs, it is said, to Mrs. Cornelius Vanderbilt. It is a tiny affair, weighing one karat, yet it cost her husband \$5,000. As the value of the diamond increases in an increasing ratio with its weight, up to a moderate size, this Vanderbilt brilliant, if as large as the Koh-i-Noor (102½ karats) would be worth about \$3,800,000. Mrs. Vanderbilt's marvelous gem came from Sumbulpoor or Golkonda.

## Mormon.

At a recent conference of the Mormon church, George Q. Cannon complained that there never was in the history of the church such an absence of respect for its authority as now.



A general strike for higher wages in the pottery trade in England now involves 20,000 men and is causing great distress and inconvenience.

The art glass workers of Indianapolis have effected an organization. There are now eighty-five local unions of the trade in the United States, and arrangements are being made to form a national association.

The carpenters at St. Louis have practically won their fight for the eight-hour day at 45 cents an hour and a half-holiday on Saturday without pay. The Contractors Association has gone to pieces by the withdrawal of many of the leading firms.

The Brotherhood of Carpenters and Joiners now has 438 local unions, with nearly 65,000 members. The eight-hour day is now firmly established in 105 cities and towns, and nine hours prevail in 427 cities. The brotherhood gained 15,000 members in 1899.

The much-condemned walking delegate observed a rift in the clouds that usually darken his horizon, when he discovered that the American Publishers' Association has an official whose duties are similar to that of the business agent, but whose title is that of "commissioner." A well-known St. Paul publisher fills the office at present. The Master Printers' Association also has a "business representative" who resides in Chicago, with like responsibilities.

The Cigarmakers' International Union does not seem cast down or intimidated by the recent sweeping injunction of Judge Freeman, and in the Official Journal President Perkins, in denouncing the injunction, says: "The people affected by this monstrous attempt on their liberties know their rights, and any man or woman, official or member, who is molested will be protected to the fullest extent of the resources of the international union."

Arrangements are being made between the Board of Delegates and the Building Trades Council of New York City, whereby more harmony will exist than heretofore. The proposition is that all business proposed or accomplished by the Board of Business Agents be submitted to the Building Trades Council for their consideration. In other words, make the Building Trades Council the parent body. If this can be brought about it will be the means of adjusting many difficulties that heretofore have caused a great deal of dissatisfaction between the two bodies.

The vast increase in manufactured products on the continent of Europe has not resulted in much benefit to the working classes on account of the great increase in the cost of living. In Germany the number of hands employed in its industries has increased in fifteen years from 7,340,000 to 10,900,000, or nearly 29 per cent. But in that period food, provisions and house furnishings have become much dearer, meats have increased in prices from 20 to 40 per cent., and teas, coffees, sugar and flour in relative proportion, and while the German worker pays the extra high prices noted for food he gets but 33 per cent. of the American worker's wages.

## For Inspection.

A peculiar custom prevails among the Roumanian peasants with regard to marriage, writes W. W. Long. When a Roumanian girl is of marriageable age her trousseau, which has been woven, spun and embroidered entirely by her mother and herself, is placed in a pointed wooden box. When a suitor presents himself he is allowed to open the box, which is always kept in a prominent place, and examine its contents. If he is satisfied with the quantity and quality of the dowry, he formally proposes to the girl's parents; but if the trousseau does not answer his anticipations he may retire without being considered to have committed himself in any way. The wedding ceremony is made a scene of great rejoicing, the bridegroom's parents driving the bride home in a cart wreathed with garlands of flowers and drawn by four oxen. The all important box containing the trousseau is placed on the front of the cart, while one of the bride's relations follow on foot carrying her dot, tied up in a handkerchief at the end of a long pole.

## Strangers.

They were very fond of each other, and had been engaged; but they had quarreled, and were too proud to make it up. He called afterward at her house to see her father on business. She was at the door.

"Ah—Miss Blank, I believe?" said he.

"Is your father in?"

"No, sir," she replied, "father is not at present. Do you wish to see him personally?"

"Yes," was the bluff response of the visitor, who felt that his former sweetheart was yielding—"I want to see him on very particular business"—and he turned away haughtily.

"I beg your pardon," she called after him, as he reached the last step, "but who shall I say called?"—Tit-Bits.

## Heavy Sales.

Eastern capitalist—See here. When I bought these corner lots of you you told me you had sold \$500,000 worth of real estate in this section in one year. I can't find a customer for a foot of my land. Did you really sell that much in that length of time?

Western man—Yes, sir. You see, I was the sheriff.—New York Weekly.