The BULLETIN

LAKE CARRIERS' ASSOCIATION

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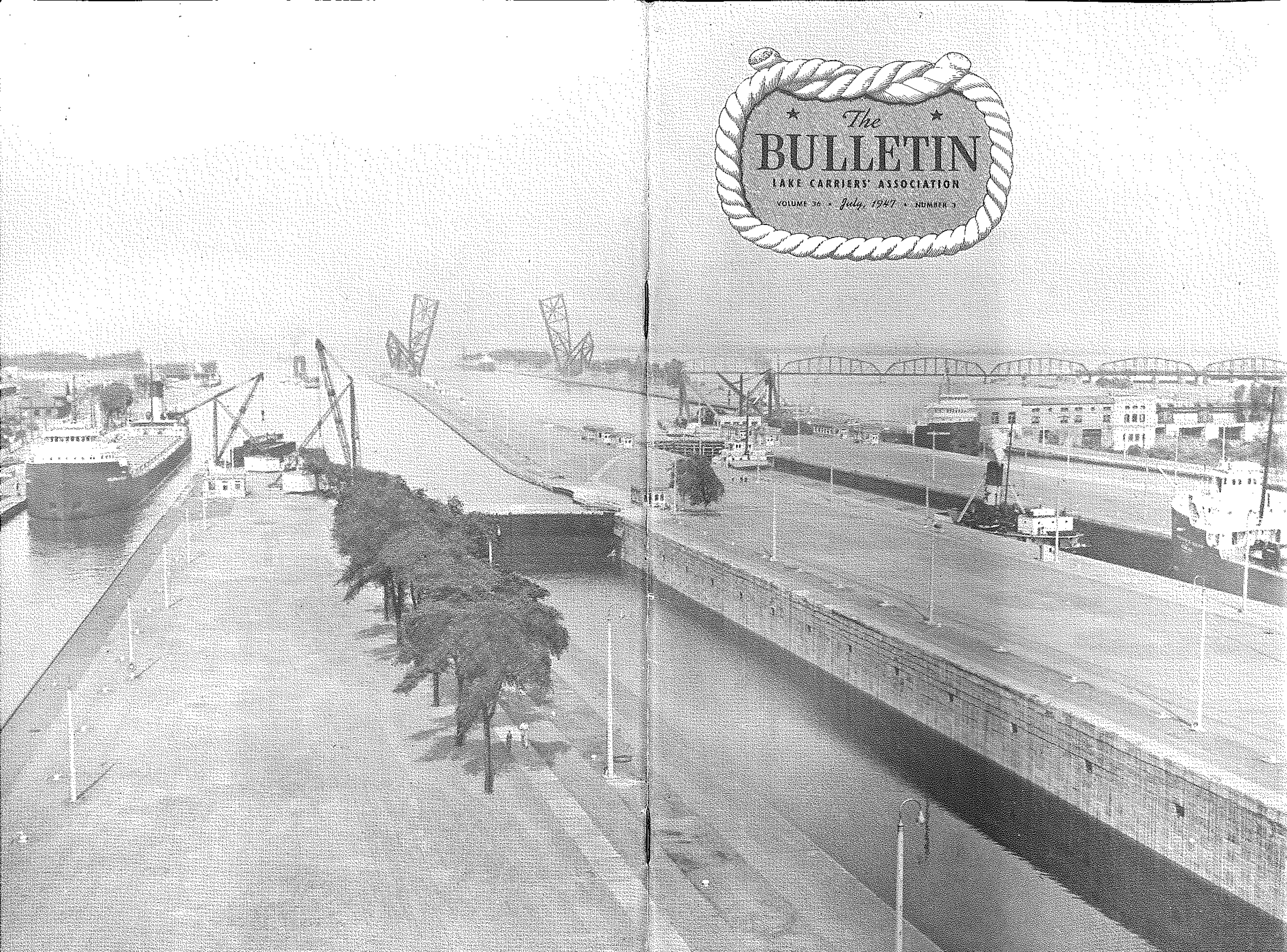
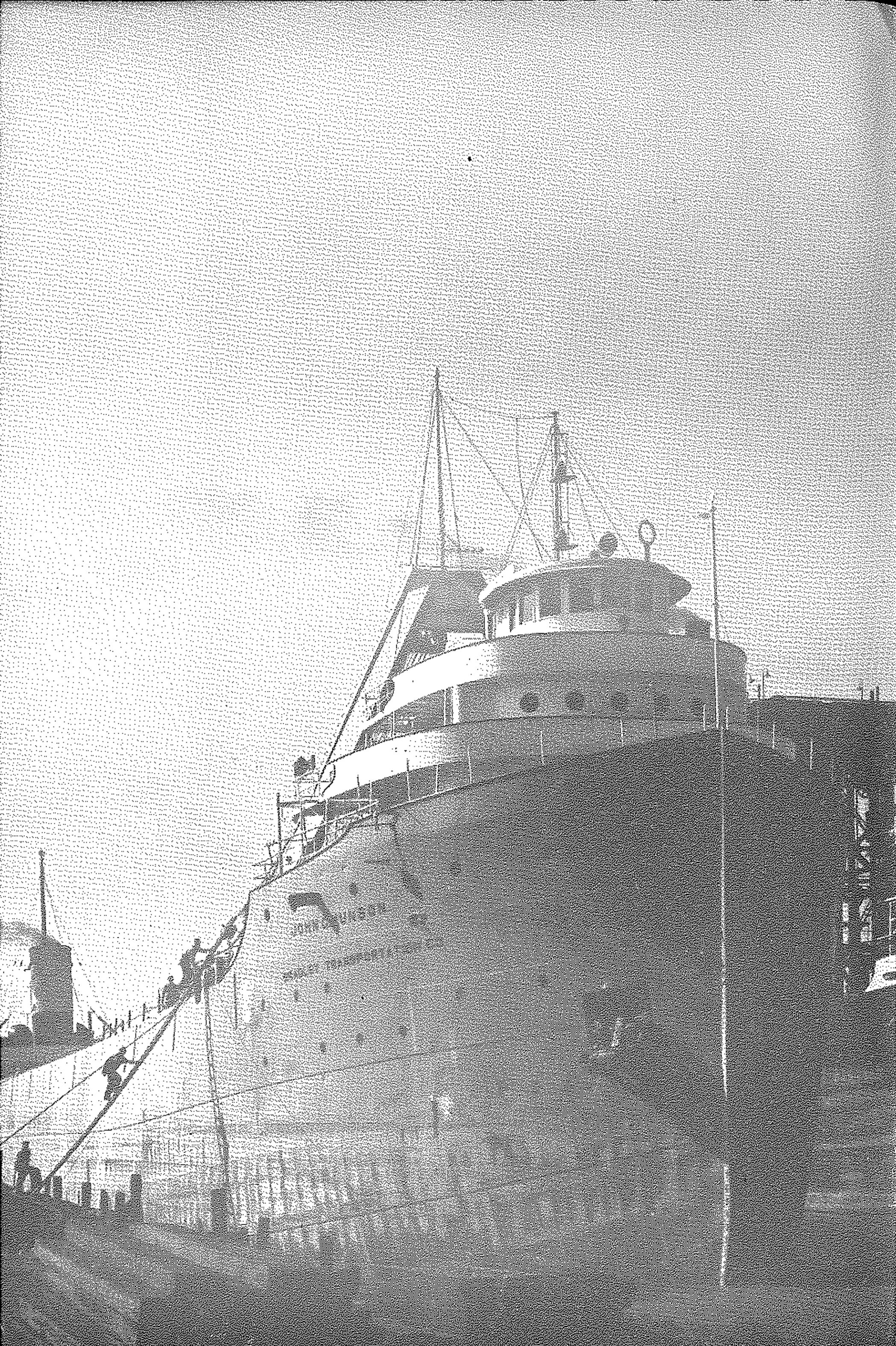




The **BULLETIN**
LAKE CARRIERS' ASSOCIATION
ROCKEFELLER BUILDING, CLEVELAND 13, OHIO

Volume 35 **JULY 1947** *Number 3*

Crowded Air Waves

BECAUSE America's five inland seas are called "lakes", too many people overlook their size and the volume of their traffic.

Almost any way you go about comparing them will lead to some startling results.

For instance, the Great Lakes have a total shore line of over 8,300 miles —about enough to bound the entire United States.

In fact, this country's Pacific, Gulf and Atlantic coasts combined would just about equal the length of that part of the Great Lakes shore line that lies on our side of the Canadian border.

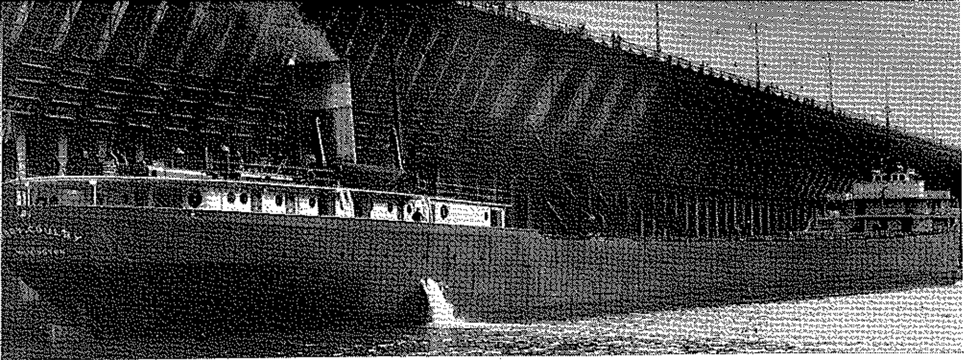
And the busy harbors along the United States shore line far exceed, in both number and in tonnage handled, the total for all salt water ports listed by Army Engineers on both the Pacific and Gulf coasts.

If you include Canadian ports, the total for the Great Lakes exceeds the entire list of ports on the Atlantic coast.

With that in mind, consider that all the import and export commerce handled through Atlantic, Gulf and Pacific coast ports in 1945 was some 30,000,000 tons less than was handled by the Great Lakes bulk fleet alone during that year.

Then realize that the shore line of these Great Lakes, instead of being stretched around the combined area of the 48 states, actually encloses an area that closely approximates the size of the two states of New York and Pennsylvania.

That gives you a rough idea of



Long trains of ore cars from the mines pull out on these loading docks. The burden of ore is emptied into pockets beneath the cars and thence, by way of the spouts, is chuted through hatches and into the hold of such vessels as the Harry Coulby, shown here.

how densely concentrated is the booming tide of tonnage on these 95,000 square miles of deep-water highway.

Furthermore, the whole seasonal volume of cargo must be moved during the eight to nine months of ice free navigation, as against a full 12 months for salt water commerce.

Recall, too, that, just as ocean routes converge upon such ports as New York, there are frequent bottlenecks upon which the Great Lakes routes converge.

Predominant among these is the Sault.

During each limited navigation season, the locks at Sault Ste. Marie handle more tonnage than the combined movement through the six major canals of the world, including the Panama, Suez, Manchester, Welland, Cape Cod and New York State.

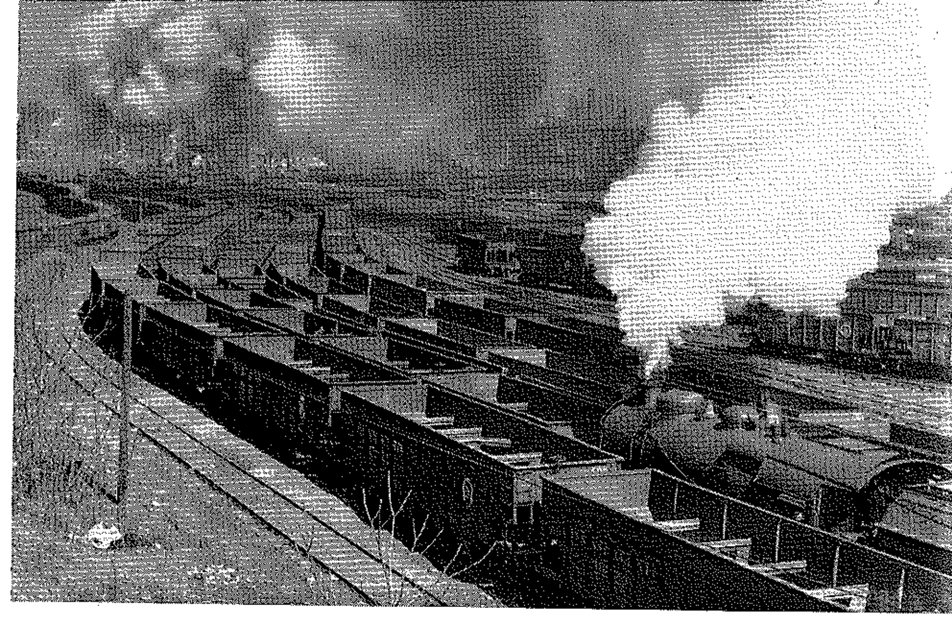
Obviously such heavy traffic must be closely coordinated. The only means of doing it efficiently is by radio. And for that purpose there has been developed on these Great Lakes the most heavily-used radiotelephone system of its kind in the world.

Since 1939, when "Channel 51" (2,182 kilocycles) was set aside exclusively for use on the Great Lakes, the volume of ship-to-shore communications handled on that frequency has grown to equal the total of such calls handled by all the sea coast stations of the entire United States.

Channel 51 is universally used for calling, answering and safety purposes between 662 Canadian and United States vessels, 85 United States Coast Guard shore stations, seven Canadian shore stations and seven privately operated shore stations on the United States side of the boundary.

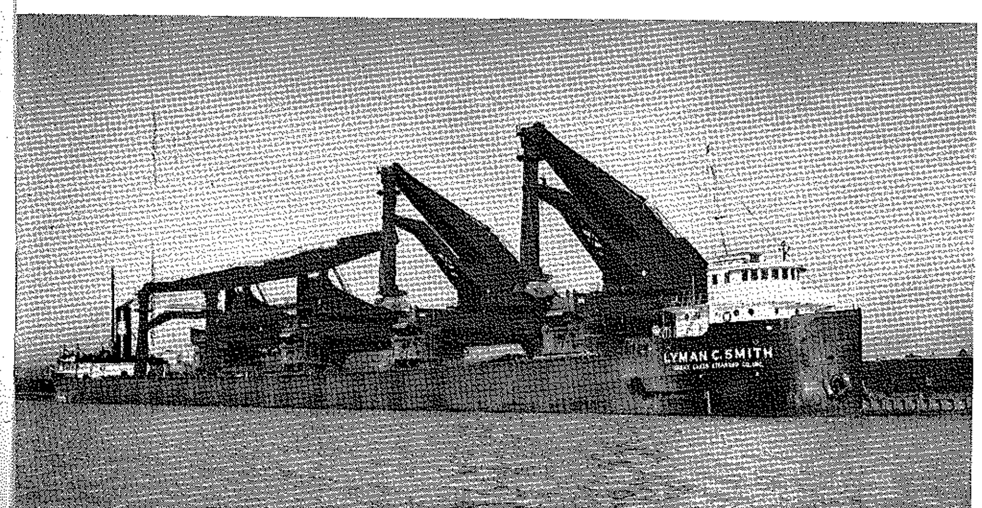
Under unusually difficult ship traffic situations such as exist when visibility is poor, the movement of vessels approaching and entering the locks at Sault Ste. Marie is directed and controlled by radiotelephony. Ships meeting and passing in confined waters use radiotelephony to exchange passing instructions. Vessels use radiotelephony to notify Coast Guard stations concerning misplaced and inoperative aids to navigation and other hazards. A vessel entering a lake and uncertain of weather conditions ahead for distances of 50, 100 or more miles (80, 160 or more kilometers) will telephone ahead to other vessels to secure up-to-the-minute information.

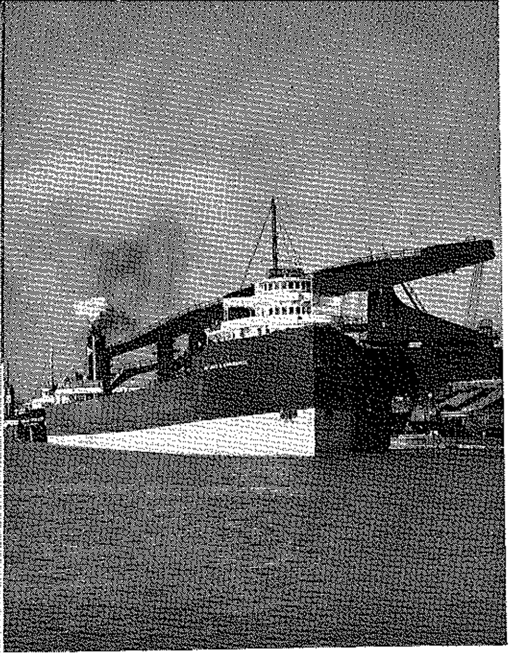
Certain of the harbors on the Great Lakes have narrow entrances and somewhat tortuous approaching channels. It is standard practice



Streams of ore cars by the hundred are shunted into yards such as this one along the Cuyahoga at Cleveland. Movement of each empty and loaded train has to be synchronized with arrival of ore-laden vessels.

Batteries of Hulett unloaders such as these four at the C & P dock dip through the hatches of vessels arriving with ore and scoop out their cargoes at 17 tons per scoop, 60 scoops an hour.





Great Lakes vessels can handle any of the bulk cargoes. A record grain carrier is the Col. James M. Schoonmaker, shown here unloading iron ore under one of the several Hulett batteries on the Great Lakes. Ready for her turn, as the Schoonmaker grows light, is the Charles Hubbard.

for a vessel entering one of these harbors to call other vessels in the harbor to make certain that none is leaving and to determine the condition of traffic in the harbor.

As an adjunct to radar navigation, the radiotelephone is already proving valuable for identification of targets and for exchange of information between radar-equipped vessels, as well as for warning ships not equipped with radar of potential danger.

All of these uses for radiotelephony and many others similar in character provide preventative safety communication, the purpose of which is to keep navigation safe and to prevent ships from getting into trouble. This type of communication is not so spectacular, but it is just as important as the exchange of distress messages which occur after a vessel is in trouble.

This universal frequency on the Great Lakes is separate from the radio channels used for a similar purpose along the sea coasts of the United States. If it were not, salt water conversation would be continuously audible on the Great Lakes and vice versa.

As an instance, communication between vessels on Lake Erie would simultaneously reach well out into the Atlantic Ocean and take in a good section of the eastern coastal waters.

A full carload of 60 tons at a time is dumped into vessels by coal loading facilities of the Great Lakes such as this one pouring cargo into the McFarland at Toledo.

Viewed from the Anthony Wayne Bridge is the Sinaloa being filled with coal at the A & B dock, Toledo. All together, such loaders at this port filled vessels with 22,244,638 tons last year, as against a prewar average of 12,347,345 tons for Newcastle, England, and 17,267,854 tons for Hampton Roads, Virginia, in 1946.

Since about half the ship-to-shore communications along the United States seaboard originate in the New York area, it is easy to understand —now—the wisdom that dictated the setting aside eight years ago of a separate frequency exclusively for use on the Great Lakes.

But that frequency already is heavily taxed. So are the other four channels allotted for supplementary use here. All the great volume of iron ore that moves from upper lakes mines down to blast furnaces must be carefully synchronized with the capacity of shore facilities at each end of the trip, as well as with traffic conditions en route.

The vessels engaged in ore traffic depend on radiotelephone for dispatch from shoreside operating offices that directs their movement each season of 85 per cent of the entire total of iron ore used by this country's steel-making industry.

Figures on the United States ore fleet for last season show they spent an average of only six hours and four minutes at the upper-lakes loading docks, taking on cargoes that averaged 11,643 gross tons.

Time spent in port at the lower-lake end of their continuous round trips throughout the season averaged only nine hours and 31 minutes per vessel. Many of them traveled a total distance equivalent to more than twice around the earth's equator.

And, just as the radiotelephone system, based on all eight channels assigned, is integrated with the land line telephone system, so is it necessary that the whole movement of lake-borne cargoes be integrated with rail transportation ashore.

Importance of the latter is best

From the great elevators of Lake Superior, such as this one at Port Arthur, grain goes aboard lake vessels. Cargo under the deck of the John T. Hutchinson equals the yield of 30,000 acres of wheat land. The two Canadians, shown broadside, likewise handle grain tonnages.

seen, perhaps, in the coal traffic.

One in every ten tons of bituminous brought out of mines in this country must be hauled to lower lake ports. There, special loading equipment dumps the coal, a carload at a time, into the holds of lake vessels.

Since a vessel cargo averages some 200 carloads, close to 30,000 cars weekly must arrive from the mines. Inevitable variations in both rail and lake schedules occur. To compensate, re-routings must take place quickly.

For instance, heavy fog, which not infrequently delays vessel traffic through the narrow connecting channels of the lakes during certain months, could create serious congestion at the larger ports. At Toledo, which handled more coal last year than the former world-record port of Newcastle, England, might have a tie-up that would cost heavily in transportation capacity.

Both the limestone and grain movement must likewise be coordinated. Of wheat alone, Great Lakes vessels brought down from Lake Superior in 1945 a volume equivalent to one in every 12 bushels produced throughout the world in an average year before the war. What that meant to starving Europe needs no explanation.

Neither does the fact that during the war the lakes bulk cargo fleet delivered its basic raw cargoes to industry in a volume four and a half times greater than the total tonnage moved on salt water by the vastly expanded United States merchant marine. Currently there are 426 bulk carriers in the lakes fleet.

A vital factor in accomplishing that feat, and equally so in the expected movement of a new high peacetime tonnage this season, is the radiotelephone system which permits the bulk vessels to operate with high efficiency.

A loudspeaker in each pilot house is kept tuned to Channel 51. The calling of a vessel by name anywhere within range along the 3,000 miles of separate up- and down-bound courses brings prompt response from the officer on watch.

Dialing, as with a conventional telephone, he quickly tunes in on the channel designated for reply. Large United States vessels use Channels 30 (2,158-2,550 kilocycles) for this purpose and large Canadian vessels use Channel 38 (2,206-2,582 kilocycles), while the small vessels of both nations use Channel 39 (2,118-2,514 kilocycles) so that Channel 51 is cleared for the next call as rapidly as possible.

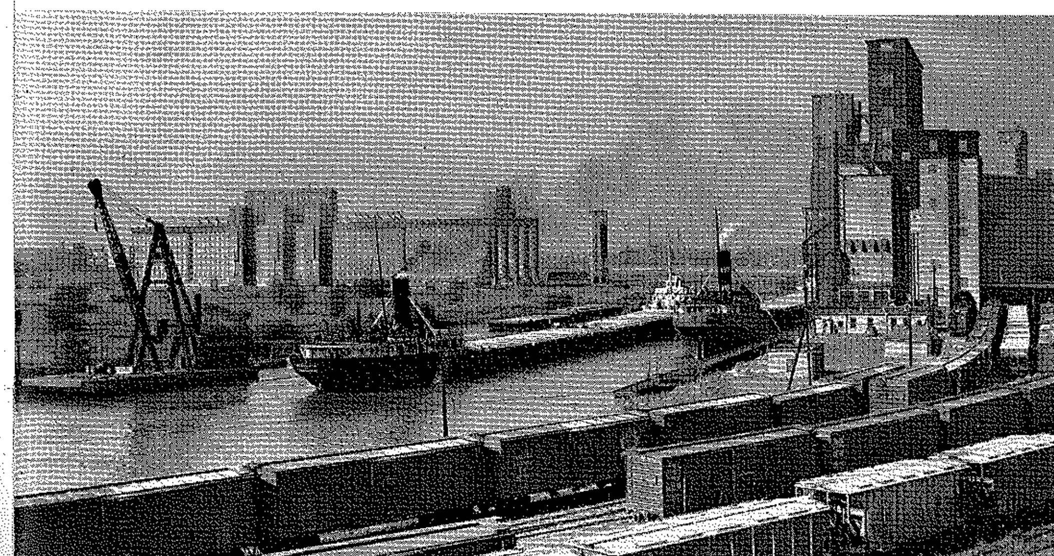
With the same ease, a vessel officer can call a shore station and be connected with a land line telephone. Or he may call another vessel. For ship-to-ship traffic, Channel 40 (2,738 kilocycles) is used after contact has been made on Channel 51. The total of such calls is estimated conservatively as being something more than three-quarters of a million per season of navigation.

Vessels have frequent need to contact each other to exchange reports on weather and traffic conditions that lie ahead of each. Much more safety in navigation has resulted.

Similarly, they report their positions on arrival or departure from most harbors and as they approach or leave the Sault. Close control at points of dense traffic is thereby effected.

Additionally, all vessels receive six—hourly weather forecasts. For brevity, these are broadcast in what

As with the iron ore and coal ports of the Great Lakes, the problem of coordinating rail movement with vessel arrivals is accentuated at such grain receiving ports as Buffalo, where the Hennepin (left) and James E. Davidson are ready for unloading.

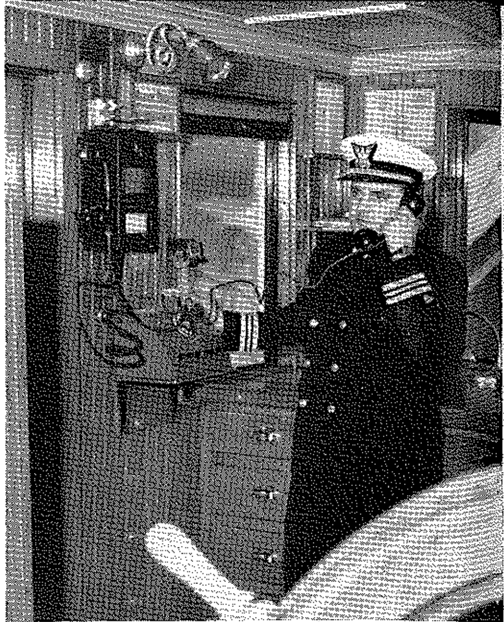


amounts to "radio shorthand". Following announcement over Channel 51, the forecast is repeated over each of the five available channels. Canadian forecasts are handled on Channel 39.

Weather observations are sent in by 33 United States bulk vessels, some of the Lake Michigan railroad car ferries and Coast Guard vessels such as the ice-breaker Mackinaw.

This data is coordinated by the weather bureau in Cleveland and broadcast to all the lakes within an hour, so that a report of actual developments, against which to check the forecast trend, is available.

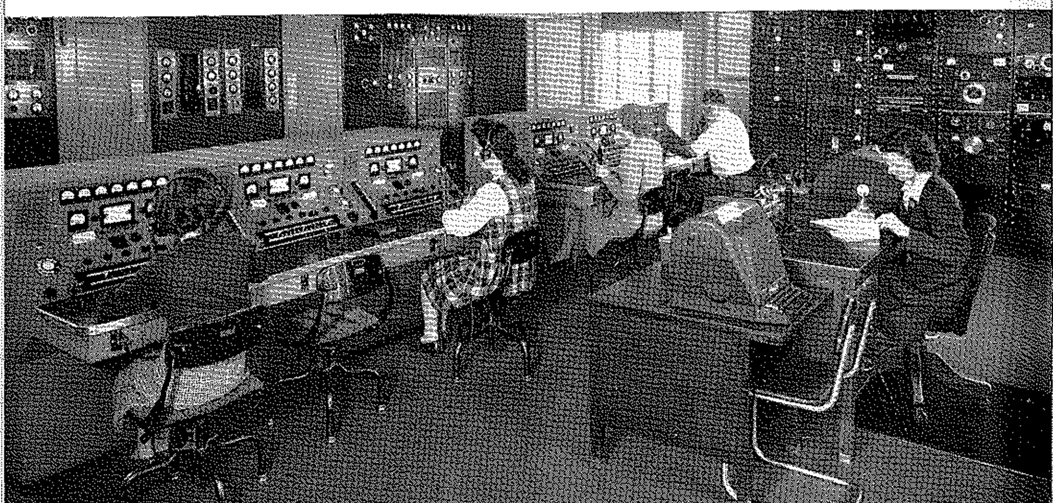
Storm warnings take precedence of course, and are repeated three times an hour every two hours for as long as necessary. The once rather frequent occurrence of wrecks, when ships were caught unawares by sudden, lashing gales, is almost a thing of the past.



Captain Leo Moll of the John G. Munson used this type of radiotelephone set when he skippered the W. F. White. Later installations are alongside the pilot house lookout window for greater convenience.

But when disaster does strike, from any cause whatever, the speed with which aid is summoned by radio has enabled rescue vessels to save lives that would otherwise almost certainly have been lost.

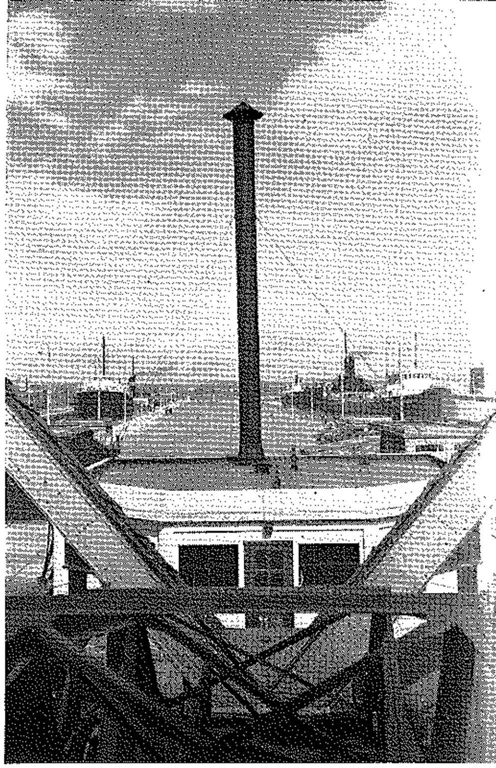
The shore station at Lorain, Ohio, one of 14 privately operated radiotelephone facilities on the Great Lakes, provides this busy control room to handle day and night ship-to-shore traffic.



Waterway of Industry

THE statement often made by observers of lake shipping trends that the movement of freight through the St. Marys Falls Canals at Sault Ste. Marie, Michigan, greatly exceeds in eight months the combined traffic of the Panama and Suez Canals in 12 months, only meagerly sets forth the amazing amount of vessel traffic that annually moves to and from Lake Superior. Nor does it point out the full extent which this, the world's greatest waterway, has played in furnishing an outlet for vast tonnages of eastern manufacture, the development of agriculture and, primarily, the iron ore and copper resources of the Lake Superior region.

It is only when analyzed from the beginning of the ship canal traffic in 1855 to the close of 1946, together with the current season's prospective total of 100 or more million tons added, that the fact is revealed that more than four and one-half billion tons of freight have been locked



Two of the locks at Sault Ste. Marie. They pass more tonnage than either the Panama or Suez.

through the Sault Canals. The following table is a complete record by decades of the traffic through the canals for 92 consecutive years of navigation:

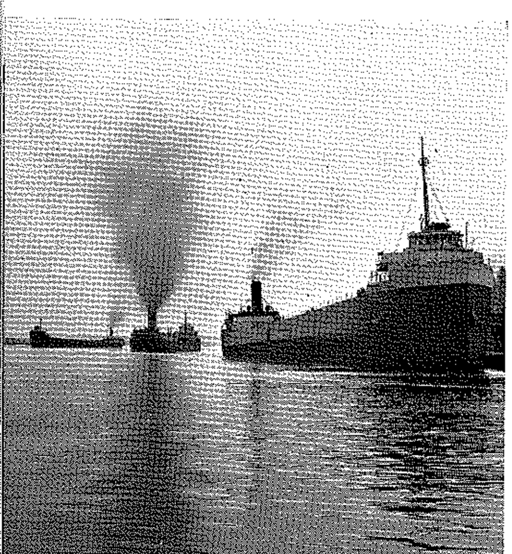
Years	Net Tons
1855-1864	1,203,358
1865-1874	4,829,247
1875-1884	14,868,639
1885-1894	80,343,218
1895-1904	253,002,657
1905-1914	576,926,068
1915-1924	763,934,346
1925-1934	651,071,593
1935-1944	869,618,024
1945-1946 (2 years)	205,015,946

It will be noticed that the freight movement during the first 10 years scarcely exceeded one million tons. The close of the Civil War and, per-

The four American locks at the Sault, as seen from the air at a time when sufficiently clear of traffic for their full outline to be photographed. Photo by Abrams Aerial Survey.

haps, the introduction in 1869 of the lake type bulk freighter, providing greater vessel capacity, brought about the first significant increase in

Some 400 vessels like the Powell Stackhouse (right), the George A. Sloan and the J. A. Hatfield carry the bulk tonnage of iron ore, coal and grain through the Sault.



freight movement during the decade that ended in 1874. From thence on, the building of ore loading docks, additional locks and a vast fleet of steel vessels caused the annual traffic to increase by leaps and bounds. With the exception of the depression years, total freight movement has progessively increased each decade, with a peak total of more than 869,500,000 tons in the 10-year period 1935 to 1944.

However, if the decade that ended in 1946—consisting largely of the war period—is considered, a further peak record of 956,812,062 tons is shown.

While the bulk of the increasing traffic is down-lakes, a reciprocal up-bound traffic has grown up to sizable proportions. Outstanding among benefits derived from the latter are

those which, in themselves, sustain and impel the up-bound movement.

Beyond doubt the industrial development of the Lake Superior country would have been retarded many years but for the short and economic haul that the Sault Locks have provided in the shipments of coal to the bend of the lakes.

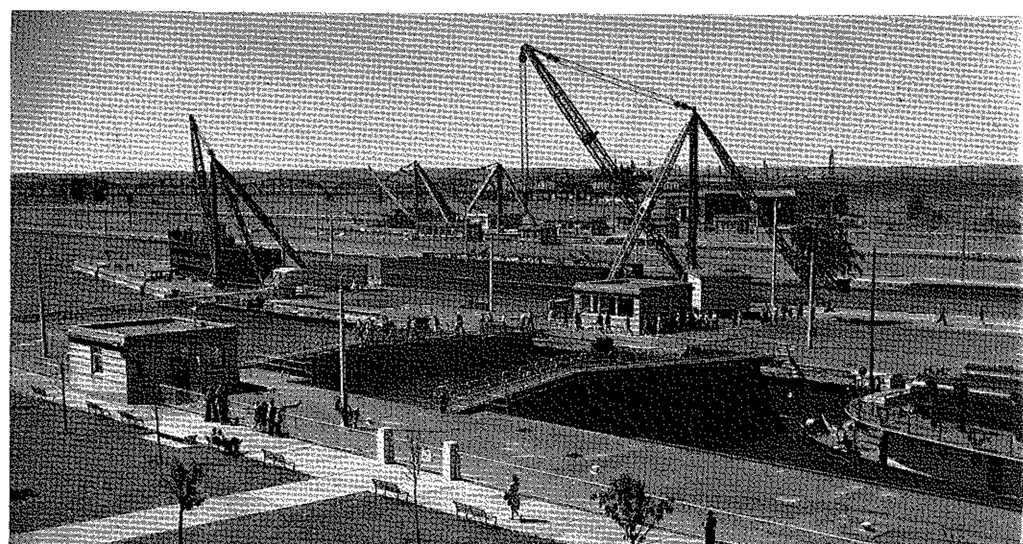
While it is interesting to point out 1,404 tons of coal locked through the state-operated canal in its opening year, 1855, it was not until 1886 that this trade reached a total of one million tons. Reflecting the beginning in 1907 of the era that marked the progressive industrial growth of Duluth-Superior and other industrial centers on Lake Superior, that season's shipments amounted to as much as 10 million tons for the first time. With the exception of depression periods, annual shipments since 1910 have exceeded 13 million tons in no less than 26 seasons of navigation.

—o—

Outstanding events in the history of Sault Canal traffic include a total of 120,199,479 tons of freight locked through in the 271 days from March 22 to December 17, 1942; a total of 639,429,118 bushels of grain in 1945; a peak record of 26,884 vessel transits in 1942; a war-time record of 736,828 tons of freight by the steamer Irving S. Olds during the navigation season of 1944, and a part peace-time record of 683,781 tons of freight by the steamer Fred G. Hartwell in 1945.

Following the restoration of passenger service since the war, the passenger traffic through the canals rose to a total of 87,871 in 1946.

In this and the picture on next two pages, replacements for nearly all vital structures at the locks, such as wickets, bridges and gates, are shown stored in readiness, under emergency cranes, as a precaution against damage of existing equipment and consequent halting of the vital flow of traffic.



Yellow Cargo

THE process known as "pickling" of steel is an essential step in its production. Pickling consists of giving the semi-finished steel a bath in sulphuric acid to remove the tiny surface scale formed during other phases of its manufacture and which would prevent close-tolerance results in bringing it to final form and quality.

Just as all the iron ore and limestone used for steel making in Great Lakes industrial centers is brought down from mines and quarries to blast furnaces by the bulk cargo fleet, so all the sulphur used in pickling it is likewise delivered in these vessels.

In fact that quantity of lake-borne sulphur is about double the amount necessary for this purpose.

Like limestone, which is moved in a volume greater than needed as a blast furnace flux for iron ore, the additional tonnage of sulphur is absorbed in the production of other essentials, such as fertilizer, insect spray, storage battery acid, paper manufacturing, explosives and the like.

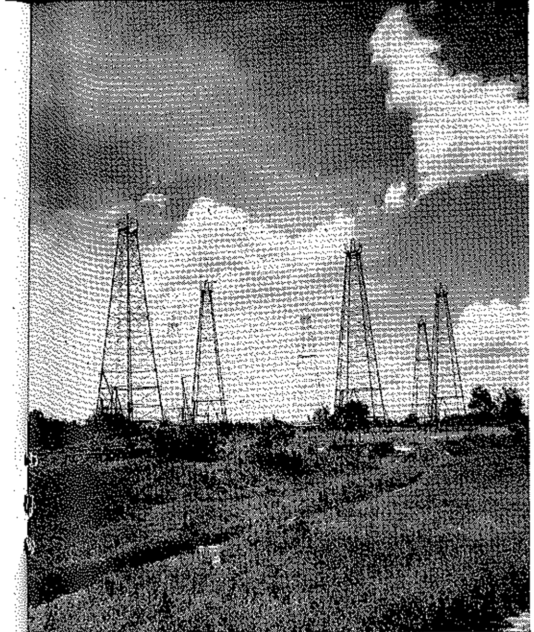
A seasonal movement of sulphur totaling between 80 and 100 thousand tons appears small, when compared with the millions of tons of other raw materials moved on the lakes. Yet sulphur is an important cargo.

It comes by way of the Chicago drainage canal and the Mississippi River from Texas and Louisiana.

There it is brought up from deep-lying deposits along the Gulf Coast by the method Dr. Herman Frasch developed after he left the Standard Oil Company of John D. Rockefeller in Cleveland back in 1894.

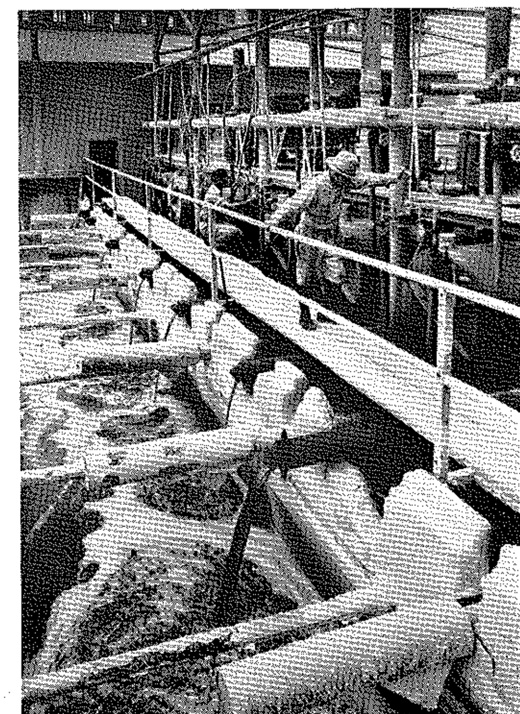
The Frasch process relieved America of dependence on foreign sulphur. It consists of pumping superheated water down into the earth to melt the sulphur, then forcing the molten mineral to the surface with compressed air.

Liquid sulphur solidifies in big, above-ground vats, then is "quarried" and scooped into railroad cars, weighed and moved to the nearest port for shipment. Photo courtesy of Texas Gulf Sulphur Co.



Sulphur producing wells in Wharton County, Texas, where superheated water is forced down into the formation and the molten sulphur brought to the surface by compressed air. Photo courtesy Texas Gulf Sulphur Co.

The flow of molten sulphur from seven producing wells is gathered at this central relay station. In the steam-heated collecting pan air is removed from the liquid sulphur and the latter is metered. Photo courtesy Freeport Sulphur Co.



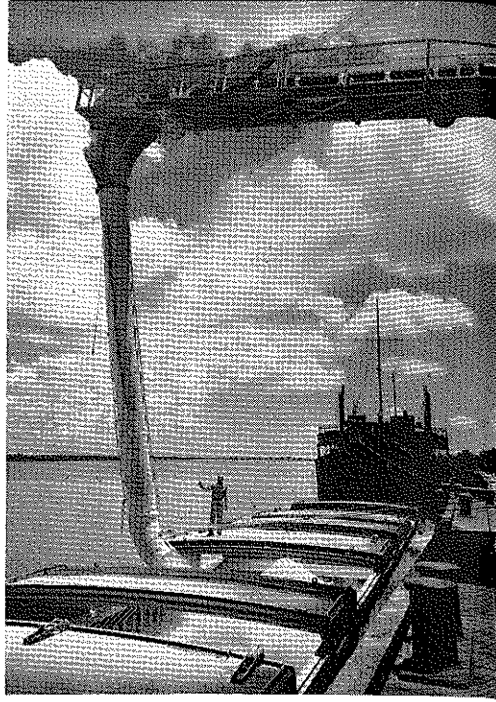
From the well, sulphur is piped into huge vats to solidify. Then it is drilled and blasted like stone and loaded into railway cars or shallow-draft canal barges.

Sulphur destined for the Great Lakes is transshipped northward in big river barges to the Chicago area.

Crane boats of the Great Lakes, such as the Buckeye, McFarland, Post and Ewig, tie up alongside the river barges and scoop the sulphur into their own holds.

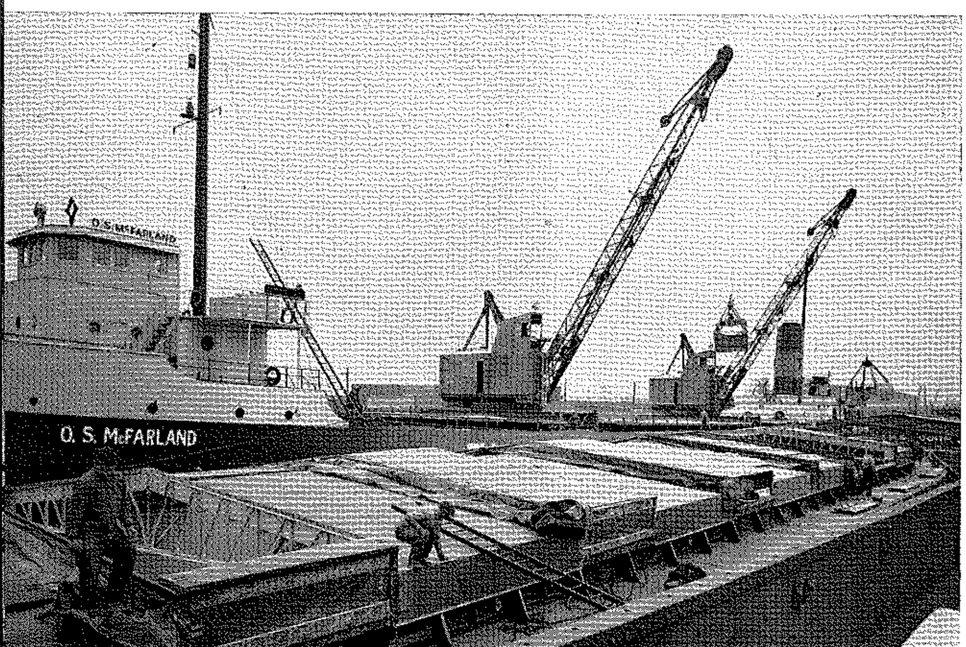
Then they distribute it to plants at Detroit, Toledo, Cleveland, Buffalo and Thorold, Ontario.

These plants produce the sulphuric acid essential to steel-making and to various other phases of industry and agriculture.



At loading docks conveyor equipment pours the sulphur into barges for the up-river haul from the Gulf to Chicago. Photo courtesy Freeport Sulphur Co.

The crane-equipped steamer, O. S. McFarland, transfers a barge-load of sulphur into her own hold for movement over Great Lakes routes to processing plants that convert the yellow cargo into sulphuric acid.



Common Sense View of Radar

Captain Harold Jacobsen of the John T. Hutchinson finds a moment to relax from duty and pass along his comments on the use of radar. His experience with this new navigating aid has been the longest of any captain on the Great Lakes.

THE war-developed "miracle" of radar was the basis of an experimental research program on the Great Lakes last season, which began when a set was installed aboard the John T. Hutchinson.

Ultimately six vessels were featured in the program. From their use of radar, minimum specifications were developed. The latter were used as a guide in the selection of sets installed aboard additional vessels of the fleet this spring.

Meanwhile, the publicized notion of radar, as an answer to just about everything in the way of sailing, has persisted.

As a key to using and appreciating radar—not as a "wonder-working gadget", but in its true value as a navigating aid that "becomes a very welcome addition to the other instruments now in use"—Captain Harold Jacobsen offers the following comments from his experience with the set aboard the John T. Hutchinson:

"Radar does not produce a 'camera-picture' of rivers and harbors. Neither does it point out to the navigator that just below the surface of the water a dangerous shoal exists.

"What it does present on the radar scope consists of light and dark areas arranged in a pattern that depends upon the vicinity in which the ship is located.

"The dark areas represent water. The light areas represent land and other objects, such as ships, buoys or lighthouses.

"Whether the dark areas represent deep water or shallow water, is something the navigator must know beforehand. Both look alike on the radar scope.

"Identification of a certain point

Since this first use of his vessel's radar early in 1946, Captain Jacobsen has found in its image no room for careless navigation nor for disregard of other aids.

of land, a lighthouse or buoy, becomes something of a problem.

"That part of a point of land nearest the operator is the only part that will show on the radar scope. It will not resemble exactly the continuous shore line as clearly defined on the lake survey chart, where both sides of the point are shown.

"For further example, a small, round island will appear on the radar scope as a half-moon.

"Buoys and lighthouses are also difficult to recognize. If a lighthouse is located against a fairly high background, it blends in with the rest of the picture and cannot be seen at all. A small boat might easily be mistaken for a gas buoy, especially if the boat is anchored or not moving very rapidly.

"These are but a few of the problems confronting the radar navigator. Others I might mention are heavy rain and sea return.

"In a strong wind that kicks up a heavy sea, the radar scope will show 'all white' in the center. This 'all white', or 'sea clutter', as it is called, may extend over an area representing six or seven miles on the radar scope, depending upon height of the waves.

"Another ship inside of this sea return might easily escape detection, unless its course was observed before it entered the obscured area.

"Heavy rain is also hazardous. It will show a clutter over the entire scope and nothing else can be seen.

"Some of these problems can be overcome, to an extent, by the experienced radar operator. But all of them should be given full consideration by all navigators.

"I read, recently, in the Cleveland Plain Dealer that any harbor on the Great Lakes could be entered with the pilot house windows painted over, if the ship were equipped with radar. I know this can be done as a stunt, by certain types of ships having good maneuverability. But, for a large ore carrier, it certainly would not be practical.

"Present radar sets have a minimum range of 300 feet. Any targets inside this range cannot be seen on the scope. Therefore, a good lookout is still necessary, because even a heavy fog does not entirely obscure objects at close range.

"In mentioning these limitations of radar, I do not intend to convey the idea that radar is not useful. It is perhaps one of the most useful instruments of present day, short range navigation.

"I have had the privilege and pleasure of using radar since its introduction last season to commercial shipping on the Great Lakes. I am convinced its use will reduce the danger of collision and groundings, thereby saving life and property. However, I still feel that the gyrocompass, the radio direction finder and even the old-fashioned lead line should not be forgotten."

Commodore E. M. Webster, U.S.C.G. (Ret.), recently appointed a member of the Federal Communications Commission, was a pioneer in development of marine radar.

Committees Suggest More Ways to Improve Safety

An unusually large number of suggestions, advanced for the purpose of lessening the hazards of personal injury aboard ship, were received during the past month.

An excellent one from the ship safety committee on the steamer J. R. Sensibar points out a hazard never before heard of:

"It was suggested that when using tugs in port portholes be closed as fumes from tugs are dangerous, especially fumes from Diesel tugs. Aboard the J. R. Sensibar, while using Diesel tug at Grand Haven, fumes from tug entered porthole into wheelsmen's room where a man was sleeping. The man was overcome to the extent that when he got out in the fresh air, he fainted."

The committee on the Wm. J. Olcott reports the installation of new landing lights that are a marked improvement over the former ones which hung out on the end of the landing boom and interfered with the landing of men.

The chief engineer made short arms in accordance with dimensions given by the master and mate and also made the fastening devices so that the arms were installed on the upright landing boom. The arms are about three feet long and the lights hanging out give good illumination and in no way interfere with the man swinging out on the chair.

On the steamer Fred G. Hartwell the engineers have installed a three-eighths-inch bleeder line on the atmospheric exhaust, in order to prevent hot water from shooting on deck when ballast is being pumped.

Other ship safety committees have reported the following:

Isaac L. Ellwood—Until recently there was no safety guard across our main switchboard due to the small space between the generators and the board. In order to take up as little space as possible, a removable guard was placed close across the main switches.

It is made of an oak piece one by three inches, with a piece of five-eighths-inch rod iron placed on each end. Deck flanges of three-eighths-inch were placed on each side of the switchboard with pipe nipples and drilled out tees secured to them. The rod iron on each end of the oak piece drops into the drilled out tees.

(Opposite) Graduates of the Lake Carriers' Marine City School of Engineering. Photo of 1947 class, unavailable for first issue of this year, was taken by Assistant Instructor Jack Arnold and provided through courtesy of Instructor Ralph Britz.

Top row from left: Paul Reed, Alfred Boehmer, Cletus Bouschor, E. F. Blomquist, Alton Beach, George Heaslip, Merrill Beaulieu and George Porth.

Middle row from left: Charles Marigold, Jack Navarre, George Arnold, Bernard Fralke, John Zabowski, John Learmont, Ralph Britz (instructor) and Peter Balcer.

Bottom row from left: Robert Colclough, Harvey Bell, James Shoemaker, Thomas Smith, James Leitch, Erwin Heythaler and John Heaslip.

Harry Coulby—In addition to the regular bulletins and slogans received from the office, we are having a special ship slogan for each month. The following is for June: "Make it safe—not, it should have been safe."

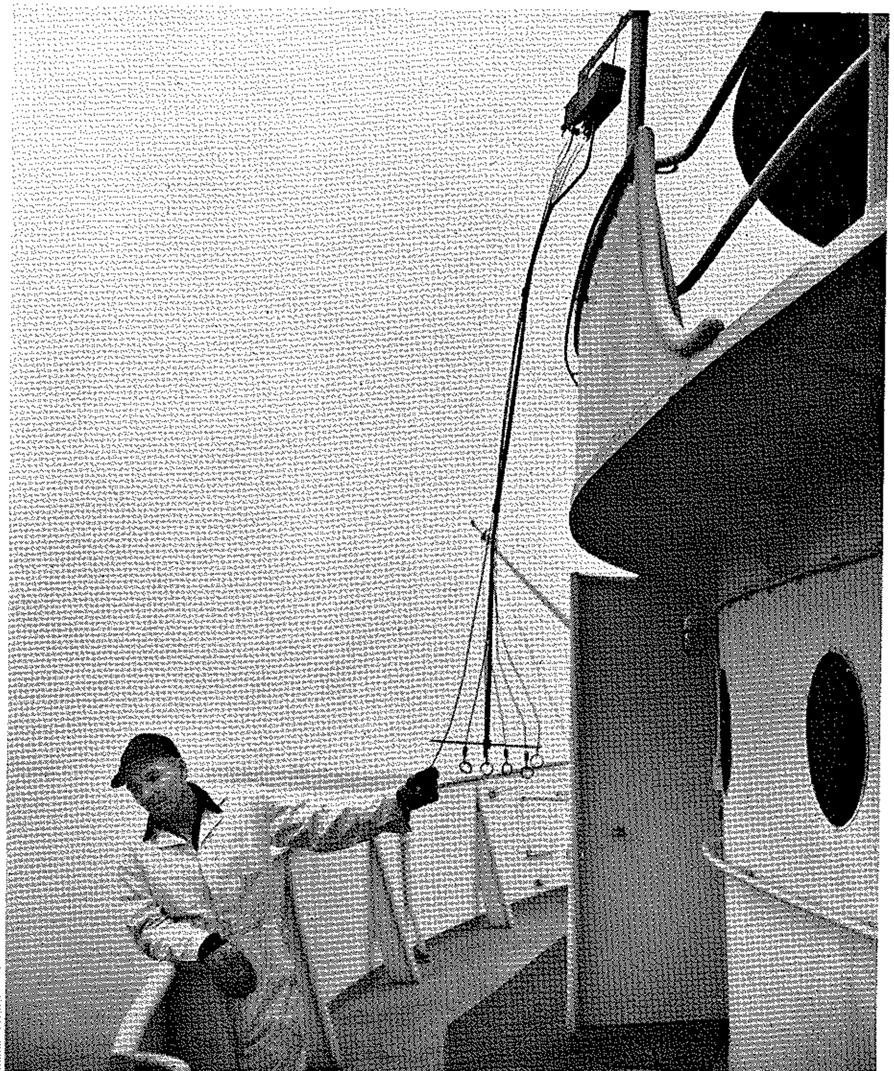
Edward J. Berwind—We suggest that a light rod, or staff, about five feet long be made and hung over the ship's side, especially when at an ore dock. It should be rigged with a suitable hook for catching the bight of the breast-line—heaving the line attached to main deck. The man on deck can then pass the bight of the heaving line to the dock without the man on the dock over-reaching the edge of the dock.

E. A. S. Clarke—Hand rails have been installed on the starboard after ladder.

Consisting of three-quarter-inch pipe, the rail extends the entire length of the ladder on both sides and three inches above the face of the ladder. The pipe is fastened to the sides with floor flanges.

Sewell Avery—We suggest that a good individual eye cup can be made out of a vortex paper cup by cutting it down. Such a cup would be safer to use than the ordinary cup that is generally used.

This clearance indicator, ingeniously rigged up by Second Mate John Cross, registers in large metal numerals just outside the pilot house window the distance between the ship and dock when the John T. Hutchinson is being warped in for mooring. A pull rings up each change of clearance in cash register fashion with no chance for confusion as when the figures are called.



Personal Heroism Heads Month's Injury Reports

An act of heroism that deserves special commendation was recently performed at Indiana Harbor by Wilfred Jacobs, an oiler.

One of his shipmates, a coalpasser, had fallen into the river and Wilfred jumped from the gangway and rescued him. Unfortunately he sustained an injury while holding his crew mate above water. Hot water from discharge exhaust line scalded his left hand and arm.

Answer to Last Month's Puzzle

O	R	D	I	N	A	R	Y		S	O
C	O	S	T	O	N		A	P	T	
C	O	M	E	T		A	W	L		C
U	T		M		C	A	L	I	C	O
L		E			R			E	E	L
T		J	U	P	I	T	E	R		L
I	R	E			S			S		I
N		C	L	A	P		D		C	S
G		T	I	P		S	P	A	H	I
	E	S	E		C	A	C	H	O	O
D	D		N	E	A	T		A	W	N

Personal injuries reported during the past month include the following:

Fireman—Was in backhead shoveling and poured water on hot ashes. Steam that arose burned side of face and arm.

Watchman—Cleaning clamps off hatch, top of clamp swung around and mashed middle finger.

Deckhand—While securing hatch, first finger on right hand became caught between leaf and coaming and was severed at first joint.

Deckhand—When pulling on hatch covers put his hand on the cable after signal had been given. Finger was drawn into the block and crushed.

Deckwatch—Instead of using the ladder when going into cargo hold, swung down from the hatch to ore pile and sprained ankle.