

DIESEL AND DOCILE

NOTES OF A TOWBOAT TRIP
ON THE UPPER MISSISSIPPI

By
DAVID S. OAKES



CHICAGO LITERARY CLUB • 1957

COPYRIGHT 1957 BY THE CHICAGO LITERARY CLUB



DIESEL AND DOCILE

IN THESE days of supersonic speeds and nuclear nympholepsy, when the very air is surcharged with the sensational, it is well to temper such heady dict with a morsel of reflection upon the established and the practical. Though they make the front page but rarely, in competition with rockets and push-button conceits, there are public servants whose intrinsic worth is vastly more meaningful and whose dependable performance far outweighs any lack of glamor. While interplanetary communications and space ships are things to dream on, the economy must be bolstered and a teeming populace housed, clothed, and fed. For such essential ends the old reliables of transport remain utterly indispensable. Each form of them has its field of function, its recommendations, its operational methods, and its traditions. The aim of these notes is to further acquaintance with the towboat, a less-well-known element in the nation's unrivaled array of transportation facilities.

Although they are called "towboats," the motive power units of our great inland waterways merchant marine are, in reality, pushboats. Their loads are shoved

ahead rather than hauled astern. Some ply our Chicago-land waters daily, but their movements are so unobtrusive as to receive scant notice. They seldom whistle, because those designed for harbor service have their pilothouses set on hydraulic columns by which they can be raised or lowered. Possession of this equipment feature enables them to pass unchecked beneath bridges with insufficient vertical clearances, whether fixed or movable, a paramount advantage in and about the city, where such structures abound.

Two war emergencies have been required to restore the value of America's inland waterways, so ruthlessly discounted by the advent of the railroad. With the disappearance of the packet, the rivers lapsed into disuse until the urgencies of defense compelled recognition of their basic significance. Now in the heyday of its regeneration, the traffic over these liquid lanes dwarfs in volume the peaks of the raft and steamboat eras, spectacular though they were. Between 1931 and 1953, the last year reported officially, it rose from 5.5 to 42 billion ton-miles on the Mississippi River system. American Waterways Operators, Inc., reported that the total barge traffic on the country's 29,000 miles of inland waterways amounted in 1955 to 82.5 billion ton-miles.

Strictly a bulk-commodity statistic, the ton rather than the mile is the dominant factor, for the ordinary barge is the equivalent in capacity of many freight cars. The list of materials and products so moved is long and diverse. It suffices to name only coal, iron, and steel, sand and gravel, cement, grain, sulfur and chemicals, petroleum and derivatives, pulpwood and paper, lumber, cotton, and fertilizers and, as a marginal memo, to men-

tion sugar, coffee, canned goods, beverages, and automobiles.

Of more than 12,000 stream miles in the Mississippi River system, about 4,700 miles have been improved to maintain channel depths of 9 feet or better. Seventeen states now have river ports, and the territory so embraced extends from Sioux City, Iowa, to Fairmont, West Virginia, and from Stillwater, Minnesota, to the Gulf of Mexico. At New Orleans direct connection is made with the Gulf Intracoastal Waterway, whose termini are Carrabelle, Florida, and Brownsville, Texas. To gauge the resurgence of the inland waterways, it is necessary only to remember that many of today's heavily traveled routes did not exist as such until quite recent years. In 1922 less than 100 miles of the Mississippi itself could boast an assured channel depth of 9 feet. The 650-mile stretch of the Tennessee from the Ohio to Knoxville had to await Tennessee Valley Authority developments, and 1935 was the first full year of navigation over the Illinois Waterway from Grafton to the Chicago and Calumet harbors on Lake Michigan. Net tons carried over the last-named route increased from 1,695,120 in 1935 to more than 20,000,000 in 1953, and engineers say that this volume bids fair to be doubled within a like period or sooner, especially if the Calumet-Sag Canal improvement is realized, as now seems likely.

Recognition of the merit in these water routes for bulk-cargo transport has burgeoned correspondingly. During the past several years hundreds of millions of dollars have been invested in riparian-right sites along the Mississippi system. To keep pace with the rising tide of traffic, the several hundred carrier companies have been

obliged to augment their fleets rapidly. As an index to the marked general trend, one organization has doubled its number of barges and trebled its horsepower since the war. More than seven hundred inland waterway craft were launched in 1955. Tractive effort of power units, likewise, has soared. Whereas 2,000 horsepower was considered maximum in 1945, there are towboats in service today whose engines develop 5,000 horsepower.

On account of its vast coal consumption and concentration of diversified heavy industries, metropolitan Chicago as a terminal has a vested interest in the waterways. In order to afford a firsthand glimpse of towboat operation, the Central Barge Company extended guest privileges on its "A. M. Thompson," engaged in the coal traffic on the Upper Mississippi. This company was incorporated in 1938 and granted rights over the entire Mississippi system but, until its merger with the Mississippi Valley Barge Company, confined its activities largely to the Upper Mississippi and Illinois waterways. The union with Mississippi Valley Barge conferred notable mutual benefits and led to a greatly strengthened corporate structure. It enabled the full utilization of routes permitted but not exploited by Central and the diversion of equipment and personnel to other waterways when the Upper Mississippi is icebound.

As an index to Chicagoland's importance as a consumer of coal, the Commonwealth Edison Company's generating stations burn about 30,000 tons daily. Since Central Barge dealt almost exclusively with this fuel, standard dimensions of 35 by 195 by 11 feet were adopted for its barges. They have a capacity of 1,500 tons each but usually are loaded below limit lest a stage of low

water might confront them with insufficient draft, especially over the gate sills of locks. The Ohio River Company shares in the contract with Commonwealth Edison, and so these carriers exchange barges and reciprocate other business courtesies in the interest of due performance.

Evolution of the diesel screw boat has been an important development in inland waterways transportation. There are tricky bends to negotiate, and the assembly of a tow is a precision task, wherefore instant and dependable engine response is vital. The diesel is docile and obedient. Like the railroads, the marine operators have found this type of engine to represent faithful power delivery at an economical level and capable of virtually continuous duty. Although a few steamboats are still in service, by all indications their numbered days are few, and soon they will become as legendary as the keelboat. On the rivers, by the way, screw propellers are known as "wheels."

What the Mississippi has meant to America never can be compassed. Some think the Norse were the first white men to see it. Though its discoverers, presumed and documented, and its explorers were many, its source remained a wilderness secret until 1832, when Henry Schoolcraft, ethnologist, author, and Indian agent, led an expedition along devious streams and through marshy mazes to an obscure lake. With his flair for compounding place names at once euphonious and expressive of the indigenous, he took three syllables of the Latin phrase *veritas caput* ("true head") and labeled it "Lake Itasca." Since his time contour maps have established the ultimate source to be in Little Elk Lake, 5 miles above

Itasca and 2,466 miles from the Gulf of Mexico. As Stephen Vincent Benét put it:

Far north, far north are the sources of the great river,
The headwaters, the cold lakes,
By the little sweet-tasting brooks of the blond country
The country of snow and wheat. . . .

At the outset it flows northward and does not assume a southerly trend until it leaves Winnibigoshish Lake. Long as it is, nearly a third of its course is laid within the borders of Minnesota, the state of its origin.

The map of the Mississippi and its tributaries resembles a diagram of the human nervous system in which the main stem could be likened to the spinal cord. According to the charts of the upper river, between Minneapolis and Alton, Illinois, the Mississippi is fed by no less than thirty-six streams ample enough in volume of flow to be designated as rivers, besides scores of sloughs, runs, and creeks. And so south, in the words of Benét again:

Rolling, rolling from Arkansas, Kansas, Iowa,
Rolling from Ohio, Wisconsin, Illinois,
Rolling and shouting:
Till, at last, it is Mississippi,
The Father of Waters; the matchless; the great flood
Dyed with the earth of States; with the dust and the sun
and the seed of half the States.

As an avenue of commerce the Upper Mississippi has had a checkered record. Its fluctuations between slack and flood stages, its rocks and rapids, and its prolonged closed season when ice forms an impassable barrier, particularly at the foot of Lake Pepin, combined to frustrate the navigators. Traffic ceases when the river freezes

solidly. In the 1870's the Milwaukee Road used a pontoon bridge near Prairie du Chien and paid its owner, a Scotch-Irish character named John Lawler, a neat sum for each car to cross to its northern Iowa line. During the winter the pontoons were removed and rails laid directly across the ice.

At present the navigation season from Grafton, at the mouth of the Illinois, to Rock Island extends from March 1 to December 1, while between Rock Island and Minneapolis its opening is delayed until April 10. The Illinois Waterway from Grafton to Chicago, however, is kept free throughout the year, even though, on occasion, it is necessary to employ icebreakers in Lake Peoria or at other places. Mississippi Valley Barge sometimes contracts towboats for this emergency purpose, in which case a loaded barge is shoved ahead, and the balance of the tow is hauled astern in single file. The raked bow of the forward barge rides the ice rim and breaks it to clear a path which the procession of boats and tows, rigged similarly, can follow.

The first steamboat to ascend the Upper Mississippi was the "Virginia," which, in 1823, carried a cargo of supplies to Fort Snelling. This event took place only eleven years after Nicholas Roosevelt pioneered the Ohio and Lower Mississippi and demonstrated with his "New Orleans," in the teeth of the terror spread by the New Madrid earthquake which occurred at the same time, the practical worth of steam for navigation both with and against the current. Prior to the advent of steam the keelboat and the lumber raft had the upper river to themselves. The raft epoch spanned about seventy years during which the wondrous white-pine forests of

Wisconsin and Minnesota were ravaged recklessly. Rafting was big business. In one season—1873—680 rafts passed the Davenport bridge with contents of 275 million feet. There were 135 sawmills at work between St. Paul and St. Louis. Out of the great boom at Beef Slough, south of the Chippewa River, issued in a single season from 400 to 600 million feet of logs. Some of these rafts were prodigious. Acres in expanse, they reached as much as 1,625 feet in length and individually contained millions of feet of lumber.

At first the rafts relied entirely on the current to carry them to their destinations, guided insofar as possible by swamps fore and aft. Then, as in the later days of the small steamboat, Lake Pepin was the *bête noire* of all rivermen. Although given its present name on the early French maps, it was known originally as the "Lake of Tears," probably because of the Indian legend of Winona's leap to death from Maiden Rock; and certainly those who essayed its passage had cause to shed plenty of them. Given to freakish moods and unpredictable tantrums, it was approached with justifiable dread. Lumber rafts, in particular, experienced extreme difficulty, because there was no current to propel them over its fretful surface. It remained for Stephen Hanks, a cousin of Abraham Lincoln, ingenious pilot and master of all trades, to be the first—in 1844—to utilize a steamboat to pull rafts through the lake. Before long, however, this method was shown to be fallacious, and, instead of ahead, the steamboat was stationed behind to push the raft. Thus the precedent for towboat operation as practiced today really was established more than a century ago.

Who was the first pilot to push a raft down the Mississippi outside of Lake Pepin was the subject of heated controversy for long years wherever rivermen foregathered. In the commonly accepted version this honor was accorded to Captain John Winans, who, in September, 1863, took a tow of 190 cribs of lumber from Read's Landing at the foot of the lake and, divers adversities notwithstanding, finally delivered it at Hannibal, Missouri. When the little side-wheeler which started the trip was damaged and had to be discarded, a small packet took its place and thus became the second Mississippi River towboat.

This was the hectic era of settlement when hordes of land-hungry immigrants from overseas and the eastern states swarmed into the vast virgin acres of the Mississippi Valley. The demand for lumber was insatiate, and speedy delivery was of the essence. Steamboat propulsion as a means to shorten traverse time was of utmost consequence. All the steamers of the period were side-wheelers. Along the straight reaches of the river they could increase speeds measurably but were unable to manage the rafts at the bends and crossings, and so huge oars, forward and astern, continued to be essential auxiliaries. These oars, or sweeps, were sources of danger, for, when the paddle wheels were reversed, the rush of water would hurl them violently against the oarsmen. In spite of every expedient, the unwieldy rafts persisted in their obstreperous behavior. When a destination finally had been reached, in fact, it was debatable whether the steamboat had brought the tow or vice versa.

Manifestly more power was needed, and the side-

wheeler was not the suitable vehicle. When reversed, water poured against the raft. In steering, it often was necessary to turn the boat almost at right angles to the tow. Then the wheels would walk into the raft or their wash would sunder it. The solution, patently, was a boat with a stern wheel, and Samuel Van Sant met the challenge. In May, 1869, his vessel, the "J. W. Van Sant," started upriver for her first raft. Aboard as a passenger was Frederick Weyerhaeuser, founder of the lumber colossus of more recent times, who launched his career in Rock Island as the operator of a sawmill, purchased for a mere pittance in partnership with Frederick Denckman, another German worker, after it had been damaged by fire. Van Sant's boat proved to be a triumph, and within short years there were in service on the Mississippi no less than seventy such craft which could handle rafts double in length the previously recognized maximum of 500 feet. With the success of the new design there vanished the picaresque race of raftsmen whose rowdy and rollicking annals still reek fabulously.

As the railroads spread westward to the river and then spanned it, the star of the steamboat declined and finally sank. In the construction of bridges the rails consulted only their own convenience, and this fed the fires of resentment in the minds of the rivermen, who saw their services gradually supplanted. Bridge piers too closely spaced or planted at awkward angles reared problems, for the set of the current demanded an exact nicety of approach of which only the most experienced pilots were capable. Barely two weeks after the first train crossed the bridge of the Rock Island Road, the "Effie

Afton," on May 6, 1856, rammed a pier and plunged to the bottom in a matter of minutes. Suit was brought against the railroad by the outraged operators. The defense counsel engaged two veteran pilots to assist him and spent many hours on the river in the study of the physical features of the case for the benefit of his brief. It was conclusive enough to win a verdict in favor of the railroad. The backwoods lawyer and victor in this *cause célèbre* was none other than Abraham Lincoln, and Marquette Lancaster now steers a Mississippi River Barge Company's towboat through this same obstacle with skilled aplomb where once his pilot grandsire rowed the future emancipator.

The decision of the court established the prior consideration of railroad bridges over navigable streams for the sake of greater speed and so aided the advance of rail transportation. Also it predestined the supremacy of Chicago, the railroad center, over St. Louis, its river-town trade rival. As a compromise, however, future bridge laws were designed to guard against obstructions to river traffic, and steamboatmen agreed to modify the heights of their boats' chimneys. Modern highway spans have been constructed with both horizontal and vertical clearances ample for any craft. Railroad bridges, numerous along the upper river, are aged in most cases, but their tenders are trained in courtesy and co-operation, while cribbed piers, reliable lights, and other safety provisions have minimized their hazards. Pilots, nevertheless, still approach these structures with utmost caution, for they tend to generate vexatious whims of current and look better astern than in prospect. In contrast with the Lower Mississippi, which is crossed by

only seven fixed bridges between Cairo and New Orleans, between Washington Avenue in Minneapolis and Alton there are thirty fixed, eighteen draw, two pontoon swing, and two lift bridges for a total of fifty-two.

As remarked previously, World War I rediscovered the rivers as a valuable collective transportation resource. The barge lines in 1928 initiated a pioneer service on the Upper Mississippi and poked the bows of their boats into channels which had not known cargo craft for forty years. In 1935 the Congress, by modification of an earlier act, authorized improvement by means of locks and dams, supplemented by dredging, to provide a 9-foot channel from the mouth of the Missouri to Minneapolis. This measure, together with prior accomplishments, envisioned a clear passage from the Falls of St. Anthony to the Gulf. The initial program was completed within two years, and the veteran steamboat "Golden Eagle" celebrated the feat with a triumphal voyage from St. Louis to St. Paul.

Within the 650 miles from Minneapolis to Alton the Mississippi has a fall of 333 feet. To overcome this drop and to effect the canalization of this stretch, a series of twenty-six dams has been constructed. Seventeen were located on the right and nine on the left bank. The lift average is 12 feet, but in the cases of Minneapolis and Keokuk it is 38 and at the Alton dam it is 22 feet. Primary locks are single and dimensioned 110 by 600 feet except at Minneapolis, where twin chambers measure 56 by 400, and at Keokuk, where the lock length is only 358 feet. At the latter location, however, appropriations have been passed for the construction of a new lock which will be 110 by 1,200 feet in size and will relieve

a serious delay problem. Except for Minneapolis, there are existent auxiliary locks or provisions for future installations when needed. These dams are equipped in most instances with tainter and submersible roller gates in combination, but Dam No. 1 at Minneapolis is a fixed weir. At controlled pool elevations water to a depth of 10 feet or more is available over miter-gate sills in all but three installations. Channel widths along the Upper Mississippi range from 200 to 400 feet.

Apart from the delights of sheer indolence and blissful forgetfulness of time's passage as a towboat plods its steady way, considerable information should preface his trip if the passenger is to savor the significance of what he sees on either hand and what takes place aboard. This is a *dolce far niente* with educational overtones. A towboat is a compact powerhouse afloat. Although always within hail of friendly shores, it is a marine microcosm which must remain sufficient unto itself. Namesake of the chairman of the board of Mississippi Barge, the "A. M. Thompson" measures 142 feet overall, has a beam of 34 and a molded depth of 10 feet. Her hull, deckhouse, and pilothouse are of welded steel construction. Her twin diesel engines can develop 3,000 horsepower, but 2,600 is about the limit of practical utilization. These give her a speed of 8 or 9 miles per hour downstream and perhaps half as much upstream, subject to conditions of current and cargo. Her two four-bladed screws, or wheels, are 7 feet in diameter. She has four advance, or steering, and two reverse, or flanking, rudders. The remarkable response of her diesels to the pilot's commands fully warrants the trait attributed to them in the title of these notes.

In addition to a main, or line, deck, a boiler deck, and pilothouse, the usual upward order of towboat superstructure, the "Thompson" also boasts a third, or texas, deck. The main deck, of course, is the stage of principal activity. It has a lounge forward, followed by quarters for the crew, a galley flanked by a dining room for all hands, and engine and quadrant rooms. Nobody knows why the second deck should be called "boiler," but this may reflect a reversion to steamboat design. Certainly it has no boiler. At any rate, it likewise contains a lounge forward and staterooms for the officers. The texas deck was added for the accommodation of visiting executive personnel or occasional guests of the line. Its two staterooms, with bath between, can be occupied separately or *en suite*. Each is furnished with double berths, lavatory, and the essentials of furniture for travel comfort. "Texas," again, is a designation of undefined origin. Some say it harks back to the sumptuous packet era when a passenger commented upon this upper level of facilities as "bigger than Texas."

The complement of the "Thompson" comprises two pilots, one or both of whom may be licensed also as master, a chief and an assistant engineer, two mates, four deck hands, a cook, and a maid. Except for the last two, who are women, all are on duty for twelve hours a day, seven days a week. Unlike ocean or Great Lakes service, on the river the watches are six hours long. Crew members work for twenty days and then are free for ten, which arrangement gives them the equivalent of a forty-hour week. When his relief arrives, the relieved one disembarks at the first convenient landing and heads for home. As his moment for return approaches, he makes

contact with the boat by radio or marine telephone and boards it again wherever it chances to be.

Members, as they are, of a family set apart in a little world of their own, always closely conscious of and yet completely dissociated with the land life, they promptly forge the bonds and accept the obligations requisite to a well-ordered and congenial coexistence. Each knows his part in team activities, and mutual reliance becomes implicit in towboat routine. Most river boatmen come from towns along the waterways, are intimate with them from childhood, and gravitate to the service naturally. Like soldiers, they incline to grouse at the long periods of separation from homes and families and the tedium of repetitious tasks; but, after a relief interval, they always return cheerfully to the familiar faces and environment, the throb of the engines, and the ever shifting vistas of the well-remembered river course. After all, the pay is good—ranged from about \$220 a month for a deck hand to \$665 a month for a senior pilot—the quarters clean and comfortable, the meals well cooked, hearty, and varied, and the only expenses are those for work clothes and tobacco while on the boat.

When Mr. Bixby enumerated all the things Mark Twain would be required to know before he could qualify as a Mississippi pilot, the latter remarked dismally that they were more than one man conceivably could learn and still live. He eventually did master them, however, and so must the pilot of today. In Twain's time, of course, there were no navigation aids such as exist now. He had, on the other hand, to handle only a light packet comparable in length to a modern towboat. Eighty years ago, moreover, it was the more or less accepted custom to

run in the daylight and tie up during the hours of darkness. Today's pilot may have to steer a composite craft the length of the "Queen Mary" day and night alike. In order to obtain a pilot's license nowadays, the applicant must pass an examination whose rigors to the layman appear truly superhuman. He must draw a map of the subject stream or stretch for its entire length and include such landmarks as landings, points, bridges, dams, islands, towheads, and others. A towhead, parenthetically, is a low alluvial island or shoal, especially one with clusters of willows or other low growths. All these, as well as the government lights, he must be able to name and to state their mileages.

The voyage of this record began at the Municipal Barge Terminal at St. Paul, commonly called "Pig's Eye" by rivermen. This odd name commemorates the infamous one-eyed trader, Pierre Parrant, whose visage must have been as repulsive as his character. As stated earlier, Central Barge has handled coal almost exclusively, and, consequently, its traffic is virtually a one-way movement upriver. Although grain or other bulk commodities occasionally offer a partial return load, the downbound tow usually is composed of empty barges, and it grows in size as the boat proceeds from coal terminal to terminal and picks up those which have been unloaded meanwhile.

Each day the pilot reports the boat's position by telephone to the dispatcher in the home office and from him receives any orders for such work en route. Thus a tow may become double its original size or even larger by the time it reaches its destination. Although the barges are empty, there is, of course, a practicable limit to their

number as related both to safety of navigation and to delays due to multiple lockage. Five companies participate in the coal trade on the Upper Mississippi. In 1951 the volume transported amounted to 1,206,884 tons, of which half was carried in Central Barge equipment. It is loaded at Alton, where the Illinois Terminal Railroad brings it to the waterside.

The hours pass tranquilly for the towboat passenger, but, unfortunately, the downriver passage had to be elected because of its shorter elapsed time. This fact, however, afforded opportunity to enjoy another travel treat which awaits anyone who rides the Burlington's afternoon Zephyr. As one acquainted with many of the modern streamliners, it is altogether appropriate to say that there is none finer. It offers the acme of comfort and a dinner above compliment, the latter in happy contrast with others encountered on middle-western short-run fliers, and its Vista-Dome car is the perfect accessory for the observation of superlative scenery.

At Savanna, Illinois, the Burlington meets the Mississippi and from this point, with frequent furtive sallies landward, follows it faithfully for 300 miles to the Twin Cities. There is nothing quite like the sensation of hide and seek experienced in a train along a river, be it the Hudson, the Susquehanna, the Columbia, or the Upper Mississippi. Suspense, surprise, and sheer delight follow in swift succession as it darts behind a wood or into a rock cut, only to flash into sunshine seconds later and reveal a quiet cove where fish leap and water lilies smile or a wide sweep of water in which green hills lie mirrored. To view the broad expanse of Lake Pepin on a night when a full moon and a breath of breeze give it the

appearance of silver crepe de Chine imparts a thrill no traveler, howsoever seasoned, could fail to feel.

Historic no less than scenic is the Upper Mississippi country. Great names and deeds are linked to these hills and waters: Marquette and Jolliet, Father Hennepin—the Munchausen of the missionaries—Radisson and Groseilliers, Black Hawk, Winfield Scott, Julien Dubuque, U. S. Grant, Hercules Dousman, and Nicholas Perrot—to mention but a few. Thanks to its reservation as the Upper Mississippi Wildlife Refuge, much of the marginal land retains the primal aspects it had when it still was the favorite hunting ground of Winnebago, Sioux, and Chippewa. With his mind's eye the traveler reviews the purple pageant of a past peopled with Indians, *courcours des bois*, consecrated clerics, French and English explorers and traders, knights and knaves, American stalwarts, the haughty and the humble—polyglot protagonists in the prologue to eventually peaceful and prosperous permanent settlement of an erstwhile wilderness.

At six o'clock on a lovely summer morning the "Thompson," freed of her upriver responsibilities, was about to assemble her return tow and head downstream. Empty barges were strewn at random along the terminal's frontage. They had to be sorted and arranged so as to minimize turbulence and resistance and to maximize control. Like an accomplished chess player, a pilot plots his moves far in advance to obviate lost motion. When barges are laden and low in the water, the gunwale of the towboat butts them directly. Lightened, they ride high above the boat, and contact is kept by means of steel towing knees. It is fascinating to watch a skilled pilot

maneuver his boat to face squarely up to a barge with a barely perceptible nudge of contact.

One by one the burly barges were aligned in route order, three abreast and three in depth, with a pair ahead for a total of eleven, lashed firmly to each other and, as an integral mass, secured to the boat by three steel cables ("wires" in river parlance) at each side of the main deck. Looped by the deck hands over the bollards on the barges' gunwales and bent around kevels on the boat, the wires are tautened by electrically powered capstans.

Barges are rigged into a rigid assembly by short wire lashings at bows and sterns, and the slack is taken in by hand-operated ratchets. Such small gear is known as "river jewelry." Two-inch ropes (or lines) also are used during maneuvers or for mooring and for safety within lock chambers. The work of tying off and coupling barges is a strenuous and trialsome procedure—no job for a "pantywaist." It requires sinew, stamina, and agility, calculated timing, and lightning action. Barges are unwieldy, and, though they move slowly, they develop tremendous momentum which can carry them out of range in seconds unless promptly checked. Only an adept river cowboy can loop a cumbersome two-inch line over a timberhead on a moving barge several yards away and take a turn around a capstan before it drifts beyond capture. Like a trained sheepdog, the boat kept the barges herded while the deck hands scurried about to make them fast.

Four hours later all was in readiness for departure. The river is none too wide at this point, and, athwart the stream, the thousand feet of boat and tow almost touched both banks. Here was a ticklish situation, but experience,

patience, and dutiful machinery solved it neatly, and the voyage began auspiciously as the morning watch, perspiring happily, answered the welcome summons of the maid's dinner bell.

Meals on the "Thompson" are memorable for succulence and sufficiency. Plain foods which stick to the ribs these are, but prime in quality, varied, properly prepared, and suitably seasoned. Always there is meat or fowl and, at dinner and supper, three kinds of vegetables besides potatoes. Nor are salads, fruits, preserves, relishes, and desserts neglected. These are precise functions, furthermore, keyed to the changes of watch. Those about to resume duties have first call and make way for those they are about to relieve. Towboat men have schooled themselves to waste no time in table talk. Each concentrates on his heaped plate, and the visitor is amazed to see meals of such Lucullan proportions ingested in fewer minutes than it would take to read their menus. After-hours snacks are laid of cold cuts and cheese and sandwich spreads; the cookie carton and refrigerator are open to entry, and the coffee pot simmers unceasingly. One short blast on the whistle or a buzz on the mate's intercom brings a steaming cup to the pilot about every two hours, a traditional rite in which the passenger is privileged to participate.

Rivers, no matter how innocent or placid they may appear, are capricious. At South St. Paul, opposite the huge packing plants of Armour and Swift, rises a rocky islet which it is next to impossible to avoid on account of the narrow channel and a satanic set of current. There was heard a grind of steel against stone and the sharp reports of sundered wires. Undamaged otherwise and

unimpeded, the tow sheered off and continued. A dozen miles beyond, as the pilot tried to get in shape for the lock above Hastings, a gust of wind caught the high-riding barges and grounded the leaders momentarily, to snap another brace of wires. Deck hands speedily replaced the lashings broken in consequence of these natural phenomena, and the remainder of the voyage was devoid of further mischief.

One could rhapsodize endlessly over the scenery along the Upper Mississippi. The valley along which it winds ranges from two to three miles in width. Geologically, this was a glacial river which rushed along and cut its course through the limestone to leave long lines of precipitous cliffs, now thickly cloaked in verdure in places and, in others, left starkly bare. Among the oddities of geologic sculpture are seen with a bit of imagination the outlines of castles and cathedrals. Breaks occur where tributaries enter or the creases of coulees reveal distant cultivated slopes and farmsteads. Erosion has rounded many of the heights, some of whose summits tower as much as 800 feet, and nature has landscaped them with dense foliage which blazes with color under the artistry of autumn.

As might be expected, prominent and peculiar formations have been given suggestive names—Queen, Chickenbreast, and Diamond bluffs, Chimney Rock, Sugar Loaf, Frontenac, Trempeleau (French for "the mountain steeped in water," because it is so surrounded), and, where the river widens to form Lake Pepin, Maiden Rock, from which, according to legend, leaped Winona, daughter of the Dakota chief, Red Wing. She fell in love with Wahnabozah, a sachem of the enemy Chippewa.

They attempted to elope and go west but were apprehended by a jealous suitor. Her lover died under a hail of arrows, but Winona eluded her pursuers, carried his lifeless body to the top of the cliff, and with it plunged to her own death. A great wave was raised by the Spirit of the Lake, and it swept the inseparable couple to a watery grave.

At Red Wing another barge was annexed to make an even dozen in the tow. Below the town the channel runs close under some of the most beautiful of all the wooded bluffs and then broadens as Lake Pepin is entered. No longer a dread prospect, to the towboat pilot its traverse of twenty-two miles to the mouth of the Chippewa allows generous latitude without concern for navigable depth. A mellow moon hung in a spotless sky, and the boat seemed poised on the shining bosom of the lake with only the twinkle of lights from the shadowy shore to temper the delightful illusion of celestial solitude. Lake Pepin was a popular summer rendezvous long before the War between the States, and families from Dixie traveled to it in the steamboat parties of the period. A curious feature on the right bank near Frontenac is Point-No-Point, so called because, from below or above, it gives the appearance of a sharp promontory, whereas from directly across the lake it does not show at all.

As a matter of fact many stretches of the Upper Mississippi, since it was canalized and great pools were produced by the dams, have the aspects of a lake rather than a river. The water so impounded inundated vast acreages of lowland and created immense surface areas, even though depths are quite shallow for the most part. Much of the land so covered was timbered heavily, and clus-

tered relicts of giant trees still stand like stubborn spec-ters in resolute defiance of wind and waves. Innumerable islands, great and small, likewise resulted. Some of them are noted on the charts as far downstream as Grafton, where, at Island No. 526, fatigue evidently overcame the enumerators. Uncounted others have been given names, and many more which are charted nevertheless remain unhonored and unsung. These concomitants of canaliza-tion—marshy islands, lakes, and sloughs—provide ideal environment for aquatic birds of divers species. It was a surprise to find egrets and anhingas, associated usually with the subtropical Everglades and Louisiana bayou country, as far north as Hastings, Minnesota. One old crane, shrewder than his fellows, took his stance on the pedestal of a dam-gate column and beaked four fish, stunned by the surge of the sluice, within a couple of minutes. With an air of self-satisfaction he rose pomp-ously and flapped away, no doubt to some secluded spot where he could bask and savor his meal in digestive retrospect.

At Winona the boat halted, and, though it was Sunday morning, the faithful grocery truck was at the power-house landing with crates of fresh milk and other sup-plies. The two empty barges picked up here and at Alma were lashed to the sides of the boat and carried, so to speak, one under each arm. This was an affront to the crew, for they cut off both the view and the ventilation from the galley and dining room, and everyone wished for another. The hope was fulfilled later in the day, and the tow was rearranged into five ranks of three barges abreast, which alignment of fifteen remained unaltered for the remainder of the voyage. The assembly then meas-

ured 105 feet in width and, with the boat, had a length of 1,117 feet. Thus it was longer than the largest ocean liner.

Whereas the quartermaster on the "Queen Mary" has the entire Atlantic in which to maneuver, the river pilot must follow a narrow and tortuous channel. Even as he negotiates one bend or crossing, he must plan, or get in shape, as they say, for the next. Besides the influences of current and wind, he must gauge depths by his familiarity with landmarks and the complexion of the water. A profusion of wing dams has been constructed to direct flow. These, too, he must know, for, while some are betrayed by riffles, at ordinary water stages most are submerged wholly and so remain unsuspect except to the expert. True, there are navigation aids in plenty—buoys, flashers, and range marks—stationed and maintained on the Upper Mississippi by the United States Coast Guard; but these cannot be infallible guides, for changes can be rapid and can occur without warning.

For six straight hours, day and night, the pilot, aloof in his many-windowed inclosure atop the boat, must keep his eyes glued to the course. During the daylight watches he follows the swing of his tow by the flutter of white from the jackstaff mounted at the center of the lead barge's bow. At night he plays his searchlights along the shore line and upon the luminescent buoy heads. His is the sole responsibility for the security of millions of dollars' worth of equipment and cargo, and he pits his knowledge and skill against the tricks of the elements. Under his hand he holds the reins to 3,000 horses which he directs by a touch on the steering levers.

As someone has written:

Let any man with a trace of the poetic make three trips on the river and he is an utter slave to its spell. No matter whither he may go nor what his fortunes may become, it will haunt him for aye. Knowing himself to be the master of this jade's every whim, the pilot enjoys an exultation as he meets and overcomes, alone in his house above the boat, the difficulties with which she strews his path.

Although locks are practically identical, each approach imposes individual conditions which the pilot must appraise accurately and accommodate. The lock width is only 110 feet, and the tow's breadth measures 105, which means that he has barely $2\frac{1}{2}$ feet of clearance at either side. Imagine the fine shade of judgment required to steer 1,110 feet of ponderous craft safely into such a narrow slot, and the pilot attains the stature of a genius. At such crucial junctures the docility of the diesel has incalculable value. A half-mile or more from the lock a blast is blown to alert the tenders. A flasher signal with large disks—ruby, amber, and emerald—replies like the ordinary highway traffic light to advise the pilot whether the lock is free or in use or that he should advance cautiously.

The procedures are prescribed in detail in the regulations issued by the United States Corps of Engineers, and the lockmaster is the supreme authority. It is amazing to observe one of these shoehorn maneuvers. The barges glide along between the concrete guide walls scarcely inches from contact, and the tow comes to a slow halt exactly where it should. In multiple lockage practice, as in the present notation, only two ranks of barges can be admitted together. The boat and balance of the tow are

backed away and the upper gates closed. When the water has been let out of the chamber and the lower gates are opened, a winch serves to haul the barges clear. They are moored to the lower guide wall at a sufficient interval to await the others. Departure, when the tow finally has been reassembled, also is a tactical test. Locks are located landward, and, unless the tow is headed well riverward, it might be grounded. The pilot often uses the guide wall as a fulcrum for his boat as a lever to swing the long line of barges into safe direction before the engines are shifted into forward gear.

Locks and dams on the Upper Mississippi are models of meticulous maintenance and prim appearance. Everything about them is kept spick-and-span: light standards, railings, even the snubbing posts are bright with fresh paint. Usually duplicate houses for the lockmaster and the engineer stand side by side in reserved grounds whose lawns, shrubbery, and flower beds betoken consistent care. These homes look commodious and comfortable. White with green shutters, they bespeak ordered households and prideful occupants.

Always there is a dog at the lock, sometimes two or three, on hand to welcome an arrival. Unerringly they choose the right spot, plant themselves on the wall directly opposite the galley, and stare in its direction with a wistfulness no cook would have the heart to ignore. Almost without fail their silent appeal is answered by a tidbit, and, like many rivermen, they wax fat on the substantial towboat cuisine. At Cap Au Gris the lockmaster's pet, "Sweet Pea," is a parti-colored cocker of ample girth and a veteran. Time was when, in the excitement of anticipation, she literally wagged herself off the wall and

had to be fished out of the lock. Now, nearly blind and age-conscious, she stays close beside the man on duty, but she was duly present with a pair of her offspring, in whom the impetuous maternal pattern was all too manifest.

Towns and cities along the Upper Mississippi are not screened by levees. They can be seen in panorama as the boat passes. Some have riverside parks and esplanades; in others commerce and industry claim the riparian rights, and residences clamber up the slopes beyond. Each has its historical and racial distinctions and background. Reminiscent of the halcyon days of the steamboat are the sturdy stone warehouses built to the water's edge, with wide doors for delivery of goods directly from deck to loft. Though the cobbled landings of long ago may languish grass-grown or have disappeared altogether, the river again plays a prominent part in the lives of these communities, both as a business asset and as a resource of recreation. Commercial fishing is a means of livelihood for a segment of their citizens, and, regardless of the new plastics and synthetics, Mississippi clams still furnish shells for pearl buttons—now and then pearls themselves—at least there are those willing to prospect for them. For the benefit of river traffic proper there are seventy-two terminals between Alton and Minneapolis. Fuel stations and repair facilities are less common but are available at reasonably spaced intervals.

Traffic mounts, and boats are met with increased frequency, as the southbound mileage accumulates. The ascending craft has the right of way and must signal first while at least a half-mile distant. Mindful, however, of his opposite's situation as to load and navigational

needs, the average pilot is scrupulous in his observance of the courtesies of the course. Co-operation is the rule and friction or accident the rarest of exceptions.

Summer days on a towboat surfeit all the senses. Replete with companionship and creature comfort, for the passenger they slip by like the scenes ashore, fleeting but deeply etched in memory. Regretfully, as do all good things, they come to an end. So must it be with these notes, yet not without a grateful acknowledgment to the owners of the "A. M. Thompson" and to her congenial crew, to whom "Au revoir" and "Bon voyage" never were wished more sincerely.

THIS PAPER WAS WRITTEN FOR THE CHICAGO LITERARY CLUB AND READ BEFORE THE CLUB ON MONDAY EVENING, THE SIXTH OF FEBRUARY, NINETEEN HUNDRED AND FIFTY-SIX. THIS EDITION OF THREE HUNDRED COPIES WAS PRINTED BY THE CLUB FOR ITS MEMBERS IN THE MONTH OF MARCH, NINETEEN HUNDRED AND FIFTY-SEVEN.

PRINTED
IN U.S.A.