



The Bangor and Aroostook

1891-1966

THE BANGOR AND

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AROOSTOOK

1891-1966



The Bangor and Aroostook will be 75 years old come February 13. On that February day in 1891 the company was incorporated. It had a charter from the legislature to build a railroad and not much more in tangible assets. Yet less than two years later—on Christmas Day, 1893—a Bangor and Aroostook train rolled into Houlton.

So that Houlton might have its long sought "direct line" as a Christmas present, the ties were laid on the snow for the last few miles and the track was not fully operational for another week. This drive to reach Houlton by Christmas is symbolic of the spirit that built the Bangor and Aroostook. It was the creation of an aroused Aroostook County sparked by a proposal made by Albert Burleigh of Houlton.

In one respect there was nothing new in the proposal. Construction of a direct line from Bangor to the County had been discussed for years. But Burleigh added a new note. On December 18, 1890, he published "the Burleigh scheme" and said, in effect, let's stop looking elsewhere for capital and build the line with our own resources.

He was addressing his proposal to a county with 50,000 residents, an estates value of only \$10 million, despite its vast size, and total banking resources of \$700,000. Even in 1890 these were meagre resources with which to build a railroad and time and again they were almost too meagre.

That the job was done is the proud heritage of the Bangor and Aroostook and in the pages that follow we have tried to tell the story of the railroad and the area it serves. You will find no lack of superlatives and we make no apology for them. We freely admit our belief that there is no finer railroad in the United States. We also believe that no railroad serves a finer territory or a finer people.

Dedications may not be in order in a publication as modest as this. Nevertheless, I dedicate it to Albert Burleigh, to the area we serve and, not least, to the many loyal men and women who operate the Bangor and Aroostook Railroad.

W. Jerome Strout,

President

February 1, 1966

From Dreams to Reality

The Story of the Bangor and Aroostook Railroad

On Christmas Day, 1893, the fledgling Bangor and Aroostook Railroad pushed its rails into Houlton, shire-town of Aroostook County, and thereby made reality of what had long been little more than a dream.

Some wrote, with more emotion than accuracy, that the railroad had opened the East's last frontier. That must have been surprising news to the 4,000 residents of Houlton, an unusually attractive community which was said to have more wealth per capita than any town of comparable size in the United States. It must have also surprised Presque Isle and Caribou since both—and Houlton as well—had been shipping their products by rail for some years.

Two "prime movers" stop for lunch—Horsepower wasn't determined by cubic inches when the Bangor and Aroostook Railroad was constructed as witness the scene at the left.

Yet the fact remains that Aroostook still stood on the threshold of development in the closing years of the nineteenth century. Only 50,000 persons occupied its 6,500 square miles and most of them lived along its northern and eastern borders.

Geographically, Aroostook is a part of New England; economically it was almost a land apart and the same was true of its history. Although surrounded by an area rich in history, Aroostook had almost none.

Commemorative tablets recorded early settlements elsewhere in New England and in New Brunswick and Quebec as well. But, as time is measured in New England, Aroostook had no early settlements.

When strong backs built a railroad—The photograph below typifies the way a railroad was built in Northeastern Maine at the turn of the century. The scene is the Fish River line.



French, British and American troops fought for much of New England and eastern Canada and the victors settled the land they won. But no one fought for Aroostook until less than thirty years before the Civil War.

When war did come it was really no war at all but, instead, a highly vocal and bloodless dispute between neighbors over who owned the land in an area with its boundary in dispute.

The Webster-Ashburton Treaty of 1842 disposed of the boundary dispute and with it the Aroostook War, as it is known to historians and citizens of the State of Maine. The now established boundary gave the American logger ownership of vast tracts of timber which the Canadian logger had claimed as his and over which they had quarreled.

While no Pyrrhic victory for the Americans, it had some of the earmarks. They now had the trees, but the Canadians retained the only route that would get the trees to market.

A look at a map of Maine and New Brunswick makes this clear. In the vast forest land north from Bangor there are two great watersheds. One drains into the Penobscot; the other into the St. John and the line that divides them runs west from Houlton.

For the Aroostook logger, a Chinese wall would have been no greater barrier to the rich markets of the Atlantic seaboard. His Penobscot—a river that made Bangor the lumber capital of the world for so long as there were big trees to cut—was the St. John and his Bangor was the city of St. John many miles to the east.

In effect, then, the Aroostook logger cut his trees in the United States but marketed them principally in Great Britain. As farming expanded the potato grower found himself in an even greater plight. His only direct access to the New England market was a wagon road built from Bangor during the Aroostook War.

Aroostook desperately needed a railroad if it was to grow. But when it came—as it did to Houlton in 1870 and to Presque Isle and Caribou some ten years later—it came from New Brunswick.



Nature restores the beauty that man destroyed—A photographer stood on the high point of the rock cut shown on the page opposite to take this scenic picture last October. The train is No. 212 southbound from Fort Kent and is illustrative of the superb equipment for which the Bangor and Aroostook is famous. The blue water at the right is the winding Fish River.

Ironically, by 1871, there was a railroad running directly to Bangor that was only 60 miles down the wagon road from Houlton. It was the fabulous European and North American.

The European and North American was the brain child of John Alfred Poor, a native of Andover, Maine and, as a young man, a lawyer in Bangor.

Poor may have had stars in his eyes but he was no novice when it came to railroads. He had conceived and built the Atlantic & St. Lawrence, now a part of the Grand Trunk. It linked Portland to Montreal and, as one resi-

dent said later, stopped the grass from growing in the streets of Portland.

Poor's second major project was vastly more grandiose. He proposed, insofar as possible, to use the land, rather than the sea, for travel from London to Boston and New York.

Under his plan Poor's passengers were to travel by fast steamer from Holyhead to Dublin and from Galway to Halifax. The remainder of the journey from London would be by rail. According to Poor's calculation, this would eliminate 700 miles of sea travel and cut total travel time by three days.



That isn't moonshine in those barrels—This conglomerate of pipes, pulleys and a boiler is not an illicit still operating deep in the Maine woods, but a crusher turning big rocks into little rocks needed to construct the Bangor and Aroostook.

One essential ingredient was missing; a railroad from Bangor to Halifax. This Poor would supply with his European and North American. After years of discussion and negotiation, charters were granted by Maine, New Brunswick and Nova Scotia, capital was pledged and construction started.

In the late summer of 1871 Poor's line from Bangor to Vanceboro met the rails built by the Canadians from St. John at McAdam Junction. It was a time for celebration and, with the extension to Halifax now only a year away, President Grant came to Bangor to participate.

Though Poor would not live to know it, this was the high water mark in the fortunes of the project to which he had been dedicated for more than 20 years. He died, at 63, before the year was out and four years later the European and North American, a victim of the panic of 1873, was in bankruptcy.

The right of way and rolling stock of the Vanceboro line were leased to the Maine Central for 999 years but the European and North American lived on as a corporate entity until 1956 when the Maine Central bought up all of the outstanding stock.

Though this may not be apparent at first glance, these paragraphs devoted to John Alfred Poor and his European and North American are pertinent indeed in a history of the Bangor and Aroostook.

In fact, while Poor was certainly not the father of the Bangor and Aroostook, it can be argued that he had some claim to being considered its grandfather.

It was Poor who was among the first to recognize the great potential of Aroostook County and his over-all plans for the European and North American included a branch line that would replace the 60 miles of wagon road from Mattawamkeag to Houlton.

It was Poor who played a part in the building of the Bangor and Piscataquis which was subsequently to become a key section of the Bangor and Aroostook.

And it was via the rails of the now defunct European and North American that the products of Aroostook traveled to the New England market before the Bangor and Aroostook was built.

While it was apparent to Poor that a direct line to Aroostook would prosper

it was much less so to those who lived beyond the boundaries of the county. Even in nearby Bangor, with its unhappy memory of the European and North American, there was little enthusiasm for another railroad.

And among bankers in Boston and New York there was no enthusiasm at all. Few, in truth, were even aware of Aroostook and those who were thought of it as a wonderful place for a bear but a dubious place for a dollar.

Thus, despite the constant endeavor of the citizens of the county to rally support for the much needed direct line, proposal after proposal foundered on the same hard rock; lack of money except for the relatively small amount Aroostook itself was asked to supply and did.

The direct line project was back on dead center on December 18, 1890, when Albert Burleigh of Houlton made public what was subsequently known as "the Burleigh Scheme". Burleigh was more than just a leading citizen of the county; he was a man endowed with unusual courage and imagination and his integrity was beyond question.

He proposed that the county cease looking to others and initiate a campaign to raise sufficient funds to start construction of a railroad which would run from Van Buren to some point on the Maine Central and include branch lines to Fort Fairfield and Ashland.

The response must have outrun Burleigh's wildest hopes. Pledges of support poured in to such an extent that the Bangor and Aroostook Railroad Company, with a charter from the legislature, was formally organized on February 13, 1891.

To supply its need for equity money, the legislature authorized the new company to issue up to \$1,378,000 (par value) worth of preferred stock.

Of this amount \$600,000 could be sold to individuals. The county was

Getting ready for winter—A flanger clears the snow from the inside of a rail flange. Today flanger equipment is a part of the plow. But not in 1906 when this photograph was taken.

authorized to buy the remainder to the extent of \$5,000 per mile of track constructed north and west of Houlton for so long as the total did not exceed five per cent of its estate value which then stood at \$10,000,000.

This authorization was subject to approval by the voters and it was overwhelmingly given on April 20.

It is obvious from the foregoing that individual subscriptions would necessarily supply the funds needed to start construction to Houlton.

Burleigh and his associates took on this task assisted by Franklin W. Cram, recently appointed general manager of the new enterprise.

Although only 45, Cram had almost 30 years of railroading behind him. Five of those years had been spent as manager of the New Brunswick Railroad which carried the county's potatoes and lumber east and south to the McAdam interchange with the Maine Central.

Few were more aware of the potential of Aroostook or how much its development was dependent on the construction of "the direct line". His solicitation, therefore, was doubly persuasive except in lukewarm Bangor with its recollection of the persuasive John Poor.

While Burleigh sought buyers in the county, Cram sought them as far south as Boston. At last sufficient stock was sold to warrant the formation of the Aroostook Construction Company. Its specific purpose was to build the railroad and in return for doing so it bought \$1,040,000 worth of common stock.

Burleigh's original conception of "the direct line" was a railroad running north from the Maine Central at Mattawamkeag. Second thought led to the consideration of Brownville as the more advantageous place to start.

This could be accomplished through leasing the Bangor and Piscataquis, which ran from Greenville to Old Town, where it connected with the Maine Central, and the Bangor and Katahdin Iron Works which ran from Derby, where it connected with the Bangor and Piscataquis, through Brownville to the now non-existent iron works.

The legislature approved this proposal and both roads were formally leased on April 1, 1892.

The remainder of 1891 and the spring of 1892 was spent in a survey of the proposed route to Houlton and thence on to Van Buren, with branches to Fort Fairfield and Ashland. Grad-

ing was started at Brownville in June and at Houlton in July.

It was slow, hard work. Access roads over which to bring supplies for the construction crews were few and far between and sometimes impassable. The winter of 1892-93 was unusually severe and forest fires were a threat in the summer of 1893.

When the tracks reached Houlton on Christmas Day, they did so only because the ties had been laid on the snow for several miles so this might be accomplished. This has led unsentimental historians to record January 1, 1894, when the track was finally ballasted, as the opening date of the main line.

One year later the main line had reached Caribou and the branch to Fort Fairfield had been completed. The Ashland branch was opened in 1896 but the main line did not get to Van Buren until November 23, 1899.

The delayed arrival at Van Buren was due to a recurrence of a problem that had arisen again and again during construction. Once again money was in short supply. At times, in the initial stages, it had been short to the point where Burleigh had to pledge his personal credit before work could go on.

Those days were now behind the Bangor and Aroostook which had earned a profit since its first year of operation. The profits, however, were small indeed since a staggering percentage of gross income was required to meet dividend, interest, and lease payments.

These fixed charges rose steadily from 30 per cent of total revenue in 1895 to 38 per cent four years later. In 1899, the percentage started to decline despite increasing charges, because of the even more rapid increase in gross income.

With its main line at last completed, the railroad began adding to its branch lines. A track from Caribou added Limestone to the system in 1901 and a lease added Patten in the same year.

In 1903 a lease was signed with the Fish River Railroad adding Fort Kent and in 1905 a lease was negotiated that



extended the railroad to deep water at Searsport.

The line acquired was the newly built Northern Maine Seaport with a connection with the Bangor and Aroostook at South LaGrange and with the Maine Central at Northern Maine Junction.

The Medford cutoff was built in 1907 and 1909-1911 saw branches built from Van Buren to St. Francis, from Squa Pan to Stockholm and from Mapleton to Presque Isle.

In 1915 came the last major project, the construction of a bridge across the St. John at Van Buren and a connection with the Canadian National.

The Bangor and Aroostook, which had been no more than a gleam in a hopeful man's eye 25 years earlier was a railroad with 630 miles of track.

Moreover, it was no adjunct of the Maine Central, as originally conceived. Its rails ran from the Canadian border to an ice-free port on the Atlantic and, while it was wholly within the boundaries of four Maine counties, it was a well integrated operation.

It had opened great areas of forest and not the least of these were the areas where Millinocket and East Millinocket now stand. Both became communities of Maine because of the Great Northern Paper Company.

It built its first paper mill at Millinocket in 1899 and thereby added pulpwood to the forest resources of northern Maine. It also added immeasurably to the tonnage of the Bangor and Aroostook.

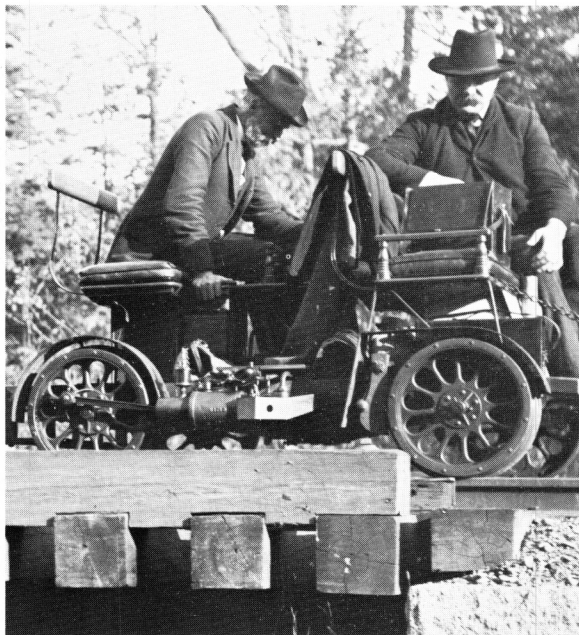
Starting from nothing in January, 1894, the railroad's revenues rose to

\$582,832 in 1895 and the profit was \$19,193. Twenty years later revenues were \$4,035,694; the profit \$240,608.

The railroad's annual reports made it clear that insofar as it was concerned "the direct line" was an unqualified success. What, however, of Aroostook which had looked to a direct line as essential to its development?

Statistics tell the story. Less than 20 years after the railroad was chartered, population in the county had grown from 50,000 to 75,000; the value of its estates from \$10,000,000 to \$25,000,000; and its total banking resources from \$700,000 to \$5,500,000. The increase in potato shipments was even more dramatic; from 47,500 tons to 301,477.

Seldom has a dream been more fully realized.



The founders inspect the property—Albert Burleigh (left) and Franklin Cram, who can be properly described as the founding fathers of the Bangor and Aroostook, inspect a new bridge in 1903. Their transportation is a Fairbanks Morse inspection car.



On call for the thirsty—This smiling youngster helped to build the railroad. He was the construction crew's water boy.



Man and beast call it another day—Without the plodding horse there would have been no Bangor and Aroostook with its iron horse. His day's work done, the dump cart driver heads for home over what would eventually become a right of way.

The Second 25 years

The first 25 years of the Bangor and Aroostook Railroad were years of building and, periodically, years beset with severe financial problems.

It would have been unusual had it been otherwise. Construction dollars are necessarily spent before revenue dollars can be earned. Again of neces-

sity, construction dollars were principally debt dollars.

At year's end in 1895 the railroad's debt totalled \$3,458,000 and its equity capital was \$1,623,786 of which \$823,161 was represented by preferred.

Twenty years later the preferred stock—for which Aroostook County

eventually subscribed the \$780,000 maximum allowed by the legislature—had long since been converted into bonds and the total paid in for common stock had increased from \$800,625 to \$3,448,000.

However, debt had grown to \$23,949,000 and only \$429,000 was in equipment obligations. While the sale of additional stock had paid for some of the construction and for some of the purchases of small connecting railroads, it is obvious from the foregoing that by far the greatest part of the railroad had been built with borrowed money.

It is equally obvious that wisdom dictated a policy of more financial strength, rather than more track, in the years immediately ahead. Fortunately, it was also a feasible policy. With the completion of the international bridge at Van Buren in 1915 there was no need for additional track except for sidings and switch yards to handle the growing traffic.

In 1917 equity capital was increased by \$3,891,400 of which \$3,480,000 came from the sale of a new issue of \$7 preferred stock. The money was used to reduce funded debt to \$20,912,000 and the ratio of debt to equity fell from 7.4-1 in 1916 to 2.9-1.

December 31, 1917, found the railroad with its financial house in good order and \$1,578,466 in its corporate surplus account. It also found it under the control of the Federal Government.

On December 28 the government had assumed control of all railroads as one more step in the mobilization of the nation's resources for its war effort in Europe.

Five months later Percy Todd, who had succeeded Franklin Cram as president of the Bangor and Aroostook in 1913, relinquished his position to become a Federal general manager and an assistant to the U. S. Director General of Railroads.

It was not until September 1, 1920, that the government completely returned the operation of the railroads to their owners. Todd came home to a vastly different Bangor and Aroo-



At the Start of the Second 25 Years—This map shows the trackage of the Bangor and Aroostook after the completion of all major construction. The rails from Brownville to Katahdin Ironworks and from Old Town to South LAGRANGE are long since gone. The branch line to Greenville was finally abandoned in its entirety in 1964.

stock. Its operating ratio had gone from 68 per cent in 1917 to 95 per cent in 1919 and the payroll had swelled from \$1,500,000 to \$3,700,000 although there had been little increase in the number employed.

All railroad employees had been given three general increases during the period of Federal operation, but Bangor and Aroostook employees enjoyed still another. Their wages had been further increased to close the gap between what they had been receiving and the national scale set for all railroads.

Todd, with a substantial assist from an Interstate Commerce Commission

order that increased freight rates by 40 per cent, went to work on the operating ratio. At the close of 1921 it was down to 79 per cent and it progressively declined thereafter to 72 per cent in 1925.

Todd duly reported this to the railroad's stockholders and, in addition, reported the following:

"During the fall (of 1925) we inaugurated a new method of handling potato shipments in refrigerator cars, having made a contract with a refrigerator car company to furnish us with a supply of these cars for potato shipments sufficient to allow the



Northern Maine Junction in the days of coal—A conveyer frames a Bangor and Aroostook freight train as it swings out of the yard at Northern Maine Junction. The conveyer is long since gone, but the coal pocket it supplied still stands. It was so sturdily built that a contractor engaged to raze it finally abandoned the job.

discontinuance to a large extent of the use of lined box cars.

"Shippers are permitted to install portable charcoal heaters in the bunkers of these cars and arrangements were made for the return of the stoves which is working out very satisfactorily to all concerned."

Twenty-five years later it would become apparent that this was the most far-reaching decision of the Bangor and Aroostook management since Burleigh and Cram chose Brownville, instead of Mattawamkeag, as the place to start construction to Houlton.

Prior to the refrigerator cars, as Todd noted, potatoes moved in box cars. They were heated by stoves and riding with the train crews were the "potato bugs" who kept the stoves going.

The "bugs" rode all the way to Boston and New York and theirs was the responsibility for checking and stoking the stoves in the four or five cars

assigned to them at every stopping point where time permitted.

With their departure went a dramatic sight; up to 200 box cars rolling by with a plume of smoke trailing from every car. Onlookers understandably regretted their passing. But not the potato grower who was happy to trade his flamboyant box car for the refer with its greater assurance of adequate heat.

Todd reported another landmark two years later. Earnings for 1927 exceeded one million dollars for the first time in the history of the Bangor and Aroostook. The total was \$1,138,723.

Potato loadings were off in 1928 and so were earnings. But Todd reported another all-time high in 1929 and still another in 1930 when the Bangor and Aroostook, running counter to the growing depression, earned \$1,557,762 or \$9.27 per share on the common stock after dividends on the preferred.

For 18 years thereafter it was the railroad's most profitable 12 months

and still stands second only to 1948.

From this peak, earnings fell to \$623,133 in 1931 but were appreciably better over the next six years. However, the next three, by Bangor and Aroostook standards, were little short of disastrous; \$239,696 in 1938, \$215,621 in 1939 and \$125,533 in 1940.

The 1940 figure was the lowest in 25 years. Sharply reduced potato loadings were primarily responsible for the declining net income and especially in 1940 when 531,781 tons were moved against 899,300 in 1930.

The second 25 years ended on still another unhappy note. While earnings had improved to \$653,725 in 1941, the stockholders were told that "\$4,000,000 in debt will become due January 1, 1943, and your directors have been giving careful consideration toward a means of refinancing the above issues."

The outcome belongs in the third 25 years, but not the story of "the above issues" and the other issues outstanding as well.

On December 31, 1941, funded debt, exclusive of \$1,365,000 in equipment trust certificates, totaled \$16,071,000. Of the series falling due January 1, 1943, one was issued in 1893, the other two in 1899. Originally they had totaled \$5,060,000 and \$4,216,000 remained unpaid in 1941.

Moreover, of the remaining debt outstanding all but a small amount due in 1947 was payable July 1, 1951. One series, which was issued in 1901, totaled \$6,352,000. All of it was still in public hands.

The hard fact was that funded debt, other than equipment obligations, had been reduced by only \$5,000,000 since 1917 despite earnings of \$17,250,000 over the 25 years.

True that investment in road and equipment, net of depreciation and equipment obligations, had increased by some \$3,500,000. However, only \$400,000 had come from earnings. The remainder had come from the sale of 29,360 shares of common stock in 1927 and 35,232 in 1929 "to reimburse the railroad for expenditures from income for additions and betterments."

Where, then, had the rest of the earnings gone? The answer is to pay dividends on the preferred and common stock which, for the 25 years, totaled \$11,140,000.

Hindsight dictates the observation that it might have been more prudent to have paid more of the income dollars to the debtors and fewer to the stockholders.

However, this must be kept in mind: by railroad standards the ratio of debt to equity was relatively low and, since 1917, the Bangor and Aroostook had experienced no difficulty in refinancing its obligations as they neared maturity.

In fact as late as 1935 bonds coming due that year and also in 1937 and 1939 were promptly exchanged for later maturities and in 1936 a sufficient amount of a new \$5 preferred to call and retire the \$7 preferred had been easily sold.

Finally, a dividend had been paid each year on the common since 1903 and no quarterly payment had ever been omitted on the preferred.

For a railroad that existed only on paper in 1891 this was an enviable record that was further enhanced by payments throughout the depression.

The distress of the directors must, therefore, have been great indeed in 1940 when they voted no fourth quarter payment on the preferred and no payment whatsoever on the common. Worse, in 1941 even the preferred stockholders got nothing.

Percy Todd, a proud man who had come to the Bangor and Aroostook in 1907, was spared this humiliation. He had died October 23, 1935.

For the second time John Henry Hammond of New York, who had sat in for Todd during the months of Federal control, assumed the presidency. Hammond was the chairman of the executive committee of the board and, as was the case 17 years earlier, his was an interim appointment. In the spring of 1936 Wingate Cram, son of Franklin Cram and a veteran employee of the Bangor and Aroostook, was named president.

As the second 25 years drew to a

close the railroad found itself in two sharply contrasting situations. Financially it was in trouble; physically it was as sound as a dollar.

There was no deferred maintenance of either road or equipment and, apart from the years of Federal control, there never had been. The bad order ratio of the equipment was consistently below the national average and the road and track were constantly being improved.

On December 31, 1941, the railroad owned 62 locomotives, 50 passenger cars, 3,503 freight cars and 197 service cars. The only direct debt outstanding against it was \$1,365,000 in equipment trust certificates.

It was more than adequate to handle available tonnage yet, strangely enough, it was substantially less, in number of units, than was owned 25 years earlier when the total included 95 locomotives, 88 passenger cars, 5,288 freight train cars and 98 service cars.

This disparity is not attributable to declining tonnage. In 1916 the tons of freight carried totaled 1,967,000. The figure for 1941 was 2,051,516.

The answer to this apparent contradiction is three-fold: more efficient power, the use of leased refrigerator

cars for potatoes and a striking change in the commodities carried.

In 1916 no less than 22 per cent of the tonnage was lumber and other forest products accounted for another 18 per cent. Twenty-five years later lumber had dropped to 4 per cent and other forest products—which were now chiefly pulpwood—to 12 per cent.

The figures reflect the changing economy of the Bangor and Aroostook's operating area. The big trees were disappearing in the vast forests that the railroad had opened and woodsmen were now cutting the smaller trees for pulpwood to feed the expanding paper mills.

Potato shipments in 1941 were 33% greater than in 1916, and 1941 was not a good potato year. But the stellar performer was paper. Shipments of all types of paper had increased by 110 per cent.

It came from the Great Northern mills at Millinocket and East Millinocket and from the mill built by Fraser Companies, Limited, at Madawaska in 1925. Its volume—and pulpwood volume as well—was to increase steadily as the years went on.

In one tragic sense, the second 25 years ended as they started; the nation was again at war.

A sight no diesel can equal—For sheer dramatic beauty, nothing in the field of land transportation has ever equalled a steam locomotive rolling down a snow-cleared track on a winter day in Maine.





The Third 25 years

In one important respect, the third 25 years of the Bangor and Aroostook Railroad duplicates the first 25. Both were years marked by wonderfully imaginative thinking.

In 1892 it was imaginative thinking that led to the rejection of Mattawamkeag as the southern terminal of the railroad.

In late 1947—and progressively thereafter—it was imaginative thinking that led to equipment purchases of greater magnitude than the total of the previous 55 years.

The Mattawamkeag decision made the Bangor and Aroostook a carrier operating from the Canadian border to deep water instead of a short-haul feeder line for the Maine Central; the equipment decision would eventually spell the difference between continued prosperity and a dangerously marginal operation.

In 1942, however, the directors gave little heed to equipment purchases. Their pressing concern was where to find funds to pay for expenditures long since made and for which the bill was falling due on January 1, 1943, when \$4,000,000 in bonds would mature.

Appeals to investment bankers for

new money fell on one deaf ear after another. To the humiliation suffered when dividends were suspended in 1940 was added another. The desperately needed \$4,000,000 finally came from the Reconstruction Finance Corporation, a Federal agency originally created to shore up the fiscal structures of companies shaken by the depression.

It was little more than a breathing spell. The RFC specified July 1, 1951, as its repayment date. By no coincidence this was the maturity date of all of the other outstanding debt.

In sum, the Bangor and Aroostook was given nine years in which to come up with \$15,230,000, or its equivalent.

These were stiff terms for a railroad that had experienced only one deficit year (°) in its entire operating history and which had reduced its debt by \$10,000,000, or some 40 per cent, since 1916.

It was a proud record which, nevertheless, must have been of cold comfort to the directors. Looking to the years immediately ahead, no dividends were paid on the common stock, except for \$141,000 in 1950, although payments on the preferred were resumed in 1943.

This dividend policy was not dictated by lack of earnings. With the exception of 1946, earnings were excellent through 1950. In fact the total for

1942-50 of \$10,335,000 was by far the highest, for a nine-year period, in the history of the Bangor and Aroostook and included \$2,384,235 in 1948. This was an all-time high and still is.

Of this total some \$3,800,000 was ploughed back into the property for additions and betterments; \$3,570,000 went to reduce debt; \$2,156,850—including \$428,850 in accumulated arrears—was paid in dividends on the preferred; and the remainder was used to build up working capital that had been depleted to the point where short term borrowing had been necessary.

By any yardstick, the railroad in 1950 was once again a sound property; sounder, in fact, than at any time in its 60 years. Hence the directors anticipated little difficulty in refinancing the \$11,665,000 in debt still outstanding.

Had times been normal these expectations would have been well-founded. But in 1950 railroad securities were in disrepute with investors and this was so whether the road was strong or weak.

The directors learned this to their sorrow after a long and fruitless search for new financing. Reluctantly they turned to the so-called Mahaffie Act as the only solution of their problem.

Under the Mahaffie Act, which had been enacted for the specific purpose of assisting railroads that found conventional refinancing impossible, the date of maturing securities could be extended if 75 per cent of their owners consented.

*Engineers and firemen went out on strike in January, 1913. The consequent dislocation of traffic resulted in a deficit of \$84,307 for that year.—Ed.

Southbound to Market—A Bangor and Aroostook freight rolls over the "Monticello viaduct" at Milepost 179.27 en route to the Northern Maine Junction interchange.

As a general rule, other terms in the securities were also modified and this was true in the case of the Bangor and Aroostook. Maturity was extended to July 1, 1976, interest was increased from 4 per cent to 4½, each \$1,000 bond could now be converted into 20 shares of common stock and a mandatory sinking fund was established.

Acceptance of the proposal was well in excess of the minimum and the fear of default ceased to haunt the railroad.

Ironically, less than six years later, the Bangor and Aroostook had no difficulty in completely refinancing through normal channels.

In 1955 a privately placed \$4,000,000 promissory note provided funds for calling the preferred stock and a few months later an \$8,000,000 issue of bonds replaced the Mahaffie Act securities.

They were non-convertible, interest was 4½ per cent and a realistic sinking fund replaced its predecessor with its almost punitive demand on income.

This new issue retired the \$10,040,000 in outstanding bonds and the funds needed to make the \$2,040,000 reduction possible came from the sale of 31,000 shares of common stock.

Curtis M. Hutchins, after four years as a director, had replaced Wingate Cram as president upon Cram's retirement in 1948. In his report to the stockholders, dated March 14, 1956, Hutchins wrote:

"That this could be done is, in my opinion, substantial evidence of the high regard which financial circles now have for your company."

He could have gone further and said much of this high regard was directly attributable to the equipment policy established by the railroad late in 1947.

At the outset, this policy concentrated on the replacement of steam power with diesels. While diesels were accepted with reluctance by many railroads, a look at the record makes



There's Nothing Like a Railroad Ride—The Downeast Railroad Club, with headquarters in Brunswick, Maine, charts a special train to run from Northern Maine Junction to Searsport and return. The date, July, 1965; the 1956 accommodations, as shown; the participants, some 250 rail fans from as far south as New Jersey.

it clear that the management of the Bangor and Aroostook was more reluctant than most.

As late as 1946 five steam locomotives had been purchased as additions to two acquired in 1944 and seven in 1945. In fact, in early 1947 approval was given for the construction of an electrically operated coaling plant at Oakfield to fuel the railroad's expanding steam power.

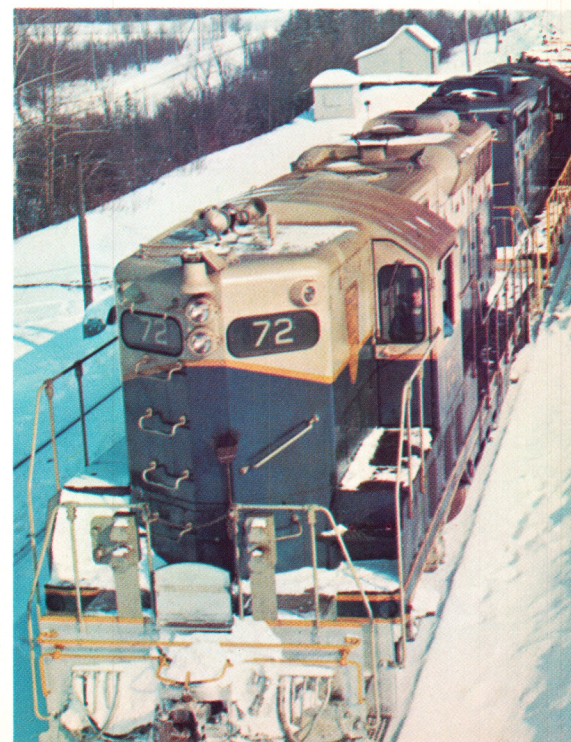
It was in the first stage of obsolescence before it supplied a ton of coal. In the fall of 1947 the railroad bought its first diesels. The initial order was for four units as a replacement for eight steam locomotives.

From then on diesels arrived at a constantly accelerating rate. Indeed they came so fast that no steam power was required after 1952.

Getting Ready to Roll—Two "GP 7s"—general purpose locomotives—switch some pulpwood cars at Oakfield as they make up a through freight they will haul south to Northern Maine Junction. The pulpwood has come down the Ashland branch enroute to the mills at Millinocket.

It has been said that the diesel saved the American railroads from bankruptcy. In much more than a few cases this is no overstatement.

The steam locomotive, as a dramatic performer, stands alone in the field of land transportation. But it took a lot



of money to keep the show on the road. Maintenance costs were staggering and runs were short because of the frequent need for essential servicing.

What with short runs and downtime in the shops, a lot of steam power was needed to keep even a small railroad in operation.

In 1946 it took 71 Bangor and Aroostook steam locomotives to handle 3,500,000 tons of freight and 250,000 passengers. In 1953 the railroad's 43 diesels hauled 3,100,000 tons and 110,000 passengers. Moreover, ten of the diesels were in summer service on the Pennsylvania Railroad.

In 1946 the locomotive repair bill ran to \$917,600; diesel repairs in 1953 totalled \$391,000.

Hard on the heels of the change over in power came a no less sweeping change in the refrigerator car program initiated in 1925.

Since the inception of the program, the Bangor and Aroostook had looked to car line companies for its supply of cars. But in 1950 Hutchins told the stockholders:

"An adequate supply of refrigerator cars has been one of the most critical problems confronting your company. . . . The normal sources of supply have been steadily decreasing. . . . Therefore, to protect our shippers, it has become necessary for us to acquire cars of our own and a three-phase program to this end has been adopted."

The program called for the purchase of 300 insulated box cars that

could carry potatoes under heat in the winter and be used for paper in the summer; the acquisition and rebuilding of 324 second-hand refrigerator cars; and the placing of an order for 500 new cars.

In view of the heavy expenditures for diesels, to say nothing of the debt maturing in 1951, it was a bold decision. It was also, however, a well-reasoned decision.

From the outset it was recognized that refrigerator cars, no matter how badly needed, could not be purchased if they were to sit idle all summer when there was no potato traffic.

The identical problem had confronted the Bangor and Aroostook a short time earlier when it was replacing its steam power. To dieselize completely it needed 12 more locomotives, yet it had no need for them in the summer and could not afford the luxury of stand-by power.

Search for a railroad with a need for more summer power turned up what, on its face, was a most unlikely candidate. It was the Pennsylvania Railroad, with its huge fleet of locomotives. Nevertheless, the Pennsylvania needed still more power in the summer to handle the iron ore traffic that came to it down the Great Lakes.

What made good sense to the Bangor and Aroostook made equally good sense to the Pennsylvania. It agreed to rent the surplus power of its small sister road and the 12 locomotives were ordered.

That it was a mutually profitable agreement is best evidenced by the fact that it is still in effect.

Search for a summer home for refrigerator cars led the Bangor and Aroostook to Pacific Fruit Express, a car line owned jointly by the Southern Pacific and the Union Pacific.

PFE needed more cars in the summer to handle the transcontinental produce traffic from California and an assured supply of cars from the Bangor and Aroostook was no less attractive to PFE than the locomotives had been to the Pennsylvania.

PFE agreed to provide a home for the Bangor and Aroostook's cars and to utilize them, as a part of the PFE fleet, for so long as summer loads were available.

The agreement still stands and the rental earnings of the Bangor and Aroostook's "refers", as they shuttle from coast to coast, have, on occasion, spelled the difference between an operating profit and an operating loss for the year.

By January 1, 1957, the Bangor and Aroostook owned no less than 1,428 refrigerator cars and had borrowed more than \$13,000,000 against the purchase price.

Giving due recognition to its invaluable paper traffic, the railroad had also borrowed \$3,125,000 in 1954 in order to buy 500 new box cars and \$1,500,000 in 1956 for 180 end rack pulpwood cars with a load capacity of 22 cords of four-foot wood.



Even though it was repaying its equipment obligations at an accelerated rate, the railroad still owed some \$13,000,000 for equipment on December 31, 1956, and that was \$1,000,000 more than all of its long term debt.

Because equipment earnings have been the major factor in the prosperity of the Bangor and Aroostook in recent years, a look at some figures is in order.

As early as 1897 the railroad reported that rentals earned by its equipment had exceeded rentals paid for "foreign" equipment by \$4,236. Twenty years later the credit figure was \$180,000 and it steadily increased to \$331,000 in 1925.

These credit balances were wholly attributable to the fact that the Bangor and Aroostook was a carrier whose principal tonnage came from its own operating area.

As a so-called originating railroad, it could supply loads for its own fleet of freight cars which earned rental payments from other carriers as these loads travelled over their lines.

The refrigerator car program of 1925 reversed this situation. The Bangor and Aroostook still supplied the loads, but the cars that now carried the potato crop to market were owned by the car line that supplied them.

By 1932 the credit had become a debit and the annual balances swung back and forth between debits and modest credits through 1950 when a credit of \$14,000 was earned.

Only three years later the credit had soared to \$795,000 and that figure was understated since \$270,000 had been charged as rental expense for some of the locomotives that had been acquired under a leasing agreement instead of being purchased.

The 1953 figure was almost doubled in 1955 with \$1,550,000 reported as net rentals after a \$211,000 lease payment on the locomotives. It was \$80,000 more than the railway operating income for the year.

In all there were nine—*This 4-8-2 heavy duty "Mountain Type" locomotive was bought in 1929. Over the years eight more were acquired, the last one—"109"—in 1945. On January 26, 1953, No. 109 was officially "retired."*



Here's where it all began—*Rails of the Bangor and Aroostook cross the Pleasant River at Brownville. Because it was able to lease two existing railroads, the Bangor and Aroostook was able to start laying rail north from Brownville toward Houlton instead from Mattawamkeag as originally planned.*

For nine years this would stand as an all-time high. But in 1964 the net figure was \$2,033,000. Significantly, operating income was \$380,000.

It is obvious from the foregoing that equipment income is vital to the Bangor and Aroostook. However, the rental figures fail to tell the whole story.

Equipment purchases—other than locomotives—over the past 18 years have not been made primarily to earn income but to meet the needs of the railroad's shippers.

The acquisition of more equipment, whenever the need is established, is a firm policy of the Bangor and Aroostook. As a result, for its size, it is the best equipped railroad in the United States.

Its fleet now includes huge mechanical refrigerator cars for its frozen foods traffic, pulpwood cars that can carry 32 cords of wood and an increasing number of box cars with cushion underframes for its paper tonnage.

Reminiscent of 1950, it has resumed the buying and rebuilding of second-hand refrigerator cars. The reason is

identical with that of 15 years earlier; a steadily decreasing national supply to the point where the Bangor and Aroostook must increase its ownership to protect its fresh potato traffic.

Although the 75-year history of the Bangor and Aroostook falls quite naturally into three equal parts, one thread runs almost unbroken through all three; a yearly report to the stockholders on the potato crop in Aroostook County.

For the Aroostook grower they will have an amazingly familiar ring.

"A general overproduction of potatoes in 1895 forced low prices . . . and prices for the 1896 crop were also disappointing," the railroad told its stockholders in its first formal report dated December 31, 1897.

On March 23, 1917, the stockholders learned that "the potato crop for 1916 was about the same as for the previous year but the prices realized by the farmers were the highest known on account of the general shortage of the crop in other sections."

Seven years later the story is re-



The first break with steam power—*This “A” unit and its two accompanying “B” power units were the first diesel locomotives purchased by the Bangor and Aroostook. The supplier was the Electro-Motive Division of General Motors. All of the “B” units have since been replaced by units that are independently operable.*

versed: “The 1924 crop was one of the largest ever known,” President Todd told the stockholders. “This applies not only to Aroostook County but to the entire country, with the result that the prices received were very low; in fact in most cases less than the cost of raising.

“As was to be expected . . . your company was urged to reduce rates but knowing this would not help the situation steadily declined to do so, although we did put into effect a generous reduction on inward fertilizer shipments.”

The implication is clear. The grower could either send his crop to market via the Bangor and Aroostook or keep it at home.

This, in fact, was the case and it was still true six years later. In 1930 a consulting engineer made a study of the railroad and reported:

“In general, railroads the country over are suffering from the competition of the highways, waterways and pipelines. The Bangor and Aroostook, however, due to its unique location, has not and cannot suffer from such competition.

“For example, potatoes which move throughout the winter in heated cars and for very long distances could not go by truck even if winter conditions on the highway permitted.”

Never was a prophet more quickly confounded. In 1932 Todd told the stockholders that “the continued depression and, to a large extent, unregulated truck competition greatly reduced your company’s revenue.

“The loss of freight to unregulated motor trucks is receiving the serious consideration of your management.

Bills have been introduced in Congress, as well as in the State of Maine Legislature. . . . The public seems to be awakening to this unfair competition and it is hoped that a satisfactory adjustment may be realized this year.”

Todd was no better prophet than his engineer. The “satisfactory adjustment” was not realized in 1932 and, for that matter, never has been.

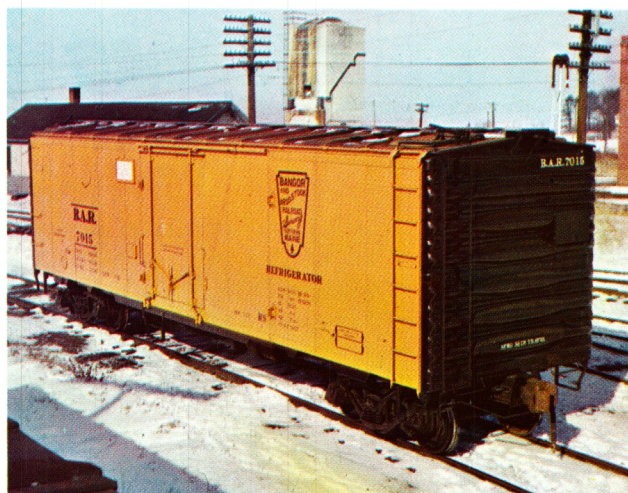
However, hopes for an “adjustment”, which was no more than a euphemism for statutory regulation of the itinerant trucker, must have died hard. In any event, it was not until 1939 that the Bangor and Aroostook faced up to the fact that if there was ever going to be an adjustment the railroad itself had better make it.

Wingate Cram did not mince words in his report for the year. Freight rates on potatoes had been reduced, he told the stockholders, because of the growing loss of tonnage to the truckers.

He should have stopped there instead of going on to say that the reduced rates “will undoubtedly prevent further inroads and are expected to restore much of the tonnage which moved by truck last year”.

They did neither. Tonnage dropped in 1940 to the lowest figure since 1923 and 1941 was not much better. True that potato shipments soared in 1942 and for eight years thereafter but this was attributable to the war and, subsequently to the Federal parity program.

To the credit of the railroad it can be said that this dramatic turnabout



A “refer” fleet is born—*This RS type refrigerator car is typical of those acquired by the Bangor and Aroostook to assure an adequate supply of “refer” for its fresh potato traffic when carlines could no longer meet the demand.*

did not lead it to lose sight of what had been apparent in 1941: a return to normal marketing would bring with it the need for more than a rate reduction if the Bangor and Aroostook was to cope effectively with its truck competition.

One need—and by far the most pressing—was the friendship of Aroostook County.

It had been lost, needless to say, in the days when the railroad was prospering and, as a virtual monopoly, had no hesitancy in telling its financially distressed shippers that a rate reduction was no panacea for their troubles.

Undoubtedly this was no way to run a railroad. However, these facts must be recognized: its managers, as evidenced earlier, had no reason to think that competition was just around the corner and, of greater importance, their primary responsibility was to the owners of the railroad and few lived in Aroostook County.

On its face this was a strange state of affairs. Aroostook money made it possible to build the railroad and it is natural to assume that Aroostook money would some day own what it had created.

For years this was an impossibility since the common stock was owned by the company that built the railroad. But in 1924 it was offered to the public and the price asked for all of the stock was less than \$4,000,000.

Purchases were negligible in Aroostook and, for that matter, in the entire state of Maine. Insofar as Aroostook



They Come Even Larger These Days—These end rack pulpwood cars, with a 22-cord capacity, were the last word in this type of equipment when they were acquired by the Bangor and Aroostook in 1954. Today, however, they are dwarfed by 168 cars purchased in 1964 that are 64 feet long and can carry 32 cords.

is concerned there is a simple explanation; its citizens who were investors had little interest in stock as a place for their money.

The managers of the railroad must have often wished it had been otherwise as they confronted the problem that stemmed, to a considerable degree, from an absentee ownership.

While the first move to solve it—the rate reduction of 1939—accomplished nothing, it was at least a step in the right direction. Of more fundamental importance was its recognition of the

fact that friends were essential to the railroad and would not be won by standing still.

It takes little from Percy Todd to say that this thinking would have been alien to his. He had few peers as the chief operating executive of a railroad, but his talents did not include a sense of public relations.

This was not true of Wingate Cram who knew Aroostook County almost as well as he knew his own backyard in Bangor. Even Cram's warmest friends would not have ranked him with Todd as an operator but he had what the railroad most needed,—the gift for friendship.

He put it to work as president of the railroad and in 1945 hired Carl R. Smith, former Maine commissioner of agriculture, to lend him a hand. First Cram and Smith and then Curtis Hutchins and Smith worked at the hard task of building a new concept of the railroad in the county.

They and their associates, who assisted them with equal enthusiasm, accomplished what a dispassionate observer would have said couldn't be done; the Bangor and Aroostook was



For paper tonnage—This is one of the Bangor and Aroostook's 50-foot box cars equipped with a cushion underframe. These cars, of which another 400 were ordered in 1965, were acquired for paper traffic.

once again a member of the family in the county.

Nevertheless, while friendship—which included rate adjustments, better service and better equipment—could and did slow the movement of potatoes by truck, constantly improving highways made its reversal almost impossible.

Hence in the mid 1950's, with an eye to the future, the management of the Bangor and Aroostook gave increasing thought to what could be done to safeguard the stockholders against four adverse factors. They were:

1. The erosion of the railroad's potato traffic;
2. The rapidly decreasing passenger traffic with a consequent increase in its drain on net income;
3. The relatively slow economic growth of the railroad's operating territory; and
4. A constant increase in operating costs.

Of these, the second was the least consequential but, nonetheless, serious.

As early as 1895 the Bangor and Aroostook had carried 195,000 passengers and had received \$165,000 in revenue. Ten years later 530,000 passengers were carried and paid \$500,000 in fares.

The peak came in 1920 when 684,000 passengers used the Bangor and Aroostook and paid the railroad \$1,-

120,000. It was 15 per cent of the total operating revenue.

From then on the decline was constant, except for the war years of 1943 and 1944. In 1955 exactly 100,000 fewer passengers used the Bangor and Aroostook than in 1895, although they paid some \$100,000 more for their travel.

The frequently made claim that travelers would go by rail if given decent service and equipment was not applicable to the Bangor and Aroostook. It gave both,—and in abundance.

As late as 1954 two stainless steel sleeping cars were purchased for \$370,000 to complete the modernization of the passenger equipment. It was done with high hopes that were never realized. As the years went on the cars became little more than bad weather standbys for the air lines which absorbed the sleeping car passenger no less completely than the highway absorbed the coach passenger.

Passenger service by rail came to an end in 1961 and those who now travel on the Bangor and Aroostook do so by bus.

Rail passenger service no longer burdened net income and the rate of increase in the percentage of potatoes moving by truck was slowing down under the impact of the railroad's incentive rates and expanded services that the trucks could not duplicate.

In a ceaseless search for ways to con-

trol operating costs, millions had been expended for machines to replace hand labor.

In sum, the railroad had moved aggressively in the three areas within its province but there was nothing it could do to accelerate the growth of available tonnage.

Because of this factor, the management of the Bangor and Aroostook gave serious thought to other possible sources of income.

The logical area to explore was transportation, but Federal statutes barred the railroad from acquiring other types of carriers. In addition, the acquisition of non-transportation companies involved serious problems for a railroad corporation.

Eventually the management concluded that the creation of a new corporation was the only feasible solution.

On March 28, 1961, W. Gordon Robertson, who had succeeded Curtis Hutchins as president in 1957, told the stockholders:

"You will note a new name in this year's annual report. Bangor & Aroostook Corporation is now the parent corporation of your corporate enterprise. As a result of the recent corporate reorganization, holders of 90.5 per cent of Bangor and Aroostook Railroad Company common stock have exchanged their railroad stock and have become stockholders of the corporation."



The avowed purpose of the new corporation was diversification into other fields through acquisition.

The first acquisition was made late in 1961. It was Goal Credit Corporation, a commercial finance company. In 1962 came Henry Luhrs Sea Skiffs, Inc., a New Jersey boatbuilder, and Bartlett-Snow-Pacific, Inc., a manufacturer of industrial equipment with plants in Cleveland and San Francisco. Bale Pin Company of Boston, a manufacturer of school jewelry, was acquired in 1963 and there were no other changes in the corporate structure until the early fall of 1964.

On October 1 of that year, Bangor & Aroostook Corporation merged with Punta Alegre Sugar Corporation. Punta Alegre had lost all of its physical assets through expropriation by the Castro government in Cuba. With only cash remaining, Punta Alegre had sought to re-enter the sugar refining business through a purchase.

Balked in that endeavor, it had successively acquired a large terminal grain elevator at Topeka, Kansas, a Pacific Coast metals distributor and a New York textile converter.

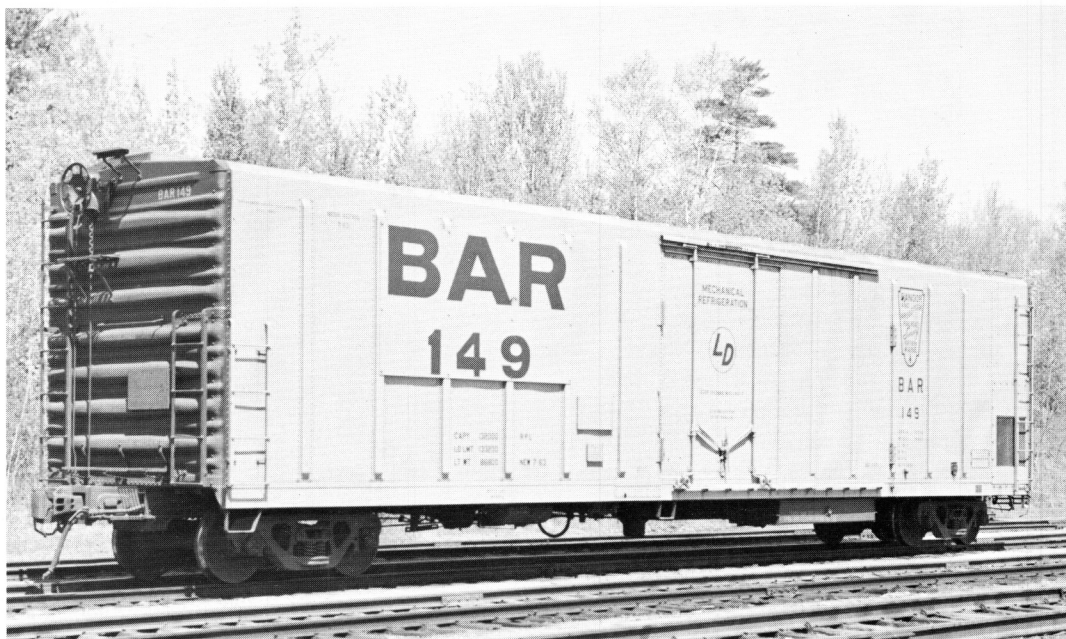
Bangor & Aroostook stockholders received Punta Alegre shares for their stock and Punta Alegre's name was changed to Bangor Punta Alegre Sugar Corporation.

Two years earlier Robertson, who had been serving as president of both the Bangor & Aroostook Corporation and the railroad, had relinquished his position as the railroad's chief operating officer.

In his place came W. Jerome Strout. Strout, a 1929 civil engineering graduate of the University of Maine, had been an employee of the Bangor and Aroostook since graduation and, in fact, had never had another employer. He had served for years as the railroad's chief engineer and was its executive vice president at the time of his promotion to the presidency.

Flagship of the Feet—The Potatoland Special, with a through coach and sleeping car to Boston, rolls south to Northern Maine Junction. Like its sister train—the Aroostook Flyer—it is now only a memory.

The Pride of the Bangor and Aroostook—This is one of the Bangor and Aroostook's mechanically refrigerated cars acquired to handle the increasing frozen foods tonnage. It is a 50-foot, 70-ton car and cost some \$30,000. Initially 50 were purchased, then another 100 and, in 1965, another 56.



The Paul Bunyans of the Railroad—This is a new jumbo of the forest land, a 64-foot double end rack pulpwood car that can carry 32 cords of wood. They were acquired in 1964 primarily to carry wood from the northern area of Aroostook County to the new International Paper Company mill at Jay, Maine.

With the railroad in firm hands, Robertson was free to add to his duties and was made president of Bangor Punta Alegre.

In one sense, the Bangor and Aroostook Railroad today is a paradox. It is the father of a young and growing family but has none of a father's usual responsibilities. Indeed, its responsibility is almost wholly to itself.

Although now 98.7 per cent owned by Bangor Punta Alegre, it is a wholly autonomous operation with its own officers and directors and no loss of its identity.

On February 13, 1966, the Bangor and Aroostook will celebrate its 75th anniversary as a corporate entity.

Few corporations can claim to have done so much in their first 75 years.

Aroostook: A Region, An Empire

In all these United States there is nothing comparable to Aroostook County. The map puts it in New England, yet this is more like western country and its residents, in temperament, are westerners even though they vote in the State of Maine.

Unless he has traveled widely, it is a nice question whether a native of Aroostook is aware of this. But it is readily apparent to anyone who knows the West.

The speech is a reminder of Colorado or of English as spoken in Canada and a far cry from that of the Maine coastal village. The quick handshakes and the immediate use of the first name are hallmarks of the West. Mars Hill, with its wide main street, would look at home in Wyoming. Rolling potato land, rimmed by vast forests can be found in Idaho, but nowhere in the East except in Aroostook County.

Like the West, Aroostook is a place where a man has lots of elbow room. Only 106,000 persons live in the county, although it is larger than Rhode Island and Connecticut combined. And, like much of the West—and much of the Middle West as well—its farm economy is based on one crop. Finally, and most important of all, there is a tremendous vitality in Aroostook which only the West can equal.

This is an attribute of youth and Aroostook, even by western standards, is a young country. Indeed, as time is measured in New England, it is not far removed from frontier country.

The late Stewart Holbrook, an eminent and perceptive historian whose native state was Vermont but whose home in later life was the Pacific Northwest, made note of this in his "Story of American Railroads".



This is the Empire Known as Aroostook—A photographer captures the beauty of Aroostook County with its hills, its forests, its farm land and its pastures. The scene shown is on Route 11 between Fort Kent and Eagle Lake but comparable scenes can be found at innumerable places in the county.

In a chapter devoted to the Bangor and Aroostook Railroad, and written twenty years ago, he said:

"Aroostook is a county of Maine. It is also more than a county. It is a region, an empire, a state of mind, for the Aroostook, as it is known in Maine,* was the last frontier in eastern United States and the material and spiritual effects are still to be seen there, and felt."

As he subsequently explained: "There were two reasons why the

Aroostook, alone in all New England, remained frontier country up to little more than fifty years ago. For one thing, it was the most remote section of New England. For the other, its sovereignty was in doubt until 1842, when the Webster-Ashburton Treaty

* Holbrook is guilty of a slight error. It is frequently "the Aroostook" in other parts of Maine, but in the county "the Aroostook" is the Aroostook River, and the county speaks of itself simply as "Aroostook" or "the County."—Ed.

was signed by the United States and Great Britain."

Of the relative remoteness of the county there is no question. In fact, in terms of railroads, it was more than the most remote section of New England; it was one of the most remote sections of the entire United States.

The golden spike that linked the Union Pacific and Central Pacific railroads at Promontory Point, Utah, was driven two years before a mile of track was laid in Aroostook County and this track ran east to New Brunswick. And, as written elsewhere, for more than twenty years thereafter a wagon road would continue to serve as the only direct access to adjoining Penobscot County.

Those who live in Aroostook are largely of Northern European extraction. Their ancestry runs back to France, England, Scotland, Ireland and Sweden and it is significant that all have a notable history as colonizers and especially as colonizers of North America.

Ethnically speaking, therefore, those who settled Aroostook were well qualified for the task. First were the French who settled in the St. John River Valley in the eighteenth century. Then, in 1807, came a group of Americans of English descent to locate on a grant of land purchased from New Salem Academy in Massachusetts. It was situated in the southern end of the county and within its boundaries now stands the town of Houlton.

The Swedes, as a group, came some 60 years later and the Scotsmen and Irishmen, individualists that they are, came by ones and twos.

The wealth of Aroostook, in its early frontier days, was its vast stand of spruce and pine and these early settlers were loggers who floated the tall trees down to the St. John and thence to the sea.

In consequence, the first men of economic stature in Aroostook were

The Autumn's Harvest—This is a typical autumn scene in Aroostook County when schools close temporarily so that youngsters like the boy at the right may lend a hand with the harvesting of the potato crop.

lumber barons and some were Americans and some were Canadians. This would have been of no consequence except for the fact that no one could say, and prove it, that Aroostook was a part of Maine and not a part of Quebec or New Brunswick.

If the Canadian logger was a trespasser to the American, the American logger was no less so to the Canadian. As tempers grew, "trespassers" became "thieves" and, as Holbrook puts it, "the business went from local feud proportions into the realm of international incidents".

Convinced by irate American loggers that an invasion of Maine was imminent, the governor called out the militia.

A military road was built from Bangor to Houlton to provision the seven companies of infantry sent there to safeguard a border which, at best, was nebulous. Log blockhouses were built at strategic sites and became Fort Kent and Fort Fairfield.

There was a vast amount of sound and fury, but few shots fired in anger. Thus when the Webster-Ashburton Treaty restored peace in Aroostook, the only recorded casualties were those suffered by lumberjacks. Since mayhem was a lumberjack's normal way of life, the lumps on his head were ignored by historians.

"The Aroostook War", they said, "was a bloodless war."

Despite its comic overtones, this bloodless war was immensely beneficial in the development of Aroostook. It now had an established boundary, direct access to Bangor and, as an extra dividend, an influx of settlers who had first seen the county as soldiers in the Maine militia.

For the first time Aroostook, long a land of isolated logging camps—and little else in the way of community living—could now look forward to a day when the plow would rank with the axe as a producer of dollars and towns would grow no less rapidly than the farmland.

For those who elected to till the cleared land, Aroostook was a revelation. Some unrecorded glacier, as it receded, had left in its wake the rich soil that the county knows as "Caribou loam".

Of all the factors which have shaped the development of Aroostook, none has played so great a part as the loam which covers the rolling hills in the eastern half of the county.

Its impact on the economy of the county is beyond measure. Its impact on the temperament of the people who live there is little less so.

One-fifth of Aroostook is now farmland and from it comes around one-eighth of the nation's annual potato crop. As a potato grower, the Aroostook farmer is second to none. Free, as he is, of the hardheaded resistance





to change that has plagued so much of New England, he is a progressive farmer. His annual fertilizer bill is fabulous. So is his investment in machinery. And so is his potato production.

Ironically, this facility for growing a great many potatoes is a mixed blessing. In a normal crop year, the potatoes harvested in the United States will exceed the demand. Generally speaking, this means a year when the starch factories in the county will be busy absorbing the excess and the price of potatoes may well be less than the cost of production.

With its one-crop economy, this is a year in which Aroostook suffers and a succession of such years is not unknown in the county. Neither is debt and more than one crop has been planted with borrowed money.

Farmers elsewhere have been known to turn to other crops after a series of lean years. But not in Aroostook where the acreage planted to potatoes after a year of depressed prices may well exceed that of the year before and frequently does.

No one knows better than the Aroostook potato grower that oversupply and depressed prices go hand in hand. Why then does he continue to jeopardize his economic future and deliberately so? Why, for that matter, does he continue to grow potatoes?

The answer to both questions can be found in his personality. He is a realist who is also a gambler.

It is the realist who continues to grow potatoes and for three compelling reasons: the soil, the climate and the available markets are admirably suited to growing potatoes and not so much so for most other major crops.

These are the same three reasons why corn is grown in Iowa and wheat is grown in Western Kansas and cotton is grown in Arizona. They are the same three reasons why the county is about to undertake the commercial growing of sugar beets.

Of these three essentials the third—a market—has hitherto been non-existent. Now it is taking form as construction progresses on a refinery at Easton.

In the final analysis, beets will be grown because Aroostook now has a sugar beet quota from the Federal government. However, it should be noted that the quota would have been unobtainable without the widespread support of the potato growers who, it should be further noted, will grow beets as a supplemental crop and not as a replacement for potatoes.

If it is the realist who, beets or no beets, continues to plant potatoes, it is the gambler who dictates how many acres of potatoes will be planted. It

is he who looks forward to better prices in the fall and who thinks in terms of dollars lost because of fields left unplanted.

In so doing he is betting his money on the weather. Not the weather in the county, to be sure, which has never suffered a major crop failure, but the weather on Long Island and in Florida, Idaho, California, the Red River Valley and all other areas where potatoes are grown in volume.

To the Aroostook potato grower, the weather is at its best when at its worst. A hard freeze in the South can do wonders for the price of potatoes in Aroostook County. Unusually inclement weather in California or Idaho can do even greater wonders.

When potato growers elsewhere are digging a short crop, as infrequently happens, money pours into the county. Belts that have been tightened for too many years are loosened and a fair part of this money is put into immediate circulation.

It has been said that the Aroostook grower rides in a Cadillac when potato prices are high and walks when they are low. There is hardly enough truth in this story to keep it alive. Certainly it is true that the potato grower is not the parsimonious ant of Aesop's Fable. Yet neither is he the carefree grasshopper.

There's Still "Horse Power" in the County—An inquisitive animal peers at the camera as the photographer prepares to capture this sweeping view of pasture and high hills in Aroostook.

Much of what is spent when times are good goes for equipment that will increase efficiency. The Aroostook grower is no less attracted to machines that will replace hand labor than, say, an automobile manufacturer. His goal is automated agriculture. As a result, "stoop labor"—which is just what it suggests—is disappearing in the county.

Machines now plant potatoes, cultivate potatoes and, in increasing number, pick potatoes. Measured by any yardstick the Aroostook grower is an efficient farmer and fortunately so; constantly increasing efficiency is all that keeps him in business.

Machines or not, his is no easy life. Aroostook works hard. It can also play hard. Hospitality in the county is almost boundless and more than one visitor has returned home still shaking his head in disbelief at the warmth of his reception.

Probably it is too much to say that Aroostook loves an opportunity to entertain even though you can find some from less outgoing areas who would say otherwise. However, it is not too much to say that Aroostook loves an opportunity for putting two dollars on a likely looking trotter and does so annually at the Northern Maine Fair.

In sum, Aroostook loves life as it can be loved only where men have confidence in themselves and faith in the future.

Religious belief is a part of this faith. Fun is for week days and not for Sunday in the county, which takes its religion seriously. The Roman Catholic churches that line the highway along the St. John River are an imposing sight but no more so than the churches of the Protestant denom-

inations in the towns to the south. And only an emergency finds an Aroostook farmer at work in his fields on Sunday.

Much of this reflects the material and spiritual effects of the relatively recent frontier.

Less than fifty years ago barn-raising and quilting parties were commonplace in Aroostook. They were a direct heritage from the days of pioneer living and the dependence of isolated people on their neighbors. Thanks to all-weather roads and the increasing population they have disappeared, but not the spirit that once led men to help a neighbor with his barn.

This one-time dependence on a neighbor accounts, in large part, for areas in which there is a substantial preponderance of people with a common racial ancestry. The St. John Valley is still predominantly French; the towns immediately northwest of Caribou are still predominantly Swedish; and many of English extraction still live in Houlton.

The earliest settlers of the St. John Valley were Acadians, the French of

Longfellow's "Evangeline", who were expelled from the Minas Basin of Nova Scotia by the British in 1755.

They came in 1785, with British permission to settle as free men above Grand Falls, after almost 30 years as political prisoners in the settlement they had established near what is now Fredericton.

They, and others of French descent who joined them, were primarily farmers. Although many found work in the woods, the employing loggers were Americans and Canadians. So were those who owned the sawmills and most of the village stores.

The valley is still farmed by the French but now they also conduct most of the valley's business.

The Swedes came to Maine in 1870 at the invitation of a state alarmed by the exodus of so many of its farmers in response to the lure of the West.

The land they settled lies in the elbow of the Little Madawaska. Their choice was high land, rather than the richer land lying below, and it was dictated by their fear of valley frost and the damage it might do to the buckwheat they planted.



It Isn't All Potatoes in Aroostook—A proud member of a 4-H club stands with his "baby beef" as it is auctioned off at the Northern Maine Fair in Presque Isle. The auction is an annual feature of the Fair and one of its highlights.

Like the French who preceded them, the towns they built reflect their ancestry in both name and appearance. There is New Sweden, Jemtland and Stockholm; scrupulously neat and white and dotted with tall poplars.

Again like the French, the Swedes are fine citizens and fine farmers and Aroostook has never regretted their courageous acceptance of a new life in the New World.

The English, as noted earlier, first came to Maine as a group from Massachusetts in 1807. The great many more who followed them came north from other parts of Maine and west from the province of New Brunswick.

Like those who came before them, a fair percentage settled in the southern part of the county which abounds with names that could only have come from England, Scotland, Ireland and Wales.

There are many others of British ancestry scattered throughout Aroostook but nowhere are they so pre-

ponderant as in and around Houlton.

There has, of course, been much intermingling. Those who have moved south from their homes in the St. John Valley have blended unobtrusively into other communities and the English-speaking people who have moved into the French towns have been no less absorbed.

Yet the fact remains that towns like Fort Kent and Van Buren, or Stockholm and New Sweden, or Houlton, couldn't be more different if they were in three widely separated parts of the country.

As a result of all this, Aroostook is a land of three distinct cultures plus a composite of all three. The net, for a traveler through the county, is a sort of Cook's Tour to Great Britain, Sweden and France with intermediate stops in the United States.

To conclude from this that there is an inherent disunity in the county would be a grievous error. There may be sharp political differences, and a man who wants a dam at Rankin Rap-

ids may be anathema to a man who loves the Allagash. But when the county, as a whole, is the focal point of some controversial issue it becomes one family.

In short, there is a great pride of ancestry in Aroostook but there is an even greater pride in the county itself. This pride, and the sensitivity that accompanies it, is never more apparent than on those occasions when Aroostook thinks itself slighted or unfairly treated.

The State Highway Commissioner will agree with this. So will the Maine Publicity Bureau.

So, in all honesty, will the Bangor and Aroostook Railroad whose name, in the past, was a nasty word in the county on more than one occasion.

This facility to rise as one man against a common enemy is equalled by a facility to unite in support of any proposal that promises to benefit the county. There is no better evidence of this than the concerted drive for a sugar beet quota and a processing plant. This, it should be noted, was much more than lip service; it included cash on the line.

It should also be noted that this is no recent development. Some seventy-five years ago it was this same common effort, backed up with cash, that brought the Bangor and Aroostook Railroad to the county.

No portrayal of the county can be complete without mention of its magnificence as a recreational area and the never ending wealth that flows from its forest lands.

Indeed, both are so great as to defy no more than a mention and are, therefore, treated separately elsewhere.

Suffice it to say here that it is the sum of all its parts that led Holbrook to write that Aroostook "is also more than a county . . . it is a region, an empire".

And so it is.

A Replacement for "Stoop Labor"—
This is a recently developed harvester that digs potatoes and brings them to a sorting table where workers remove debris and small potatoes. The potatoes are then dumped into an accompanying truck.





When the Oats Are Ripe—This colorful combine is harvesting oats of which an appreciable amount is planted annually in Aroostook. In fact history records that oats were the first crop planted by the Swedes when they came to the County.

some small thing that amused them or caused that discomfort for years afterward and it becomes a tie . . . a topic to be turned over and savored in the caboose or in the lunchroom, or on a park bench.

There's a self-reliance among railroad people too. It's probably because, more often than not, their work takes them away from the kind of supervision the average industrial worker receives. Because they're often on their own, they have to cope with the problems when they arise; they have to know what to do without being told.

There's another reason for this quality of self reliance too. The Bangor and Aroostook draws its people from a rural area. The main pursuits are farming and the industries related to forest products,—activities particularly susceptible to the forces of nature. Both farming and forestry breed the kind of man who knows that excuses don't count in growing potatoes or felling trees. And because Bangor and Aroostook people have about the highest per capita income of any labor group in the area, some of the best people "go railroading." In fact, it's hard to find anyone in Aroostook who hasn't railroaded at one time or another, or who hasn't had a relative in the craft.

Railroading has never been a job for fat cats. The work is often physically demanding; more often, it demands steady nerves. And it is not without its hazards. The faint of heart and the paunchy do better in some snug, 8 to 5 billet. Railroading is for the adventurous, for the fit. And those who lack these qualifications don't last long.

Mostly, railroaders are born grouse-ers, too. If they don't have a beef, they're not really happy. But the grouching doesn't have anything to do with how a man does his job. When he is needed, he fills the measure.

Railroad people even speak a lan-

Wed to a Railroad

Some years ago there lived in Caribou a white-haired old lady who shall remain nameless. She was a cameo-and-lace kind of woman with luminous eyes and features that age had not made harsh or ugly. Her granddaughter remembers her as a story-book kind of grandmother, the sort that one associates with the smell of molasses cookies fresh from the oven and lavender sachet. She doesn't remember much about the grandfather except that he worked for "the railroad" and was seldom home. The granddaughter loved to visit the handsome old woman.

And always before the little girl left her grandmother's house the old lady would pat her head and say: "Never marry a railroad man, my dear."

The little girl didn't know for sure whether her grandmother was joking or not for she always smiled when she said it. But she didn't heed the advice; she married a railroad man anyhow.

She's not sorry, of course, but now she knows what the old lady was talking about.

Railroad people are . . . well, different from men and women in other occupations. As the old lady knew, and as her granddaughter was to discover, railroad people work odd hours and they're away from home a great deal. Then there's a kind of kinship, a camaraderie of shared experience among railroaders. It's all tied up with discomforts and hazards shared in a day's work. Perhaps it's a little like soldiers who've served together under fire.

The working conditions that produce the kind of experience that draws men together long after age has dimmed their eyes and dusted their hair with snow are built into the system. Any train crew that's jacked a hot box at a remote siding in a howling northeast blizzard has a bond of common experience. They'll remember

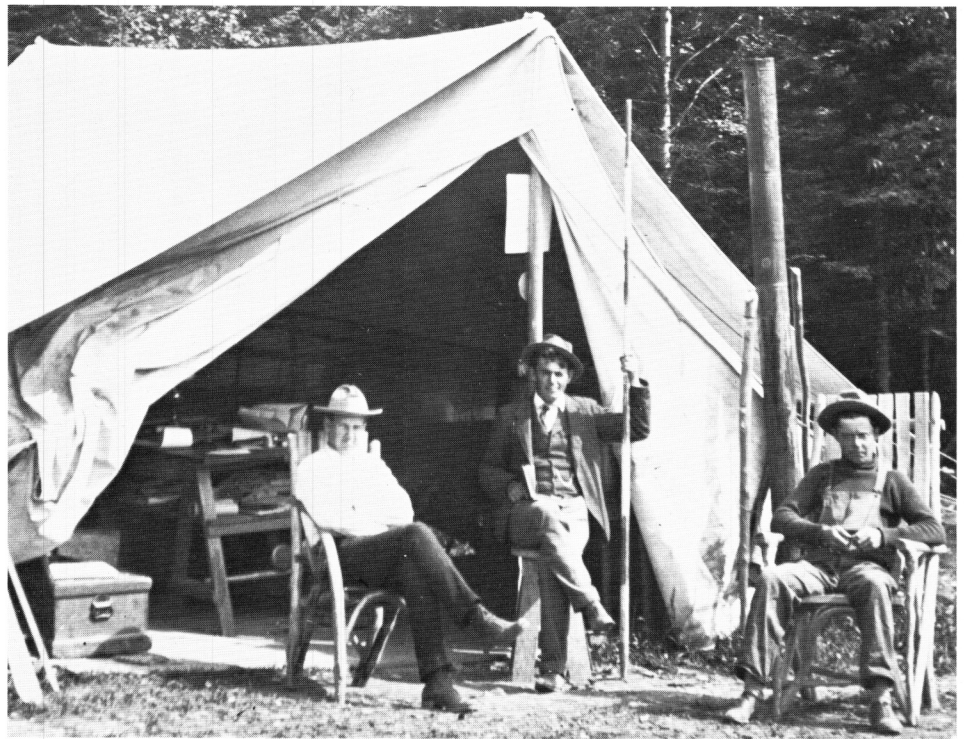
guage of their own. When they talk of "handling the turkey", they aren't referring to the Thanksgiving fowl; they mean moving a winged snowplow. "Fanning the air" is the signal for a washout. Drawbars are closed when they're "back to back". The "high iron" is the main line.

Railroaders invariably acquire a nickname, usually the result of a physical characteristic or a personality trait. The names . . . Old Snort, Skish, Sharp-axe, Boiler-butt, Freeze Cat, Thrasher, to mention a few . . . are usually uncomplimentary in an affectionate way and stick for a lifetime.

The Bangor and Aroostook is a family kind of railroad. In fact, whole families have often followed the craft in the footsteps of a father or an older brother. There were the Lewin boys, five when all were living, the Swallows of Oakfield, the Clark brothers, the Burton brothers, the Labbes just to mention a few.

When the craft is passed to the second and third generations, the men involved have a family tradition of railroading that makes for deep loyalties. Keith Lilley, now superintendent of transportation, was born in a railroad station tenement at Eagle Lake. His father was a station agent and his mother was an operator. His sister, Ione, worked as an operator for the Car Distributors office. Lilley, himself, knew the wire and went on the payroll at 14.

There were also Neill Robertson and his three sons, the Duplisea brothers, the Traftons, the Porters, the Daggetts, R. Z. Lee, his brother and three sons (one son, Herschel is assistant superintendent of transportation).



Ransford Greenlaw was a B. & A. man, as were his three sons. Fred Terrio was a railroader. So were his four sons. One, Lester, became superintendent of transportation. And then there were the Larlees, the Raffords, the Hatts, the Morrills. And more.

Perhaps it's this interrelationship of blood and craft that makes the Bangor and Aroostook different. It has produced a pride, a certain esprit de corps, if you will, that's difficult to measure. But for families like these, and for others who have no precursors, being a railroad man is a reason to be proud.

Such a company was bound to create its legends and its tales. There was the quick-witted section foreman from Fort Kent who was walking about the

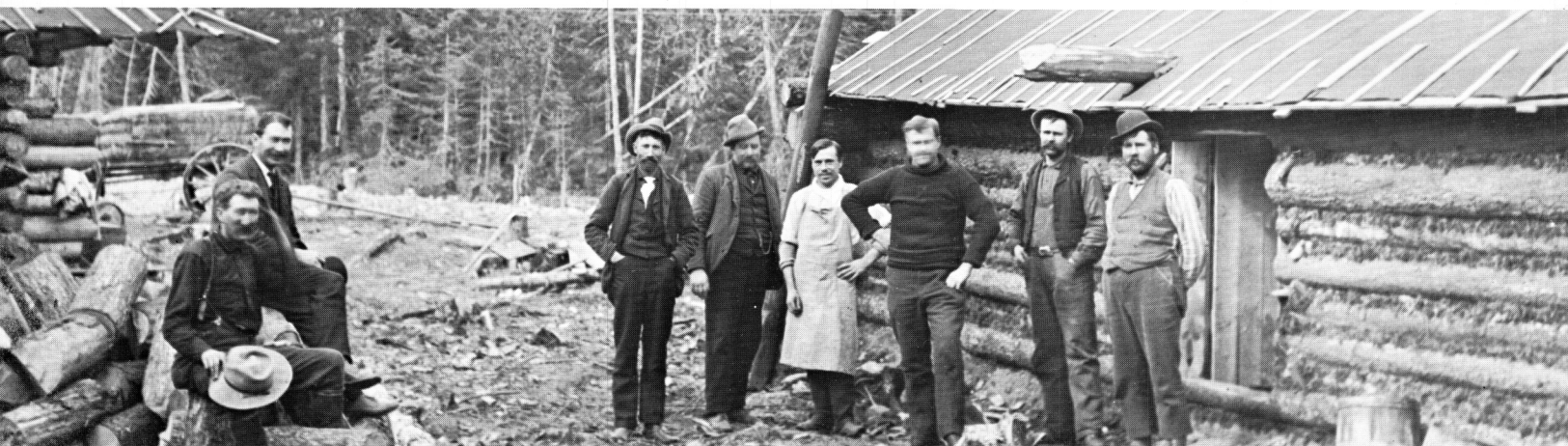
yard with an early chief engineer, noted for his thrift. The executive spotted a loose track spike half buried and turned on the section foreman.

"See here, Hebert," he said. "Don't you know this cost 10 cents."

"By godfrey," replied the foreman quickly. "I'm glad you found that Mr. Newbegin. I've been looking for it for a week."

There were the Win Quimbys who took a special pride in being able to move a train on time, no matter what the conditions. Their religion was to treat their engine well and to move freight.

There are men like Section Foreman Louis Levesque of Eagle Lake whose father helped build the same section of track that Louis now cares



Luxury Living in the Nineties—Civil engineers and surveyors pose happily for a “glass plate” photographer at their camp during the construction of the Bangor and Aroostook.

for. Only a Levesque has ever been foreman of that particular section.

Others like Carl R. Smith, once Maine Commissioner of Agriculture, later assistant to the president of the railroad, became a legend in his time. He held the unique position of being accepted as an equal among Aroostook growers at the same time he held his railroad post. Those who knew him remember the quiet that would fall over a meeting when he rose to his feet to speak. And they remember the hoarse boom and the authority of his voice.

There are many others of printable and unprintable legend . . . Superintendent J. B. McMahon, Dick Sutton who built much of the road, forgotten men, remembered men, but always men who did things.

After almost 75 years of moving the produce of the north to the heartland of the east, the Bangor and Aroostook man has evolved as a distinct personality. He is independent, yet fiercely loyal when the occasion warrants. He'll get out of a warm bed in the middle of the night to repair hurricane damage or patrol tracks ahead of a train without a second thought. He'll sometimes complain bitterly about a 15 minute time claim. Many of his duties take him out in the severest kind of climate. He'll probably have crows feet about his eyes from squinting into the sun. He's not rich, probably never will be, but he lives the kind of life he likes.

He may not, as the old lady from Caribou remarked, make the best kind of husband material. But she said it with a smile. He does make the best kind of human asset and this, after all, is the heart of any industry.

Pioneers of the Bangor and Aroostook—Building a railroad wasn't uninterrupted hard work as witness these pioneer builders of the Bangor and Aroostook taking it easy at a sporting camp deep in the woods of Northern Maine when the line was under construction.



After the Main Line Came the Yards—This scene, typical of the early days of the Bangor and Aroostook, happens to be Mars Hill when its yard was under construction. Evidence that the Maintenance of Way Department now utilizes somewhat more sophisticated equipment will be found on the next two pages.

The Right of Way

The farm boy of a few years ago whose father's land ran down to the railroad was a lucky youngster. He had a grandstand seat for one of the summer's most exciting shows.

It was the slow passage of the railroad's "lining crew" with its drama of 20 men working as one to re-align the track.

It was the counterpart of the city boy's high spot of the summer; the loading of the circus in the days before the tractor. Just as the circus roustabouts lifted and loaded the tent poles to the chant of the straw boss so, too, did the lining crew move the track into alignment to the cadence of the section foreman.

To the onlooker the voice-paced rhythm was sheer beauty; to the 20 men heaving on their lining bars it was sheer drudgery. Moreover, it was drudgery that came each spring and would go on for a month.

The job must still be done each spring but it is no longer done by strong backs on the Bangor and Aroostook. Their replacement is an impressive piece of machinery that, despite its size, is nevertheless a child of the electronic age.

As in days past, two or more section crews join each year to re-align their sections of the track. But just as the machine has replaced the 20 lining bars so, too, has it replaced the foreman's eye as the determinant of whether the alignment is properly done. That is now the job of an electronic eye.

No human eye, no matter how experienced, can compete with it in sensing an inaccuracy. Best evidence of this is the lining machine's speed of alignment which has steadily increased on the Bangor and Aroostook as it progressively corrects the cumulative errors of years of hand lining.



A Machine Makes the Work Load Lighter—This is one of two machines that work as one on the right of way of the Bangor and Aroostook. Its specific job is to cut a tie that is being replaced into three parts, push out the end pieces and lift out the middle piece.

Impressive though it is, the lining machine is no more so than the huge track maintenance machines, nor has it eliminated more drudgery.

Apart from the annual alignment of the track, there are two other never-ending jobs on the Bangor and Aroostook. One is to lift and ballast some 20 miles of track each year; the other is to replace ties whose useful life is spent.

The first of these jobs is done by the "extra gang". The name is descriptive. Most of the many men on the roster of the extra gang a few years ago were hired in the spring and laid off in the fall.

These were the men that the rail passenger would see along the right of way as they waited for the train to move slowly over the track on which they were working.

They were manual laborers, in every sense of the word, and their home from late spring until late fall was the work train that moved with them.

On the Bangor and Aroostook today the extra gang, with its work force sharply reduced, is equipped with what railroads call a multiple tamper. Hand tools no longer lift the track and work fresh ballast around it. The first job is now done by the multiple tamper's leveling jacks; the second by its long steel fingers.

The tie crew is no less mechanized. It now works with a machine that cuts the old tie in three parts, lifts out the middle section and pushes out the ends. When that is done it scarifies the tie bed to make way for a new tie.

The Bangor and Aroostook's first major roadway machine was a multiple tamper that was bought in 1950.

It was a start in the right direction yet little more than a start until 1959 when mechanization began in earnest.

Over the next six years the Bangor and Aroostook spent around one million dollars for maintenance of way machinery. Despite the short span of time some of this was spent for replacements. Not that the initial equipment wore out; much more efficient equipment that is now available made it obsolete.

Insofar as the railroad's personnel is concerned, machines have done more than eliminate much of the drudgery of a few years ago. They have also eliminated much of the seasonal bulge in maintenance of way employment.

In the 1948-1949 season the department worked 1,400,000 man hours. In 1963-1964 the track was better maintained with 573,000 man hours and most of those on the payroll enjoyed full time employment.

Broadly speaking, the maintenance of way department of the Bangor and Aroostook has three principal jobs: keeping the track and right of way in first class condition; implementing the railroad's long range program of upgrading its physical facilities; and removing snow.

The third is never a negligible item in the annual expenditures for maintenance of way and in some years it can be downright staggering.

In fact in 1963, when a blizzard buried the railroad in snow all the way from Bangor to the St. John River, the cost of "removing snow, ice and sand" ran to \$503,000.

It was only \$3,000 less than was spent for track laying and surfacing and was 17 per cent of the total expenditures of the department.

Although the railroad had never had a comparable experience, any thought that the winters were appreciably milder in the early days of the Bangor and Aroostook is quickly dispelled by written evidence to the contrary.

Reporting in 1898 to the stockholders Franklin Cram wrote:

"Freight service, on account of the blizzard and heavy snowfall was

much deranged in January and almost completely demoralized in February.

"There were but eight days of full freight service in the latter month. No damage of any kind occurred to the property of the company, but the expense of keeping the line open was large . . . and the loss of revenue must have been a great deal more."

What Cram considered "large" is in startling contrast to the \$503,000 of 1963. The January to March cost of handling snow in 1898 was, he said, \$12,792.07.

Despite Maine's winter weather, reported operating expenses of the Bangor and Aroostook did not list snow removal as a separate item until 10 years later. The cost reported for 1908 was \$25,000.

Exactly 10 years thereafter the cost exceeded \$100,000 for the first time, with a total of \$130,400 for the 12 months and in 1920 the cost was a shattering \$242,300.

Since it would be a record for many years to come, some explanation is in order. It is supplied by Percy Todd, who had only just returned as president after a war-time tour of duty with the U. S. Railroad Administration.

His bitterness at what he found is evident as he reports in a sentence whose length must also have set some sort of record:

"While the total tonnage handled increased 184,999 tons over 1919, the increase in expenses was principally due to large wage increases granted by the U. S. Railroad Labor Board, effective May 1, 1920, and the extraordinary weather conditions your company, in common with other New England roads, had to contend with during the winter of 1920 when, for the months of January, February and March, the mileage of plow trains used exclusively for clearing the tracks of snow was equal to 22.4 per cent of mileage of trains run in freight service, in addition to which a large number of plows were attached to short freight and passenger trains."

The primary reasons, of course, for the rise and fall of snow removal costs



Getting Ready for a New Tie—This track scarifier works in conjunction with the machine shown on the page opposite. It prepares the way for the insertion of a new tie.

are two: the total that falls and the extent of the fall.

Extent defies accurate measurement, but the maintenance of way department uses the annual snowfall figures of the U. S. Weather Bureau station at Caribou as a rough yardstick with which to measure removal cost per inch of snow.

They are revealing despite their limitations. In 1940 snowfall recorded at Caribou totaled 125.4 inches and cost \$715 per inch to remove. Reflecting the increased labor cost per hour in the war years and thereafter, the figure tripled to \$2,240 in 1949 and the average for the ten years was \$1,730.

The average for the next ten years was \$2,802 and the cost was \$3,400 in 1959. Costs started to turn down in 1960 and, if the blizzard costs of 1963 are disregarded, have moved down ever since.

The explanation is mechanization. Accompanying this article is a photograph taken at Caribou on March 1, 1934, which graphically illustrates the hand labor required to move snow in the days before machines. Admittedly 1934 was a rugged year. Almost 6,000



The Job Is Almost Done—With the old tie cut and the ballast scarified, a new creosoted tie is guided into proper position by a member of the tie crew.

cars of snow—1,800 of them in Houlton—were hauled out from the stations that year and snow removal expenditures totaled \$122,590.

Nevertheless, a great many hands with a great many shovels were required annually to supplement the railroad's plow equipment whether the snowfall was heavy or light.

In fact until 1946, the Bangor and Aroostook's snow removal equipment

consisted of its plows and two Jordan spreaders and all of the cleaning of switches, leads, walkways and cuts was done manually.

That year a Burro Crane with a snow bucket was purchased and other equipment was added over the next 15 years. In 1961-62 came machines that eliminated much of the hand labor previously required to clean switches and leads.

Today the railroad's snow removal equipment ranges from the four-wheel drive Jeep with a plow—20 of them and all assigned to section crews—to speed swing machines fitted with blowers and buckets.

Most of the basic equipment does double duty. Buckets, blades, blowers, brooms and snow loaders are removed and the speed swing machines, cranes, tractors and other prime movers are used, when winter ends, for track construction and maintenance.

The snow burner that cleans switches in the winter becomes a weed sprayer in the summer and the improved

chemicals it uses have done much to reduce the cost of brush and weed control along the right of way.

All of these machines are component parts of the Bangor and Aroostook's prime goal; a track and a right of way that can be maintained at the lowest possible cost.

The other components are a part of the railroad's long range program of upgrading its physical facilities.

Under this program crushed rock is replacing gravel as ballast and 116 miles of track are now rock ballasted. Creosoted hardwood ties, with a life expectancy of 40 years, are replacing untreated soft wood. The job is now 55 per cent completed.

Heavy tonnage track has been upgraded with 115-pound rail and 100-pound rail is replacing 70-pound on branch lines. As wood structures become obsolete steel structures replace them.

For the maintenance of way department, keeping costs under control is a never-ending battle. Ironically, when

measured by the yardstick of the railroad industry, the department is an unimpressive warrior.

The maintenance of way ratio of the Bangor and Aroostook—the ratio of maintenance of way cost to operating revenues—is one of the highest in the entire United States. An explanation is obviously in order.

It is two-fold. The Bangor and Aroostook is a so-called "light density" railroad. In lay terms, it is a railroad with a relatively light amount of revenue tonnage in relation to its miles of track.

The Bangor and Aroostook, as has already been made clear, is also a railroad that operates under severe climatic conditions.

In short, the maintenance of way department of the Bangor and Aroostook is the victim of a one-two punch. Or better, perhaps, two low blows.

Justice demands that this be said of a maintenance of way department that is second to none in efficiency in the railroad industry.



Where Snow Comes in Feet—The equipment shown above is just what it appears to be,—a plow that has been working on the track. At the right pyramiding workers with shovels clear the yard at Caribou in the winter of 1934. This is the hand labor which has been replaced with machines on the Bangor and Aroostook.

Keeping the Cars Rolling

Among the notable achievements of the Bangor and Aroostook Railroad Company is one that is little known to the present generation. Before it had even finished building a railroad, the company built a town.

Initially it was called Milo Junction; today it is known as Derby and is the home of the railroad's principal shops.



Derby owes its birth to an improbable railroad with an equally improbable name,—the Northern Maine Seaport. It had no equipment, only 54 miles of track and no thought of ever operating a train.

Actually, although a corporation in its own right, with a charter issued in 1904 to prove it, the Northern Maine Seaport was no more than an extension

of the Bangor and Aroostook from South LaGrange to Searsport.

The Bangor and Aroostook was committed to leasing its track and the men who built the Bangor and Aroostook also built the Northern Maine Seaport.

It was, in short, the product of the same hard thinking that brought the Bangor and Aroostook down through Brownville to an interchange with the Maine Central at Old Town, instead of Mattawamkeag. Moreover, the objective was the same; a longer haul for the Bangor and Aroostook through a new interchange at Northern Maine Junction with a deep water terminal at Searsport as an invaluable byproduct.

As a part of its initial construction program the Bangor and Aroostook had provided repair facilities for its equipment in 1896 at its Old Town terminal. Later it had built a car shop at Houlton.

But in 1905, with the construction of the Northern Maine Seaport scheduled for completion before the year's end, the track from South LaGrange to Old Town, as a part of the main line, was on borrowed time and with it the repair shop.

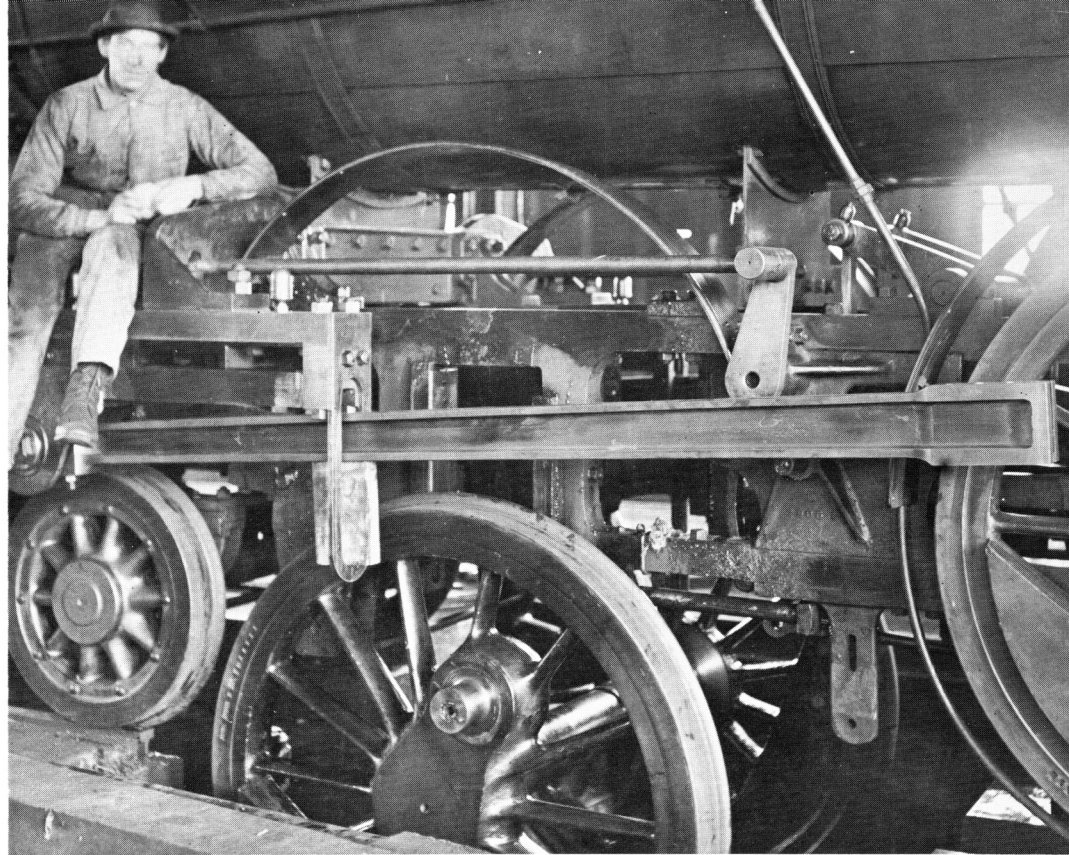
Those entrusted with finding a new location for the railroad's shops eventually came up with a hay field just south of Milo. (*)

It was adjacent to the intersection of the Bangor and Piscataquis and the Bangor and Katahdin Iron Works, the two railroads that, through their acquisition, had made it possible for the Bangor and Aroostook to start laying track north from Brownville.

In one respect the location made good sense; in another it seemingly made no sense at all.

It would move the shops from the end of the line to an intermediate point, which is where a railroad's shops should be. But there was little

*Fred M. Strout, a Milo timber operator, was purchasing the hay at the time for his livestock. A year later, with the shops under construction, he became the father of a son. The family named him W. Jerome and the Bangor and Aroostook knows him today as the president of the railroad.—Ed.



Servicing Steam Power Wasn't Easy—A locomotive stands on a drop pit in the early days of the Bangor and Aroostook with its drive wheels dropped either for a bearing change or to have the flat spots removed by a huge lathe which still stands in the shops at Derby. The young man with the hat is not identified, nor is his presence or even his occupation explained.

manpower in Milo for work in the shops and no housing for imported labor.

A less imaginative railroad would have looked elsewhere. But for the Bangor and Aroostook this was no insoluble problem. Indeed to its management the solution was obvious; a town was needed so a town would be built.

Included in the construction program was a hotel with 45 bedrooms and a dining room and 46 employee houses, "all with bathrooms, hot water boilers, ranges and electric lights."

A report to the stockholders said "the dwellings are upon an elevated plot, well removed from the shops and clear of the yard" and ended on this cryptic note: "Especial attention has been paid to sewerage."

There is no record of any requests for an explanation, but an inquiry, had it been made, would have disclosed the fact that a hill to the north was a barrier to the Milo sewage system so the new town was, of necessity, provided with one of its own.

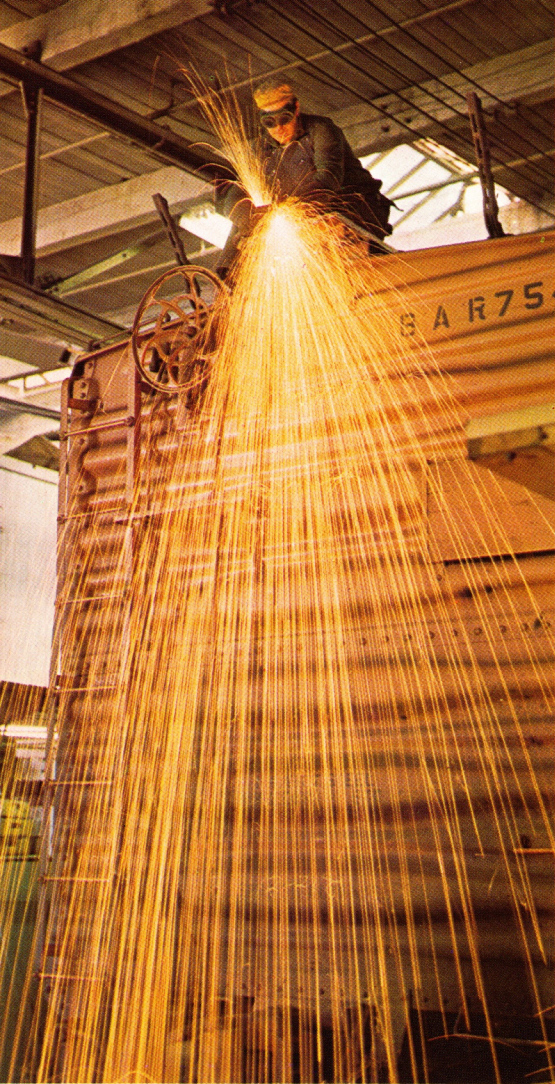
The plans for the shops themselves

were consistent with the plans for an entirely new community. This was no here today and gone tomorrow project. Despite its youth and the need for a great deal more track, the Bangor and Aroostook dug up \$414,448.95 for a truly permanent installation.

Aside from several storage sheds, all of the buildings were solidly built with brick. They included a two-story office and stores building, a one-story car shop with an area of 54,000 square feet and a locomotive shop that was 242 feet long.

Between the car shop and the locomotive shop was a 75-foot transfer table which moved back and forth above a repair pit whose length was 369 feet. Nearby were a planing mill and an engine house.

It is one thing to design and construct buildings that will stand the test of time. It is quite another to design a physical layout that will withstand obsolescence. The railroad's engineering department was, to an amazing degree, as successful with the second assignment as it was with the first.



Industry Can Be Beautiful—This truly dramatic photograph shows a welder at work in the car repair shops at Derby. He is repairing a hatch cover on one of the railroad's many refrigerator cars.

While many of the operations within the buildings have changed, the physical plant today is not substantially different from that of 1906.

Housing is a somewhat different story. As time developed an increasing sense of permanence among the employees in the shops, the demand for houses grew and, as a natural consequence, a hotel room as a home became more and more unattractive.

To meet this demand, the railroad added houses until their total reached 76. Most of them are now owned by the employees. The hotel, which ceased to function as such years ago, is now a community center.

For the first ten years, the new shops at Derby built no more than an occasional freight car and it was a replacement for a car retired or wrecked.

But in 1917 President Percy Todd announced that Derby was scheduled to build 150 box cars over the next 12 months. The reason for this change in policy was clearly stated: "The enormous prices asked by equipment companies".

The project foundered for lack of sufficient manpower at Derby, because of the war, and equipment companies supplied the 150 cars and the 1,200 more acquired in 1921-1923.

There would be no more box car purchases from outside sources for the next 15 years. In 1924 Derby embarked upon a program of buying underframes and running gear from equipment manufacturers and building the box itself. It was, of course, a woodworking operation.

Only 77 cars were built that year, but 175 were built in 1925 and 400 in 1930. There were no further additions to the box car fleet until 1938. That year 665 cars were acquired and they came from an equipment company for one compelling reason,—they were all-steel cars.

This is not to say that it was physically impossible to build an all-steel box car at Derby, since it wasn't. However, it entailed the purchase of the component parts of the box as well as the underframe and running gear. Hence it was no more than an assembly job and the estimated cost, per car, did not warrant its undertaking.

Since no box car had been built for eight years at Derby there was no impact on its current operation from this decision.

But the replacement of steam power with diesels some ten years later was a completely different story. It made the engine house obsolete as well as most of the work in the locomotive shop.

Physically the shop no longer needed much of the floor area that had been required to keep the steam locomotives in operation.

That space today is occupied by what the Bangor and Aroostook calls its contract shop. It is, to say the least, an unusual operation for a railroad.

Many of the machine tools with which it is equipped are of little use to the railroad itself and much of the

work it undertakes is for others. Moreover, while it is expected to operate at a profit, no one has ever anticipated a really substantial return from the contract shop.

Hence there must have been something more than a compulsion to use unoccupied space to account for the contract shop. And, in truth, there was. The prime objective was the utilization of men; the highly skilled machinists who had worked on the steam locomotives.

To keep them employed, tools were bought and work was solicited. The shop's stock in trade was, and still is, that of all contract shops; open time on a variety of machines for manufacturers who either lack the machine facilities needed or whose orders have exceeded their own capacity.

While it is an interesting and imaginative operation it is, of course, no more than a sideline at Derby whose primary job is to keep the railroad's rolling stock in first class condition with some car and locomotive rebuilding as a secondary function.

To the Bangor and Aroostook, "first class condition" is no catch phrase. Its ratio of cars idled for repairs to the total owned is one of the lowest in the railroad industry and has been for many years.



Indeed, prompt and adequate maintenance of both its equipment and its right of way is a tradition with the Bangor and Aroostook that is almost as old as the railroad itself.

Reporting an almost disastrous year in 1908, because of a near failure of the potato crop, Franklin Cram concluded:

"Every effort was made to curtail expenditure consistent with not neglecting the property.

"Especially has the company intended to maintain the integrity of its equipment. It had on June 30 (1908) every locomotive, every unit of passenger train equipment and within about one per cent of every unit of freight rolling stock it acquired in, and since, 1893—the year in which construction of the road was commenced.

"All was in serviceable condition barring set offs for ordinary repairs."

Twenty-four years later Percy Todd reminded the stockholders of the "100 per cent standards for equipment maintenance of the Association of American Railroads;" no more than 18 per cent of the locomotive fleet in need of repair and 5 per cent of the freight car fleet. Percentages of the Bangor and Aroostook, as of December 31, 1932, were, he said, 2.4 and 3.6 respectively.

Impressive though these figures are, they pale when compared to those today. On December 31, 1964, there were no locomotives out of service and the freight car bad order ratio was 1.8 per cent.

In short, the "integrity" with which the Bangor and Aroostook maintains its equipment is, if anything, greater today than it was yesterday. But it is being maintained in many different ways and in different places.

Part of this is attributable to changes in the equipment itself, as witness the diesel and the all-steel box car, part to technological developments over the years and part to geographic factors.

Insofar as the third is concerned,

the car shop in Houlton was closed in 1925 and all of the railroad's repair work was consolidated at Derby. The policy of concentrating repairs at Derby went unchanged until the diesels came. Then, strange though it may sound, the compelling factor that led to the construction of repair facilities elsewhere was the Medford Cut-off.

Freight trains bring in diesels in need of repairs and efficiency dictated the use of through trains because of their greater number. However, all Bangor and Aroostook through freights travel over the Medford Cut-off which runs east of Derby.

There was only one feasible solution of this problem; a diesel repair facility at either Oakfield or Northern Maine Junction. A study of all that was involved led to the rejection of Oakfield and in 1954 an engine house at Northern Maine Junction was converted into a diesel shop for running repairs and major overhauls.

Subsequently rip tracks were laid at Northern Maine Junction for out-of-doors box car repairs. Obviously this is a summer operation and its justification is employment for the large force of car inspectors required at Northern Maine Junction during the other nine months of the year.

Service at an interchange point for mechanical refrigerator cars became increasingly imperative in 1964 as the railroad's ownership of this type of car multiplied. As a result servicing facilities were constructed in 1965 at Northern Maine Junction, but not



There's Never an End to Welding—
Like his fellow worker on the page opposite, this welder works on a repair job at the Derby shops.

facilities for major repairs which are made at Derby.

At Derby itself, \$300,000 was expended in 1957 for a completely modern paint shop that includes shot blast and hot spray equipment.

Trackmobiles have replaced a cable in the operation of the transfer table between the car shop and the locomotive shops. Posts have been removed to permit the use of fork lift trucks. Individual drive motors have eliminated overhead belting.

The stores department has been streamlined and what was once the engine house now provides space for snowplow repairs and overflow work from the car shop.

The net of all this is a highly effi-

This Was Derby on July 27, 1905—
This rare photograph shows the start of construction of the Bangor and Aroostook shops in a hay field not far from Milo. In the background a donkey engine drives foundation piling.



A Hot Job at Derby—
A rivet is heated for a repair job on a box car. Maintenance of its rolling in first class condition is traditional on the Bangor and Aroostook.



cient operation with, nevertheless, one of the highest maintenance of equipment ratios in the railroad industry.

To understand this seeming paradox requires more than a casual knowledge of railroad accounting.

The ratio itself is the percentage relationship between what a maintenance of equipment department spends and what a railroad takes in as operating revenue. But operating revenue does not include rental income earned by equipment.

Thus the maintenance of equipment department of the Bangor and Aroostook Railroad is charged with the expense of maintaining 45 locomotives and more than 5,000 freight cars ("expense" includes well over \$1,500,000 in depreciation) yet is credited with none of the net rental earnings which, in 1964, exceeded \$2,000,000.

Compounding the absurdity of the ratio as a truly meaningful yardstick is the fact that a ratio can be sharply bettered through the simple expedient of deferring maintenance so that a low ratio railroad may actually be a poorly maintained railroad.

In truth, insofar as its ratio goes, the Bangor and Aroostook's maintenance of equipment department goes backward as often as it goes forward.

There are two reasons: the Bangor and Aroostook permits no deferral of maintenance and it is constantly buying more equipment.

It is a situation with which the department has learned to live and is detailed here only so the unknowing will not point a reproving finger at a victim of circumstance.

The Green Gold of Maine

Almost a century before the Declaration of Independence, officers of the British Crown were stamping "the King's Arrow" on the taller pines of what would some day be the Commonwealth of Massachusetts and, years later, the state of Maine.

These were the king's trees which would become the towering masts of the king's frigates and their protective stamp was evidence that loggers, at the turn of the seventeenth century, were no less dedicated to "letting daylight into the swamp" than those who came later as citizens of the young Republic.

Maine was, indeed, the birthplace of lumbering in the United States and Maine was also the birthplace of the legendary lumberjack who travelled from Maine to the Pacific Coast, cutting as he went, and always seeking more trees to cut.

The map of the United States bears witness to his travels. On it are at least five Bangors and three Stillwaters and a lumberjack worthy of being called "a Bangor Tiger" had attained the ultimate, no matter how many miles from Maine he might be.

The day of the Bangor Tiger is long since gone but his memory lingers on, as do memories of more recent years.

Those old enough to remember the bark of the old Lombard steam log hauler splitting the quiet of a winter night do so with pleasure. And those privileged to have tasted the hospitality of yesterday's lumber camp carry with them the memory of great pans

of biscuit, baked beans, salt pork, huge pies, and tea strong enough to float an axe.

But the state's woodland heritage is much more than colorful folklore. In terms of Maine industry it is of major economic significance. The wood using industries have now grown to a point where they now employ some 29 per cent of all the state's workers and account for one-third of Maine's payroll. The wood using industries are big business for the Bangor and Aroostook. The largest single customer of the railroad is the Great Northern Paper Company. And the fortunes of the railroad depend, to a great degree, on the pulpwood and paper traffic it receives from the Northern, from Fraser Co. Ltd., of Madawaska and those other mills in the state who use the railroad to move the raw material from the forests of the north to their plants. Last year products of the forest accounted for 14.2 per cent of the railroad's total freight revenues with pulpwood at 11.8 per cent and lumber at 2.4 per cent.

There is hardly an industry one could name that has undergone such sweeping technological changes in so short a time. In 1948, the power saw was, at best, a primitive tool; today its mosquito whine reverberates through the remotest valleys of the state, nearly doubling the productivity of the woods worker.

"In the last 15 years," says Rod Farnham, personnel director for the Great Northern, "mechanization has

◀ **This Is Derby Today**—*This is what was built on the land that was almost bare in July, 1905. At the left are the shops themselves; at the right the houses that were necessarily built for the employees.*

increased worker productivity 50 per cent."

Leo Thibodeau, the Northern's knowledgeable public relations man, says that "where one and one-half cords a day was a good average for a competent man with an axe and saw, the chain saw workers now average about three and one-half cords of wood a day."

The most significant tools of this mechanization are the chain saw, the bulldozer, the crane and the heavy truck. The bulldozer and the heavy tractor have made all-season gravel woods roads feasible. The crane has made the loading of both trucks and rail cars a relatively fast process.

George Sawyer, of Ashland, who manages the 175,000-acre holdings of Dunn Timberlands says the crane is one of the most dramatic advances in timberland mechanization.

"Northern Maine pulpwood runs a little larger than it does downstate," he explains. "Manhandling it into rail cars and trucks has been difficult because of the sheer size of the sticks. The hydraulic loader has certainly been a Godsend to the physical well being of the woods worker, not to mention the increased efficiency it has brought about."

These new tools have changed the way of life for both the woods worker and the paper companies. Not only have the bulldozer and truck made the building of suitable winter and summer roads possible, but the same tools have now made extensive snow removal practicable.

The extensive woodland road system has changed some of the most sacred institutions of yesterday's lumbermen. One is the river drive, not too uncommon as recently as a dozen years ago.

"We're not driving a stick of wood in Aroostook now," Leo Thibodeau explains. "It's all trucked to the railroad and we're putting wood on the



A Sight That Grows Less Frequent—*Water driving wood is growing less frequent these days in the forests of Maine. In this photograph, Great Northern Paper woodsmen free a jam of four-foot pulp wood. In a sense it is a historic photograph; Great Northern no longer drives wood.*

B. and A. now that used to take two years to get to the mill by water."

The Big Machias drive that saw 50-60,000 cords of pulp driven to Sheridan, then conveyed out of the river and loaded into rail cars died quietly eight years ago. The same wood is now trucked and loaded on rail at Moody and MacDonald sidings.

The woods horse, a truly unique animal with a high degree of intelligence, is one of the few institutions to survive the sweeping changes, although his numbers have been drastically thinned. The Northern still uses about 200 of these marvelous beasts in its woods operations, but used as many as 1600 before the advent of the tractor and truck.

"On very rough terrain, the horse is more effective than mechanized equipment," Rod Farnham says. "The horse really takes the place of a third man in the crew. The chopper fells a log, chains it to the trace and gives the animal a pat on the rump to head him out the twitch trail to the yard

where the second man will be sawing logs into four-foot bolts. After the second man unhitches the log, he simply turns the horse around and the animal returns to the chopper without further guidance."

The change in the woodsman's way of life, and the change in the man himself, have been no less dramatic than the change in the mechanics of harvesting wood.

When Bangor was the lumber capital of the world, there were some 3,000 woodsmen, of many nationalities, in its labor market. The isolated logging camp was their home from early fall until mid-March when they would return to Bangor's Exchange Street to raise their legendary hell.

Early May would see them back in the forests driving the winter's cut down river and there would be peace in Bangor until late August when they come back for another few wild weeks.

"Now," says Leo Thibodeau, "most of the men who work in the woods are married men with small farms. During the week they live in a camp with all



Wood for the Mills to the South—Pulpwood lines the highway awaiting trucks to carry it to the paper mill. In this case the mill is that of the Great Northern Paper Company and this wood was cut on the company's land in the Fish River area.

the modern conveniences and go home every weekend.”

While the Northern and the major companies have always cut to a diameter limit, the mechanization and the increase of wood useage has brought with it an even greater awareness of the tree farm concept. The Northern, for example, was among the first to inaugurate a formal policy of not cutting within 100 feet of a roadway, a lake or a major stream. In 1963, the company was recognized by the American Tree Farm System for having the largest tree farm (1,408,000 acres) within the borders of a single state. The company marks each spruce for harvest by a splash of orange paint at the butt of the tree and another farther up the trunk. There's some serious explaining to do when the forester finds a spruce stump without a paint splash.

With these enlightened techniques, more wood is being grown annually than is being cut. This, in the language of the forester, is “sustained yield logging.” The rainfall, the fer-

tility of the soil and seed from residual stands of timber make hand planting unnecessary. Anyone who doubts the tremendous vitality of the northern soil need only visit one of the hundreds of deserted backwoods farms that dot the Aroostook to get an idea of how quickly the encroaching forest can obliterate the marks of civilization.

The volume of wood that is required for paper is fantastic. Aroostook County alone produced 441,816 cords of pulpwood (Rough Standard Cords) last year worth some \$9,000,000 when delivered to the mill. Aroostook, Penobscot, and Piscataquis combined, produced around 1,100,000 cords at a mill delivered price of more than \$21,000,000. Just the wood production of this crop provided average 12-month employment for over 2,100 men.

The Northern itself needs more than 750,000 cords for a year's production at Millinocket and East Millinocket. One-half of it comes from its two and a quarter million acres of

timberland; the other half from adjacent forest tracts.

In all, the Northern looks to three sources for its wood. There is purchased wood, some of which is the product of a farmer's woodlot, there is wood cut by a contractor engaged by the company and there is wood cut by the company.

The company itself cuts about one-third of its yearly requirement. There are nine portable operating camps complete with showers, inside plumbing, electricity and a modern kitchen. Several of these operations will be the responsibility of one woods' superintendent and in Aroostook County the supervisor in charge is Newcomb Sutherland of Portage.

The Northern employment of woodsmen runs from a low of 225 in March, April and May to a high of 750-800 for the remainder of the year and the annual payroll runs to around three and three-quarter million dollars.

Purchased wood is an important cash crop for many farmers since it provides income and employment during the winter months. The small cutter often does business with a broker like Wallie Albert of St. Francis who buys from several farmers and also contracts with woods workers to

Approved for Harvest—This paint splash is evidence that this spruce was approved for cutting by one of Great Northern's foresters.



cut on stumpage that he purchases. Wallie sells from 3,000 to 8,000 cords of pulp to the Northern a year.

The Northern also depends on contractors like Pat Levesque and Pat Nadeau for much of its pulp. They are independent operators who run their own camps and hire their own crews.

Not all the timber, of course, is cut for pulp. Hardwood and pine stumpage may be sold to operators like Tom Pinkham who last year built a million-dollar, push-button sawmill at Nashville Plantation near Ashland. Pinkham's mill, unique on the American side of the border east of the Mississippi, slices hardwood, pine and spruce into boards for the kilns at the rate of from 80-100,000 board feet a day. Hardwood stumpage is used by several furniture and veneer plants in the state. It is made into railroad ties and mine timbers; it even went into cofferdams during a hydro-electric construction project on the St. John River.

Little is cut in the forest these days that isn't used. Lumber mill slabs and edgings that went into the burner not too long ago are now chipped and sold to the paper company and the debarker that makes this possible is becoming as commonplace in a modern lumber mill as it has always been in a paper mill.

Tom Pinkham's mill is an illustra-

The Heat Comes in Handy—Heat generated by this sawdust burner at the Pinkham mill supplies some of the heat needed by the drying kilns and the mill itself.



You Push Buttons in a Sawmill These Days—A log is sawed in the automated "push button" Pinkham lumber mill near Ashland. The modern sawmill, with its electronic equipment, is a far cry from the mills that dotted the Penobscot when Bangor was the lumber capital of the world.

tion. It chips its own slabs for sale to several paper mills. It also chips slabs from other mills, such as the Levesque mill at Masardis, that also end up as paper.

Although the Northern is the largest single shipper of wood on the Bangor and Aroostook, other mills use the railroad's facilities and International Paper most notably so.

International owns huge tracts in northern Aroostook which supplied wood for its mill at Lisbon Falls and now supplies the company's new and much larger mill at Jay.

International loads its wood on end rack cars at St. Francis and the Bangor and Aroostook interchanges them with the Maine Central at Northern Maine Junction.

To handle the International's increased need for wood the two railroads recently purchased 368 end rack cars which are 64 feet long and can carry 32 cords. Of this total, 168 were bought by the Bangor and Aroostook.

Because of the increasing use of wood chips by the paper mills, the Eastern Fine Paper Division of Standard Packaging at Brewer and Penobscot Chemical Fibre at Great Works

now get some of their wood supply via the Bangor and Aroostook. It comes from several points on the line but chiefly from Houlton.

Those who think of the vast timberlands that spread from the western periphery of Aroostook to Quebec as a trackless forest are a generation behind reality. This forest is now laced with roads of which 700 miles alone were built by the Great Northern and many more miles by such woods operators as International Paper, K. C. Irving and others. Most of these roads are shared with the public.

The forest is a regenerative source of wealth for the state, an assurance of continued employment for a sizeable segment of its people and a recreational area for those who want to be away from the crowd.

As Peter Paine, the Northern's president puts it: "With the world turning to North America as the last remaining source of unused coniferous fibre in the free world, these woodlands take on added significance, both as a resource that is bound to increase in value, and as an assurance that our own mills will always have enough wood to meet their needs."



Something New Is Added—For Aroostook County this is a novel sight; a machine digging the sugar beets planted experimentally in 1965 in anticipation of the opening of a refinery at Easton in 1966.

Aroostook's New Crop

That a refinery to process sugar beets is under construction in Aroostook County is common knowledge. Known to no more than a handful, however, is the fact that the sugar beet is no newcomer to the county.

Indeed, it dates back to 1921 when beets were grown as an experimental project whose objective was another cash crop that would cushion the impact of the potato crop on Aroostook's economy.

To demonstrate that beets could be grown was one thing; to find a buyer for them, very much of another. The refineries on the Atlantic Seaboard processed cane sugar and, for that matter, still do. In fact there were no beet sugar refineries east of the Missouri River and they did not lack for beets.

Hence the project died for lack of a market and would still be dead had it not been for the Castro revolution in Cuba.

It is difficult to think of another commodity that is as rigidly controlled by the Federal Government as sugar. Federal quotas determine the number of tons that may be imported into the United States and the total it-

self is allocated among the several producing countries.

Moreover, Federal quotas determine the amount of sugar that may be produced in this country and how much of the total will be cane and how much beet.

Thus when the United States barred sugar from Cuba, it took steps to replace it by re-allocating import quotas and expanding the quota for domestic production of both beet and cane sugar.

It was the possibility of a beet sugar quota for Maine that reawakened the interest in sugar beets in Aroostook County and, eventually, to a trip by a county committee to Washington in 1962 to request an allocation of acreage for beets.

It was the outset of a project that was constantly beset by problems that were, at best, substantial and, at worst, seemingly impossible of solution.

With much more comprehension of the magnitude of the problem the committee came home, raised money and arranged for test plots of beets.

With a major assist from the University of Maine, the beets were grown, harvested and tested for sugar

content. Federal experts attested to its adequacy and eventually Maine was granted the second quota in the East—New York was first—to grow sugar beets.

The almost insurmountable difficulties of financing the construction of a refinery were at last overcome and a western refiner agreed to take over the project and start production after the harvest of 1966.

In the fall of 1964 the project was almost as near death as in 1921. Based on the reports of its agronomists, the refiner announced its lack of assurance that beets with a requisite amount of sugar content could be grown in Aroostook. As a result, it said, it was withdrawing.

Other states thereupon clamored for Maine's allocation and one of them would have been awarded it had it not been for Fred H. Vahlsing, Jr. Expressing his belief—which was supported by experts of the university—that Aroostook could grow beets with enough sugar to warrant processing, he agreed to build the essential refinery adjacent to his company's potato processing plant at Easton.

The allocation was saved through the efforts of the energetic Vahlsing and other long-time supporters who interceded in Washington and also helped arrange the financing. Maine Sugar Industries was born February 15, 1965.

In October eight lumbering harvesters began digging the beets planted on the 500 test acres in the spring.

Those who saw the first beets as they rolled out of the earth onto harvesters last month pronounced them large and well shaped. Looking something like oversize parsnips, they were loaded onto trucks with specially built mesh bodies and trucked to the site of the sugar processing plant.

As the steel skeleton of the \$14.7 million refinery inched skyward, the heavily loaded trucks rumbled up to

the 8-acre piling area. The hinged truck body was tipped and its load dumped on a huge beet piler which removes foliage and loose soil and leaves the white vegetables in piles as high as 23 feet.

The beets were grown under the sponsorship of Maine Sugar Industries, Inc., Maine Sugar Beet Growers Association, and the University of Maine Extension Service. From the results of two years' growing, there seems to be no doubt that the beets can be successfully grown in Aroostook. A University of Maine report concluded that Aroostook meets all of the agronomic requirements to grow sugar beets on a commercial scale.

The generous rainfall in the county eliminates any need for the irrigation that's required in many beet raising areas. And 75 years or so of fertilization for the potato crop has left the soil with a high state of chemical fertility. Too, the harvest season for beets falls after the potato harvest.

The task now facing Maine Sugar Industries is to complete the huge refinery and contract for the growing of 33,000 acres of beets in 1966. The present goal is for completion of the refinery in time for the 1966 harvest next October.

The processing of sugar beets into sugar is an extraction process. The resulting sugar is identical, chemically and in appearance, to cane sugar. When the beets reach the plant they are cut into thin strips and placed in diffusers in which a sugar solution is produced. This solution is then exposed to purifying and filtration processes which remove nonsugars.

The product emerges as a thick juice which is evaporated to produce a thick syrup in much the same way that maple syrup is produced by evaporating the collected sap. The heavy syrup is placed in large centrifuges which remove the sugar crystals from the syrup.

Headed for the Stockpile—*Sugar beets grown in 1965 are loaded into a gondola as an eventual first step in their travels to Easton. This was a test loading in anticipation of train loads from collection points.*

The remaining syrup is then further refined to extract available sugar and, finally, subjected to demineralization to extract the greatest possible amount of sugar. The remaining sugar, called final molasses, is mixed with the original beet pulp, dried and sold as feed.

Another by-product of the purification process is agricultural limecake which will also be sold, perhaps to the sugar beet growers who will require the addition of lime to beet growing soil.

The beets are purchased from individual growers at a price negotiated with the growers association. There are also bonus provisions based on sugar content and the company's sales.

Of Aroostook's 405,000 acres under cultivation in 1962, only 135,000 were planted to potatoes. Clover, cover crops, soil bank reserve, spring oats, crop land conversion and peas accounted for the remaining acreage. Because sugar beets return to the grower the highest percentage—42 per cent of the retail selling price—of all the foods in the USDA food basket, they will provide a profitable rotation-

al crop for potatoes. Hence there is no reason to believe that beets will significantly lessen the county's potato acreage.

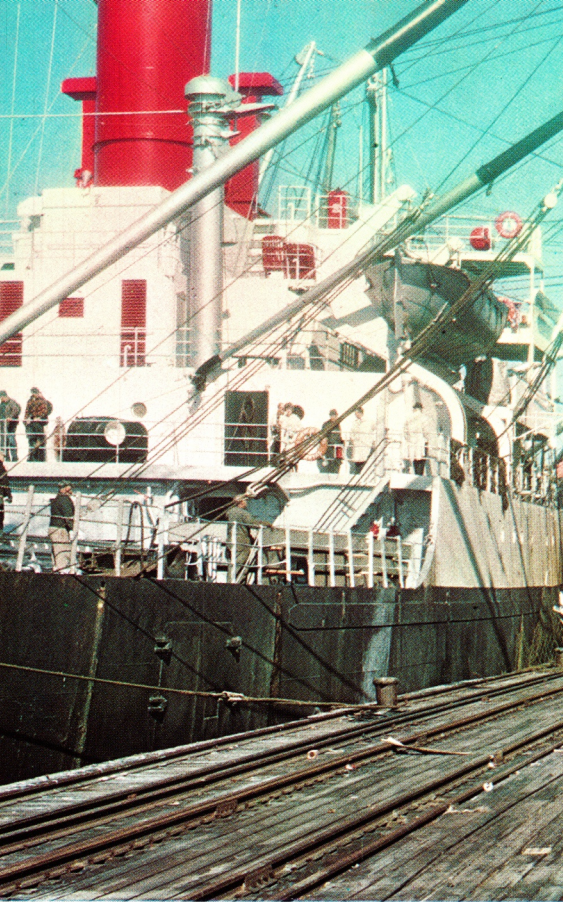
The relatively high rate of return from sugar beets should permit a grower to hedge part of his acreage in beets as insurance against low potato prices. A large supply of low cost livestock feed in beet pulp suggests the development of a feeder industry.

The direct contribution of the refinery will include employment for 150 year-round employees and for another 200 on a seasonal basis. The refinery itself will operate on a round-the-clock basis for the 130 days after the harvest.

No one really believed four years ago that the project would ever survive the formidable political opposition from other growing areas, or meet the complex Federal requirements for the allocation.

Its birth and revival are miracles twice over and its nearness to the final goal is a tribute to the determination of Aroostook people and their good friends to create a new industry in the county.





Steel Arrives From Germany—A freighter brings in steel from Germany for the new beet sugar refinery to the Bangor and Aroostook pier at Searsport. This deep water pier is 800 feet long.

The Rails Meet the Sea

Even before the days of the China clippers, Searsport was a seafaring town. The first settlers stepped ashore from their boats about 1763. Later these same settlers joined with the British in naval battle during the Revolutionary War.

Ship building was an early trade at Searsport and, along with the schooners, the town produced the men to sail them. It was during this time, in the latter half of the nineteenth century, that Searsport acquired the name, "Home of World Famous Sea Captains", that has persisted to this day.

The waning of sail and the coming of the railroad occurred at roughly the same time in Searsport's history. And, with this evolution, the town's industry changed from ship building to shipping.

Two piers now serve the Port of Searsport, the C. H. Sprague & Son bulk handling facility and the Bangor and Aroostook pier. Both piers are served by the railroad.

Berths on both sides of the Bangor and Aroostook Railroad pier are dredged to thirty-two feet at mean low water and the 850 foot berth at Sprague's pier is dredged to the same depth. The piers have an access channel 500 feet wide and 35 feet deep with a 1,500 turning basin of the same depth off the pier line.

Searsport Harbor covers an area of roughly two by three miles with excellent sheltered anchorage. There is a controlling depth of 40 feet at mean low water. Average tide is ten feet.

The Bangor and Aroostook Railroad pier is approximately 800 feet long by 100 feet wide and has three warehouses on the pier and a fourth warehouse on the pier approach connected to the three pier warehouses by an enclosed ramp.

The four warehouses have a total capacity of 11,795 tons with 36,400 square feet of storage capacity. All warehouses are protected with modern sprinkler systems and are well



lighted. The pier is also floodlighted to permit night work.

Three railroad tracks run the full length of the pier so that cargo may be transferred directly between boats and railroad cars or between a warehouse and railroad cars as well as between ships and a warehouse.

The pier is equipped with belt conveyors and towers for handling bagged cargo. Other types of cargo can be handled with conventional equipment. Twenty-four cars may be loaded or unloaded on the west side and twelve cars on the east side between switching operations.

The Sprague Pier is 614 feet long and has a berth on the east side 850 feet in length, extending all the way to the channel. It is equipped to handle dry bulk cargo by grab bucket from each of three moveable towers. Cargo can be loaded directly into open-top railroad cars and trucks or put into ground storage.

The track capacity of Searsport Yard is 700 cars. Storage tracks will hold 350 cars with the remainder working tracks. Other storage tracks within the Searsport switching area will accommodate 157 more cars.

The Bangor and Aroostook Railroad owns large areas of land in and around Searsport that are ideally suited for industries requiring a combination of rail and port facilities.

Present facilities at the port now efficiently handle exports and imports of fertilizer materials, coal, tapioca, petroleum products, agricultural products, paper products and chemicals. These facilities are readily expandable to handle almost any commodity.

Searsport has had a glorious past and has a promising future. It is now a most important Maine port and is steadily growing. Strategically located in the heart-land of Maine, it is the closest important United States port to Europe.

The End of the Line—Here is Searsport, southern terminal of the Bangor and Aroostook. In the foreground is the Sprague pier and behind it the railroad's. To the right is Sears Island. Smoke marks the Summers plant at Kidder's Point.



Research and Paper Making Go Hand in Hand—The structure at the right is Great Northern Paper's engineering and research building which was completed in April, 1962, at Millinocket. At the left is the Millinocket mill which, at one time, produced nothing but newsprint but now also manufactures various types of specialty papers including coated papers.

Two Mills Are Born

In the Spring of 1891, just 36 years after papermakers discovered that cellulose fibre derived from coniferous trees could be made into paper, a Bangor civil engineer, Charles W. Mullen, was surveying a route for the new Bangor and Aroostook Railroad.

Fortunately, Mr. Mullen wasn't so preoccupied with his work on the West Branch of the Penobscot River in Indian Township No. 3 that he missed the industrial possibilities of a 110-foot drop in the river at Grand Falls. The prospect of a paper mill making use of this potential hydroelectric power so excited him that he determined to interest someone in such a project.

Backing didn't come for another eight years (1899), so the railroad was born first, although both the railroad and paper company have grown up together in the ensuing half century.

Today, Great Northern is the B and

A's largest customer. By 1965, it was accounting for nearly one-third of the railroad's freight revenues and it has always been an important stabilizing factor in the road's traffic.

In 1899, a lonely farm was the only habitation in the area that was to become the site of Great Northern's Millinocket mill. The only link with the outside world was the Bangor and Aroostook. And over this road came the makings for what was then the largest paper mill in the world.

The new Great Northern mill produced its first roll of newsprint on November 9, 1900 and had a manufacturing capacity of about 75,000 tons of paper a year. Not only was it the largest of its kind, Great Northern's Millinocket mill was also the first to have an electrical generation and distribution facility built into the plant. (The water flowing through the penstocks to the hydraulic turbine



Winter Wood for Great Northern's Grinders—When winter comes in Maine a vast pile of wood is required to keep a paper mill in operation. This wood is at Great Northern's operation at East Millinocket. The mill itself is in the background and among its paper machines are two of the largest and fastest in the world.

discharged into Millinocket stream from which the town took its name.

Great Northern's East Millinocket mill was built in 1906 and increased the Company's annual production potential by 35,000 tons. (At that time, the site was known only as Burnt Land Rips, the name being taken from falls on the Penobscot.) East Millinocket began operation in 1907 with three machines. A fourth was added in 1913. During those halcyon days, pulpwood came to the mill as six-foot "long" logs, and then was cut into two-foot lengths. The conversion to four feet came in the 30's.

With eight machines at the Millinocket mill and four at East Millinocket, Great Northern had one of the outstanding production facilities of the day. Some of the machinery evolved by the company's pioneering still carries the company's name, more or less as a generic term. "Great Northern" grinders were an indigenous development and are still known in the trade by that name.

The years between the founding of the company and the early 50's were years of consolidation and growth. In 1953, Great Northern embarked on a major expansion and diversification program, a step that was to lead the company into the growing field of groundwood specialty papers and

lightweight coated grades.

The expansion at East Millinocket involved the construction of a new wood room, grinder room, water filtration plant, screen room, boiler house, a steam-electric generating plant and the world's first commercial plant to produce groundwood pulp from hardwoods by the chemi-groundwood process.

Two of the largest newsprint machines made up to that time were installed in the new plant. The expansion tripled production, and capacity is now approximately 1,000 tons of paper a day. Great Northern sells its newsprint to some 250 newspapers east of the Mississippi River.

The introduction of high pressure steam added a new dimension in efficiency. At high pressure, the steam generated electricity. At a lower pressure, it was utilized to drive the paper machines and at exhaust pressure, it provided the heat to dry the paper.

The generating capability of Great Northern's two high-pressure steam-electric plants and six hydro-electric generating facilities are capable of producing a staggering 200,000 h.p. Translated into domestic needs, the company's power output could light a city of 500,000 people.

The modernizations of the early 50's and 60's, beginning with the in-

stallation of the William O. McKay hydroelectric power station at Ripogenus dam, began a decade that was to see tremendous changes in Great Northern's physical plant as well as a major branching out in manufacturing and sales. In 1958 a new high-pressure thermal generating station was added and in 1962 construction began on a coating plant at the Millinocket mill. Also at Millinocket the sulphite mill was extensively modernized (it is now undergoing further improvements) and an eight-mile-long, 18-inch pipeline was constructed to carry sulphite pulp from Millinocket to East Millinocket. A modern Engineering and Research Center was added in 1962. Last year, the company invested \$7 million on mill improvements to increase production and produce better quality paper.

To operate, Great Northern uses nearly 600,000 cords of wood a year and employs about 2,000 people. Woodlands and office personnel swell the total to about 4,000 with indirect employment for probably a like number. Last year its Millinocket and East Millinocket mills produced an all-time high of 598,000 tons of newsprint, groundwood specialties and lightweight coated paper.

Great Northern is the largest industrial enterprise in Maine, and in the last two years the company has taken the first step in becoming a national enterprise. It now owns a kraft linerboard mill in Georgia and is fast becoming an important factor in the packaging industry. To emphasize this, President Peter S. Paine told stockholders this year that "Great Northern is emerging from a one-product, one location company to a more diversified enterprise."

The relationship of Great Northern and the B and A is unique, and its uniqueness imposes special obligations on the carrier and, probably, some restraint on the customer. The quality-conscious Northern expects and receives the best transportation service for its money . . . and the railroad enjoys the confidence and good will of its largest customer.

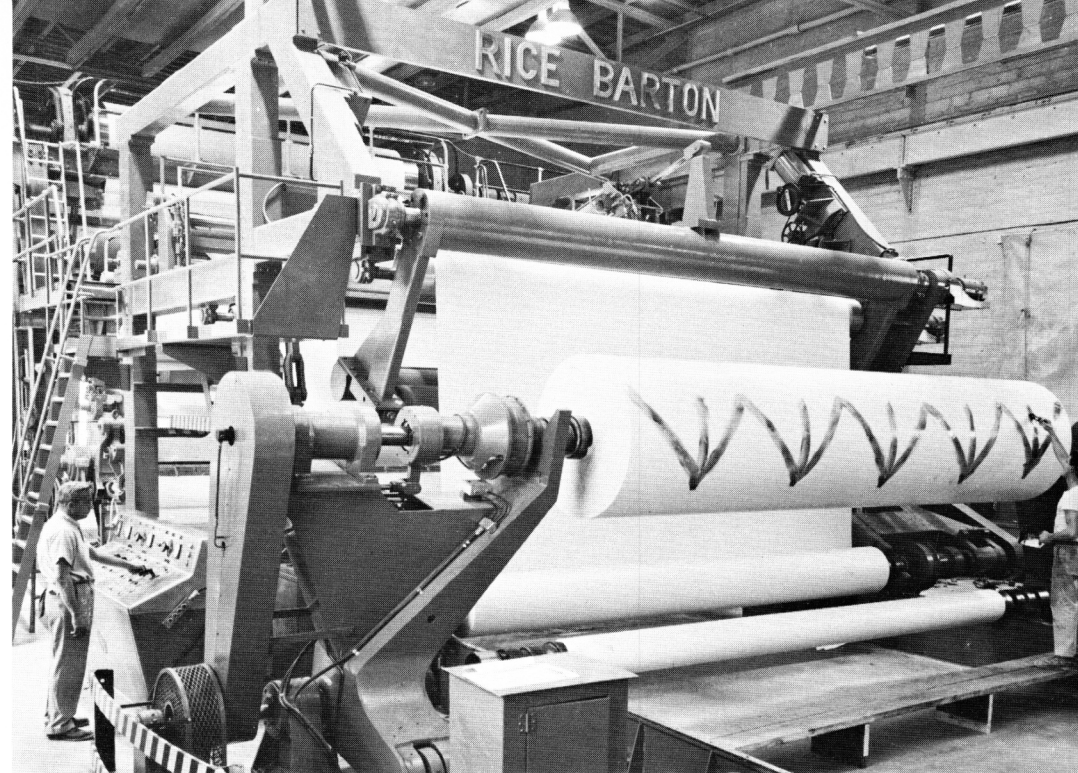
One Mill Under Two Flags

Donald Fraser began his business with a sawmill and the company still produces 32 million board feet of eastern Canadian spruce lumber at its two modern sawmills. One is located at Cabano, P.Q., about 40 miles north of Edmundston and the other at Plaster Rock, N.B., some 65 miles south of the home office. The lumber is sold largely in Canada and the United States with some exported overseas. The sawmills are an important link in the overall production unit. Woodchips that feed the pulp-mills are an increasingly important by-product of the sawmills. By utilizing the mill waste—edgings, slabs and trimmings—for woodchips, the mills have a more economical wood supply and there is full utilization of logs.

Research and development is a major concern of Fraser Companies. The search for better methods of processing and storing raw materials has brought about a new look in the pulp-wood yard. Gone are many of the huge storage piles of round wood and in their places are compact piles of woodchips.

Fraser has found that operating and maintenance of chip storage is less than that for round wood. Labor costs have been reduced and studies have indicated that expensive fibre protection systems may be greatly simplified or eliminated. Fraser's research people are now chiefly concerned in the area of product improvement and the treatment of waste and recovery of chemicals. Such a process will make recovery of used chemicals from the manufacturing process possible and lessen the amount of effluent released by the mills.

The company has also mechanized its procedures for wood procurement as a result of its extensive logging de-



A Coater for Fraser Specialties—This machine coats paper produced by Fraser Companies, Limited, in Madawaska. Fraser is a unique operation with its production of paper in Maine and its production of pulp for the Maine mills across the St. John River in Edmundston, N. B. The pulp is piped across the river with the pipe itself attached to the international bridge.

velopment program. With a growing scarcity of skilled woods labor, mechanization has grown in all of Fraser's decisions. In its Plaster Rock Division, for example, all marketable spruce and fir trees are cut into log length instead of both log and four-foot bolts, an innovation that has made for efficient mechanical handling. After debarking, the logs are sorted and the largest and best are sawed into lumber. The smaller logs go into a chipper to produce raw material for use in the pulpmill. Even the bark and sawdust are used to provide part of the power to utilize the sawmill.

Fraser is a remarkably well integrated group of companies that provides full-time employment of 3,200 people and seasonal employment for another 2,000 to 3,000 persons. It ranks as one of the Bangor and Aroostook's best customers and, in Madawaska, Fraser is considered the best neighbor in the whole valley.

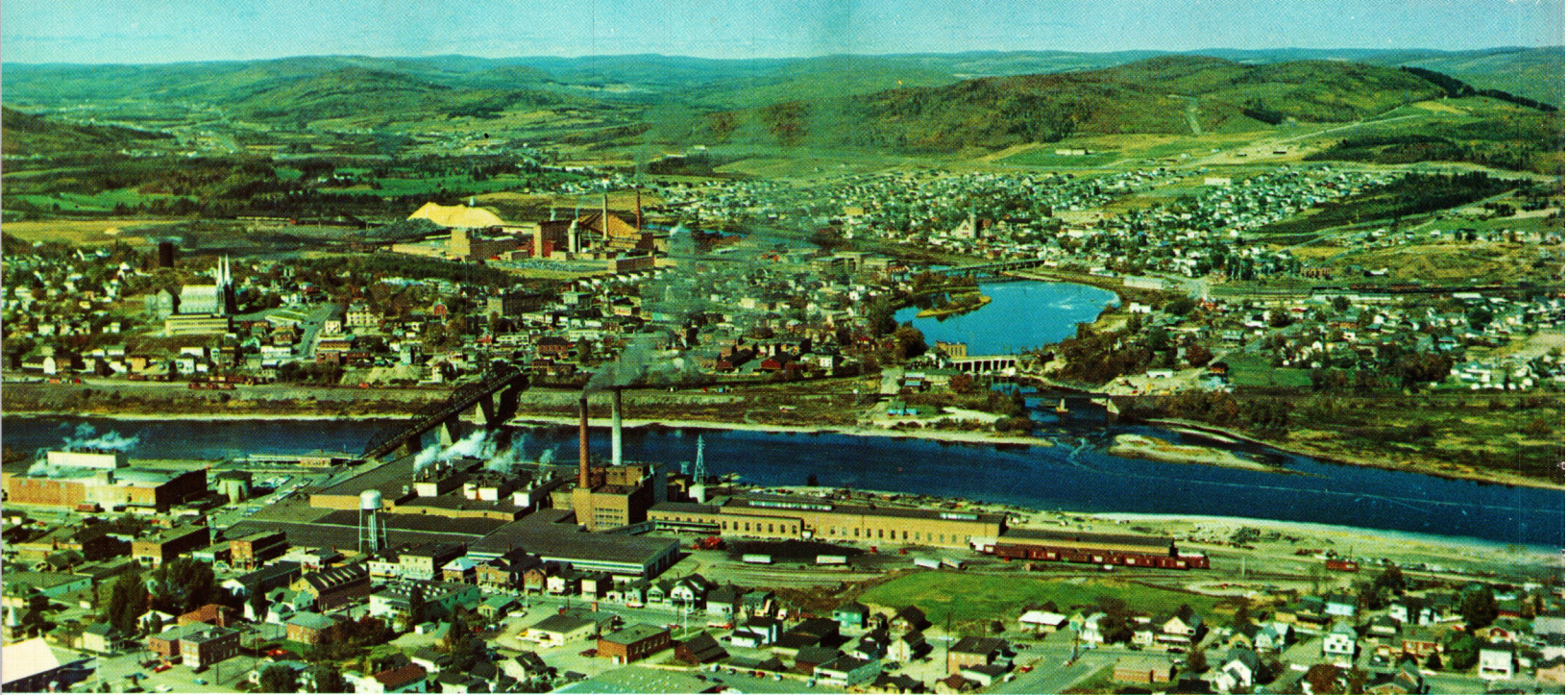
Although neighbors along the International Boundary between Canada and the United States often chafe under the restraints imposed by that artificial barrier, a flourishing commerce has developed between the border towns. Nowhere in Maine is that

commerce more international in character than at Madawaska, the state's northernmost town, and Edmundston, N.B., headquarters for Fraser Companies, Limited.

Edmundston is not only the headquarters general offices of Fraser Companies, Limited, a distinguished family of Canadian companies founded in 1877, it is also the site of mill complexes producing sulphite pulp, groundwood pulp and paperboard. The sulphite facility produces 450 tons of pulp a day and the groundwood mill 150 tons. Most of the output of these two plants go across the St. John River as a thin slurry in mile-long pipelines to two paper mills of Fraser Paper, Limited, a wholly-owned subsidiary of Fraser Companies, Limited.

The Madawaska mills have a combined capacity of approximately 700 tons of paper a day. Measured in terms of economic and social impact on the town of Madawaska and its 5,500 people, Fraser is a major factor in the prosperity of the area. The Madawaska Mills employ more than 1,000 persons, most of whom live in the community.

At Madawaska one mill with five



modern machines manufactures from the slurry 480 tons per day of printing and converting papers. The same mill also produces specialty coated papers. The other mill with its two high-speed machines produces 235 tons of light-weight groundwood papers a day.

The production of both mills covers three broad classifications: printing papers, groundwood papers and converting papers. Mill brand papers are sold under the familiar *Snowland Bond*, *Kedwick Offset*, *Fra-Opaque* and *Snotext* trademarks. The types offered are bond, ledger, manifold, mimeograph, duplicator and offset papers. Groundwood papers are used for catalogues, directories and publications. And the Fraser converting papers are used for carton wrap, bread wrap, stamps, gift wrap, drinking straws, tablets, envelopes, frozen food wrap and many other products.

The mills at Edmundston produce most of the fibre for the Madawaska plants. In addition, the facility has a plant for bleaching kraft pulp shipped in from the company's mills at Newcastle. Some of the fibre is used by the paperboard mill at Edmundston which produces high grade coated and uncoated paperboard. The approximately 85 tons per day of this product is sold in Canada and is primarily used for the packaging of consumer goods.

Together the Edmundston and Madawaska mills are an integrated

production unit that has brought economic stability to that portion of the St. John valley. Both, however, are only a part of Fraser's production facilities. Two more chemical pulp mills are located in the province, one at Newcastle on the Miramichi River and another at Atholville at the mouth of the Restigouche River near Campbellton, N.B. The Newcastle mill produces about 215 tons a day of unbleached kraft pulp, about half of which is shipped to Edmundston

where it is bleached and pumped to Madawaska. The mill is presently undergoing a major expansion that will more than double its present capacity.

The Atholville Mill produces 275 tons of bleached sulphite woodpulp a day. About 85% of the production is from softwoods and the pulp is sold in Canada, the U.S., the United Kingdom, Continental Europe and South America. The balance is produced from hardwood and is shipped to the Edmundston mills.

The Wondrous Allagash

For centuries, the Allagash waterway has been a natural wilderness roadway across the top of the State of Maine. The Indians used it as a route to the St. Lawrence. From its territories and its tributaries they got their food, their clothing and many of the materials for their rude tools. Then the trappers and lumbermen found in its winding torrents a transportation artery for the fruits of its primitive forests.

A not inconsiderable body of legend and tales has been built up about the waterway trip itself and the men who have followed its stormy waters over the decades.

Of all the distinguished and diverse voyageurs who have ridden the waters of the Allagash country, none has been quite so articulate and percep-

tive as Henry David Thoreau, eccentric, scholar, and naturalist. And, although Thoreau only touched the headwaters of the Allagash—at Telos and Chamberlain—during his last extensive trip to the Maine woods in 1857, it was he who was to stir the imaginations of thousands of travelers who would make the Allagash canoe trip live wherever white water men met during the ensuing 100 years.

It is now a relatively simple run with canoe and motor to "put in" at Michaud Farm, some 49 miles above Fort Kent, and make the run up the Allagash to Round Pond, Long Lake and Umsaskis. Then one has, indeed, been on the Allagash. But it is a far cry from the trip through the chain of big lakes—Telos, Chamberlain, Eagle, Churchill and then down river.

Truly International—At the left is the manufacturing complex of Fraser Companies, Limited. In the foreground are the two paper mills at Madawaska, Maine; across the St. John the pulp mills at Edmundston, N. B.

As one veteran canoeman remarked, "Hell, anyone can get up a river with a canoe and motor; it's coming down 'em that separates the men from the boys."

After once having made the trip the easy way from Michaud Farm up the river to Umsaskis, making the entire trip from Telos to Allagash became an overwhelming ambition.

I did not want, however, to be taken by the hand by a professional guide. This was an adventure to be undertaken with one other like-minded soul in a single canoe; someone who would feel the same perverse satisfaction in pitting his strength and his skill against the river. This meant, of course, that there would be no second canoe to bail us out if we ran into trouble in Chase Rapids, in the Devil's Elbow, or some other unknown rip. But the prospect only added spice to the project.

My river partner was Merle Rainey, a teacher of mathematics, outdoorsman and amateur canoeman whose life-long ambition had been to run the Allagash on his own with only a bowsman for help. Our preparations were painstaking. The less weight one carries, even in the stable 20-foot guide's model canoe, the better off he is.

One pickup truck was left at Michaud farm and another took us the 100 miles from Houlton via Baxter Park to Telos the afternoon of June 18. The 20-foot Chestnut canoe rode in a rack above the body and cab, sheltering our wangan from the showers that flitted about the mountains.

After so many months of waiting, Telos was a disappointment. There were at least a dozen parked vehicles at the low and marshy Telos landing. Black flies swarmed in clouds, and the low-hanging clouds chose the moment of our arrival to loose a downpour that made an earlier shower seem like scotch mist.

There is just such a critical moment

at the outset of any adventure. It is all involved in the psychology of making the transition from suburbia to the rigors of the outdoors. Not that either of us seriously considered turning back, but it required a stern reminder of the words of Thoreau before we undertook to load the canoe for the two-hour run up Chamberlain.

"You soon come to disregard rain on such excursions," he wrote. From that moment, we gave little thought to the rain which dogged us for two days.

We had hoped to stop and explore Chamberlain farm, but by the time we had worked our way through Telos, Round Pond and the arm of Chamberlain, a stiff southwest wind began to slop the crests of water into the heavy-laden Chestnut and forced us to beat up the opposite shore. The Indian name for Chamberlain is Apmooje Megamook which means, "lake that is to be crossed". It is well named.

By this time the storm clouds had retreated behind Katahdin making a dramatic background for the lesser mountains receding in our wake. I think we both felt a little of the awe



En Route to the Allagash—Merle Rainey pilots a 20-foot canoe up Chamberlain Lake enroute to the headwaters of the famed Allagash. All color photographs were taken by Richard W. Sprague.



Getting Ready for a Portage—The wangan is transferred preparatory to a portage around the dam at Long Lake and re-embarkment in the Allagash River. Well behind, and safely negotiated, lies the white water of Chase Rapids, highlight of a trip down the Allagash.

with which Thoreau wrote of his visit 108 years earlier.

We passed the island where Thoreau and his companions lunched and were nearly marooned for the night by the high winds. I focused my binocular on Chamberlain farm where the earlier party stopped and purchased four pounds of brown sugar at 20¢ a pound. I made out a barn and several outbuildings, their weathered boards silvered by the afternoon sun.

When Thoreau saw the farm, a century ago, some 600 acres of meadow surrounded the buildings erected in 1846 by Eben S. Coe of Bangor as a supply base for his Telos lumbering operations. Now it has been vastly shrunk by the encroaching forest.

It was 7:30 and the sun was close to the horizon when we reached Lock Dam where Chamberlain would normally empty into Churchill. It was the construction of this dam that precipitated what northern Maine people call "the Telos War" between rival lumbermen, fighting for the waters of the Allagash which the dam diverted to the Penobscot.

The first night under canvas, with long-remembered outdoor sounds, is always an exciting experience. But our long day made sleep come quickly. The next morning we arose early, and cooked breakfast while the dam keeper opened the gates to provide enough water to float us through the short thoroughfare into Eagle Lake. By the time the camp chores were finished and the canoe portaged over the dam, there was canoeing water.

Both Eagle and Chamberlain are rimmed with the bleached skeletons of trees killed by the flooding and then left by the bursting of the dam at Churchill. They are a reminder of the fact that the level of the lakes of this country is in a constant state of flux depending on man and the uses he has made of the water. It was so even when Thoreau last visited them, and he remarked on it.

Eagle is a superb lake ringed by undulating hills. When we saw it, the slopes were covered by a carpet of varying greens of deciduous and coniferous trees. We made directly for

Tramway, the site of a huge conveyor built and operated at about the turn of the century to transport wood from Eagle to Chamberlain. Later, in 1927, it was the terminus of Edward "King" Lacroix's famed Eagle Lake and West Branch Railroad which ran from Chamberlain to Chesuncook and was used, during its short life, to transport nearly three quarters of a million cords of wood out of the Allagash.

The Maine Forest Service maintains a station at Tramway staffed by a genial warden, 'Dolf Dunphey, who spends about six months a year in this remote wilderness spotting fires, fighting them and maintaining the authorized campsites. Woodspeople like 'Dolf are never petty or small as are so many who are crowded into settled areas. They are hospitable, considerate and always ready to lend a woods traveler a hand. And a drink from 'Dolf's spring compares with the best French wine for a thirsty traveler.

At Tramway you can still examine the remains of the railroad and, although less evident, the conveyor system. The dwellings, that housed the crews which moved such a quantity of wood 35 years ago, sag with age in the heat of the June sunshine. The locomotive shed is still there, complete with the two oil-fired locomotives that once huffed busily between Eagle and Chesuncook. They stand on rusted tracks that begin and end in a forest of new evergreen. The engines, save for the vandalism of souvenir hunters, are in good repair. The outsize lumber cars, exposed to the elements these 35 years, are now in ruins.

It was an eerie sensation standing in the cool forest that has grown up about the locomotive shed. It was almost as if the people who ran the railroad had been called away on an errand and had never returned.

The hill country and the huge expanse of the lakes are obviously weather breeders for a thunderstorm of epic proportions came howling out of the northwest shortly after noon and circled around us. It buffeted the forest a half dozen miles away and then raced across the lake, beating down the waves as it went.

After an afternoon of dodging showers and exploring, we camped for the night at Zeigler Campground of Eagle, with its panorama of lakes and hills. It was here that we had our second encounter with the blackfly (*Simulicum Molestum*) which Thoreau describes as "a very small, but perfectly formed fly of that color about one-tenth of an inch long." He neglected to mention its antagonism to man. The most effective protection against this insect's vicious bite is nearly as unpleasant as the bite itself. Tied-down trouser cuffs and high-necked shirts with tight wrists are ill-suited to a warm day in June. Eventually, as with most of the discomforts of the trip, the blackflies became something to be tolerated as payment for the magnificent country.

Just before twilight, we eased the canoe up a long deadwater looking for brook trout for the breakfast frying pan. A tremendous savannah, studded with the white limbs of drowned trees, was all around and provided a fine cover for wildlife. Scanning the great marsh with an 8 X binocular I saw a truly ludicrous figure. A mature, whitetail buck stood watching us. He would have made a classic stag-at-eve picture except for one antler which was malformed and hung askew over one eye. The effect was that of a tipsy reveler home from a night on the town.

Many who make this trip have come to the wilderness for a brief escape from the pressures of civilization. Social amenities at the authorized campsites are minimal with none of the camaraderie one finds in the public campgrounds along the accessible highways. At Zeigler that night we camped, of necessity, within 100 yards of another party which avoided contact with us as assiduously as we did.

Sunday was to be our last day on the big lakes. While neither of us admitted it, the prospect of Chase Rapids before us the next day loomed much larger than when we blithely embarked on our adventure. We discussed the best way to run the rapids with 'Dolf Dunphey when he stopped at the campsite on a routine inspection.

"If I were you boys," he said, "I'd just set down easy with poles. I don't think you'll have any trouble."

Churchill was the last in this chain of large wilderness lakes, nearly round and ringed, typically, by either large hills or small mountains. We went immediately to the outlet to explore Churchill Depot which had been the base of King LaCroix's great lumbering operation 35 years ago.

The dam went out several years ago, dropping the water level in both Churchill and Eagle and further heightening the air of desolation of the deserted village. There was the large boarding house, the machine shed with 10 gasoline-powered Lombard tractors in various stages of preservation—even the bateaux stacked neatly for a season that never returned.

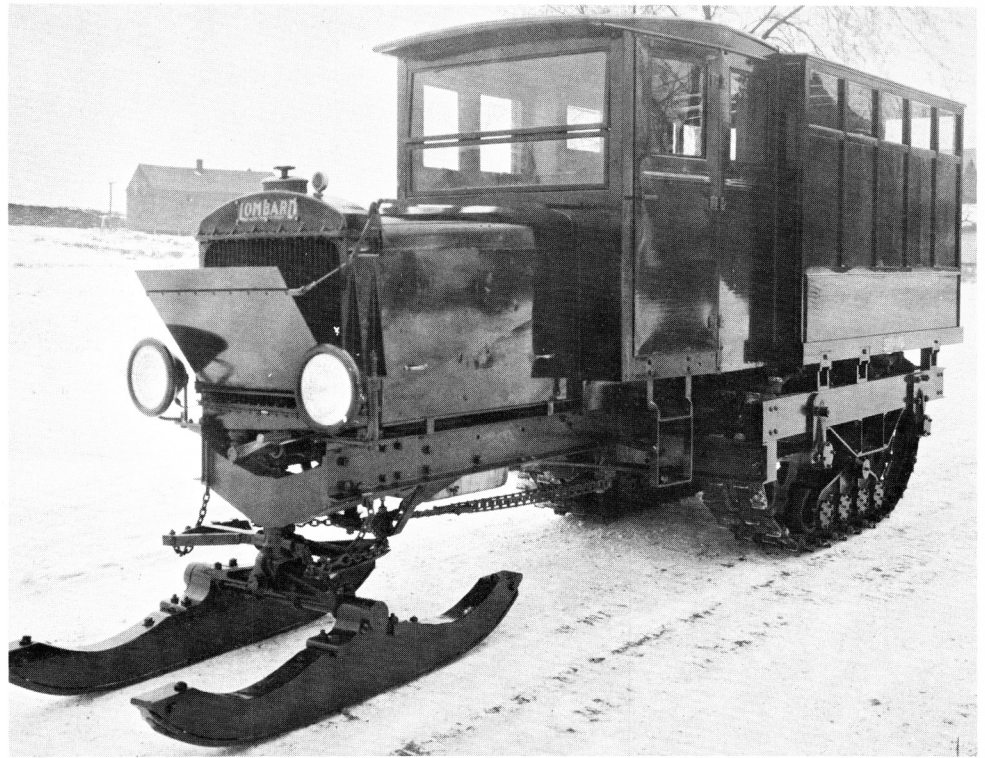
The company store was paneled with matched pine, boasted inside plumbing, a bonafide basement and a superb view of the river. It was "High-noon" and Tombstone rolled into one. Yet at one time there were enough men at both Tramway and Churchill Depot to field a competent baseball team and the highpoint of the week was the Sunday game.

It was here that we had our first look at the waters we had come so far to travel. Boulders thrust sharp edges above the surface, or worse, just below it, making the gorge echo with the turbulence.

We made camp that night in a copse of poplar and pine on a sandbar at the outlet of the lake. The temperature was in the high 80's and a stiff southwest wind helped to keep the flies in check. We decided to chance what hungry insects there were and wash away the fly dope and travel stains of two hard days afloat with a swim in the lake.

One of the delights of a wilderness trip is the rediscovery of such a simple pleasure as bathing in a cool lake when you're hot and dusty. It was pure delight; one of those unimportant little events that lingers long after other memories have faded.

We crawled into our sleeping bags



To Loggers of Years Ago This Was a Tractor—This rare photograph shows a so-called Lombard Tractor, a vehicle designed for logging. There are ten of these tractors, in various states of disrepair, in the machine shed built by King LaCroix for his vast operations centered at Churchill Depot.

early, each preoccupied with the day ahead. It was, at best, cocky to attempt this river alone. Even Thoreau had his Joe Polis as guide. I slept fitfully and awoke early. By 8, we had the canoe carefully packed with my photographic gear riding in an accessible spot, but lashed so that it would stay with the canoe in case we cracked up.

Merle Rainey, I had learned, was a good man to travel with. A WW-II fighter pilot with 69 combat missions to his credit, he is a man of cool and deliberate temperament. The Germans finally shot his P-47 out from under him and he made his way back to Allied lines.

Chase Rapids may not be so impressive to experienced river men, but to us the next two hours were worth the entire trip. I have never seen rocks covered by faster or thinner sheet water and the din was so great we had to shout to make ourselves heard.

"Setting down" with poles has one purpose. It enables the canoeman to keep his craft under control in fast wa-

ter by deft use of a long, metal tipped pole. The steersman in the stern navigates and the man in the bow occasionally helps by snubbing the canoe to the right or left. Some veteran steersmen will permit no help, preferring to rely on a single pole and their own skill.

The water in Chase Rapids tumbles downhill at express train speed, swirling over partly submerged rocks and washing against those that jut out.

Our technique was to pick a possible channel for, say, 40 feet, then guide the craft to the next obstacle. At that point we'd snub the craft and repeat the process. There were times when it wasn't possible to slow the canoe and Rainey would shout, "Ride her!" This was the signal to fend the craft away from the biggest rocks, hold tight and mutter a silent prayer.

Trouble, at any time during the navigation of the rapids, was only a misstep away. The depth of the rushing waters varied from a few inches to more than the full depth of the canoe pole. But there was only once

when trouble came uncomfortably close. A submerged rock caught the canoe amidship and held it while the current swung us around. The river can spill over the gunwales of a canoe that is firmly caught and break its back. Quick action of Rainey's part swung the bow into the current; then it was only necessary to come about and continue downstream.

The two miles through Chase Rapids took nearly two hours and when it was over we headed, by silent agreement, for the riverbank where we ate an orange.

"I think we left our signature on a couple of those rocks back there," Rainey grinned.

What he meant was that we had taken the best the Allagash had to offer without getting our feet wet. The remainder of the trip to the Ledges campground at Omsaskis Lake was a piece of cake compared with the white water of Chase. It took us just five and a half hours to make the run from Churchill to the ledges, a distance of perhaps 11 miles.

Our camp at Umsaskis that night was a quiet one. The day had taken its toll and we quickly finished off our supper of chicken stew and campfire-cooked dumplings and turned in.

As we were leaving next morning Rainey asked suddenly, "Do you feel a little bit like a traveler leaving a motel?"

I had to admit that I did, but only because we'd been on the move since the previous Friday, sleeping in a different camp each night. In that time we hadn't seen more than half a dozen people and that made all the difference.

We were in familiar waters now. The trip from Long Lake to Round Pond to Michaud Farm was like traveling a well-known path. The river was mild and the scenery spectacular. We were just four and a half hours from Long Lake Dam to Michaud Farm and I was reluctant to see it end.

The achievement was not unique. Hundreds of canoeists do it every year. It would have been easier with a guide, but this was the point of the whole venture. I couldn't honestly say that the same trip would be old hat another time, and it certainly wouldn't with a 16-foot canoe, minimum gear and by paddle power, all the way from Moosehead to Fort Kent. On reflection that has certain appeal. Besides, Thoreau would undoubtedly approve.

RICHARD W. SPRAGUE



Water for a Traveler—The keeper at Lock Dam opens the gates to supply water that will float the travelers to the Allagash from Chamberlain Lake into Eagle Lake.



Members of Our Family

The Bangor and Aroostook Railroad has four active operating subsidiary companies. They are: Bangor Investment Company, Van Buren Bridge Company, Machine Accounting, Inc. and McKay Rock Products, Inc.

The Bangor Investment Company is basically a land and property owning company which holds title to substantial tracts of land along the railroad's right of way as well as the headquarters building in Bangor.

The Van Buren Bridge Company owns and operates an international railroad bridge between Van Buren, Maine and St. Leonard, New Brunswick. The international bridge handled 1,236 carloads of traffic in 1964 coming from and going to the Canadian National Railroad. This important bridge provides the Bangor and Aroostook with a rail gateway to the large Canadian National System.

Machine Accounting, Inc. is a subsidiary set up by the railroad to take advantage of its machine accounting capacity. By adding an extra shift, MAI is able to offer to northern and eastern Maine the advantages of modern machine accounting at a reasonable price.

McKay Rock Products, Inc., with headquarters in Houlton, provides sand and stone as well as mixed cement to contractors and users in the Bangor and Aroostook territory. The addition, in 1965, of a modern sand plant at Mosquito Mountain, in Prospect, widens the scope of McKay Rock as a supplier of basic building materials.

Traveling the Allagash—At the far left Rainey and Sprague make camp at the Ledges on Umsaskis Lake. At the immediate left are what remains of a wagon at Churchill Depot. In days long since gone it was used to keep the dam at Churchill Lake in repair.



This Is a Subsidiary Operation of the Railroad—Equipment of McKay Rock Products, Inc., a subsidiary of the Bangor and Aroostook, at work in the sand and gravel pit at Mosquito Mountain near Prospect. The purchase of this pit in 1965 appreciably broadened McKay's scope as a supplier of basic building materials.

A Miracle: Frozen Food

No facet of the Maine potato industry has experienced faster growth than potato processing. In five short years Aroostook County has sprouted no fewer than three new plants that have more than doubled its capacity for processed foods production. And two of the plants, Vahlsing, Inc. of Easton, and Potato Service, Inc., of Presque Isle, have spent nearly \$4 million on expansion projects in the past year. The capacity of one plant was doubled; the other tripled.

Aroostook's food processing industry means employment for between 1900 and 2200 persons, depending on the season, and a total payroll of about \$6 million a year. The total production of the five plants—Taterstate, Inc., of Washburn; Birdseye Division of General Foods in Caribou; Potato Service of Presque Isle; A. & P. of Fort Fair-

field, and Vahlsing, Inc., of Easton—amounts to about 300 million pounds of processed peas and potatoes a year. (Peas account for less than 10% of the total figure.) Value of the total product is estimated at \$45 million a year.

New volume incentive rates on frozen foods, coupled with high capacity mechanical refrigerator cars, have returned the bulk of the frozen foods traffic to the rails. Rates, based on a sliding scale for greater loads provided economies for the processors not available to them by highway. The Bangor and Aroostook ships considerably over half of the output of the five plants on its lines.

With five facilities working at capacity much of the season, there is considerable inbound traffic in the raw materials used in manufacture. The list includes paper products, cooking

oil, caustic soda, Bunker C oil to provide the tremendous energy required to cook 270 million pounds of product, fresh potatoes, pea seed, machinery, pallet boxes, steel and a host of miscellaneous products.

The outbound product brought nearly 2400 cars of traffic to the railroad last year and the inbound movement slightly over three thousand. In terms of revenue, then, the processing industry meant nearly three-quarters of a million dollars for the railroad in 1964-65 season. Over the past four years the railroad's frozen foods tonnage has almost tripled. The expansion of the past year will cause the figure to increase further.

Prior to late 1963, the Bangor and Aroostook looked to other car owners for the mechanical refrigerator cars which are needed to move this tonnage. However, the railroad's increasing requirements because of the increasing traffic, coupled with a growing scarcity of available cars, led to an initial purchase of 50 cars. Since then another 156 cars have been added.

These cars are 50 feet in length, have a capacity of 70 tons and cost more than \$30,000 apiece. Hence this investment in equipment alone is well in excess of six million and to this must be added \$180,000 spent recently solely for facilities to maintain the mechanicals.

The increasing annual payroll of this expanding industry to its present six million dollars has, of course, had a substantial impact on the economy of the county. This industry's increasing consumption of potatoes, as might be expected, is also directly affecting the growers.

Vahlsing, Inc., alone estimated that when its new productions facilities peak it will make payments of over \$3 million a year directly to growers. Add to this figure the revenue going to the grower's purse from the four other plants and the result is a significant increase in revenues that did not exist, say, five years ago.

Veteran observers of Aroostook's potato industry agree that the increased processing of potatoes has had



One Step in a Quality Control Program—Workers in an Aroostook frozen foods plant inspect sliced potatoes for discolor or any other blemish that makes them substandard as one of the several quality control inspections that are inherent in the production of french fried potatoes.

a significant effect on the fresh potato market. There is, however, varying opinion as to the volume of potatoes siphoned from the fresh market for processing. This is partly due to the highly competitive nature of the industry and the natural reluctance of the plants to reveal their sales. The best estimate places the figure for potatoes diverted from the fresh market for processing at about 14,000 cars out of a total production of 80,000 cars.

This, the knowledgeable observer will point out, is a large enough part of the total potato production to be felt in the fresh potato market. It has been suggested that this may have amounted to much of the production in Maine that, in slow years, was counted as "surplus".

Other observers, equally wise in the devious ways of potato marketing, concede that processing has created an outlet for potatoes that is bound to affect the fresh market when the fresh supply approaches fresh demand. They doubt, however, that this is enough by itself to tip the scales overmuch for the Maine grower. But there is agreement that potato processing has increased per capita consumption

of potato products and this is certainly a plus for the industry.

Locally, the industry has filled the economic void left by the phasing out of Presque Isle Air Force base. It is well on the road to being established on a 12-month basis and no longer casts a shadow of seasonal unemployment, historically a spectre of an industry built on agricultural raw materials. The leadership of the food processing business in Aroostook feels that the growth pattern will continue for at least another 10 years.

Like any other industry that has grown so quickly, it is still in a state of transition. One firm, for example, has introduced a herd of beef cattle that will be fed on the by-products of its plant. There are also indications of more plants to be built and at least two Aroostook communities have conducted lengthy negotiations with different firms interested in building new manufacturing facilities for processing.

One thing, however, is certain; processing will be more and more of a blessing for the Aroostook potato industry and its silent partner, the railroad.

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