Saskatchewan
ECONOMIC REVIEW

The Forests of Saskatchewan

Among the primary industries of Saskatchewan, forestry ranked fourth in 1949 with a net value of production of seven million dollars. While it is small in relation to agriculture, it possesses an actual value decidedly greater than this figure suggests. Much of it reflects a cost to Saskatchewan consumers which would be appreciably higher if it were necessary to seek farther afield for lumber products now produced within the province. The direct employment of more than 3,400 persons in the industry is in large measure responsible for the viability of many northern communities.

Aside from direct employment of the northern population and the production of revenue for the provincial treasury, the forest exerts a pervasive influence on the economy of the province which cannot readily be calculated in monetary terms. It is of incalculable value as an agency for the prevention of soil erosion. It maintains the water level in the lakes and rivers and provides a habitat for fish life, fur-bearing animals, and big game. The valuable and growing tourist industry of the province is dependent in a very real way on the preservation of the green forests.

Two hundred and ten years ago, when the explorer de la Verendrye first traversed the expanse of territory which is now the Province of Saskatchewan, he undoubtedly noted the sharp contrast between the great bald prairies of the south and the virgin forests of the north. At that time the sole inhabitants of the area were Indians, whose principal source of subsistence was the huge herds of buffalo that roamed the prairies. The northern forests existed in their natural state, endangered only by occasional fires, and sheltered a fortune in fur-bearing animals.

One hundred and eighteen years later, a sawmill went into operation at Ile a la Crosse to produce lumber for the early settlers, and in 1871, at Fort Qu'Appelle, one Archibald MacDonald used lumber from Mission Lake to construct boats for the fur trade. Lumbering as an industry, however, did not come into its own until 1878, eleven years after Confederation, when a mill was erected at Prince Albert. Ten years later the Dominion Government began selling timber rights in the Prince Albert district and in the area known today as the Prince Albert National Park. From 1870 to 1930, a period of sixty years, the forest resources of Saskatchewan remained under the control of the Dominion Government, and during this period the economy of Saskatchewan shifted from fur-trading to agriculture.

The immigrants who flocked in thousands to the west following the turn of the century were attracted principally by the rich, free farm lands. It was perhaps natural that the authorities should have regarded the forests from the point of view of the settler, and the settler saw in them only a barrier to cultivation of the soil. This attitude resulted in uncontrolled clearing, chiefly by fire, of thousands of acres of sub-marginal land, never meant for agricultural usage.

IN THIS ISSUE —

With the passage of time the forest assumed its true significance both in the minds of the public and in the activity of legislators, but years were still to pass before the science of forestry and forest management was to play its role in the development of the forest wealth which is the heritage of the people of Saskatchewan.

I. THE FOREST RESERVES OF SASKATCHEWAN

The province assumed control of its forest resources in 1930 under the terms of the Natural Resources Transfer Act. These resources covered a region approximately two-thirds the size of Great Britain. Comprising all of the timbered land of the province, they form a substantial part of the Boreal Forest which is one of the several great forest regions of the North American Continent.

Differences in environment and topography have resulted in the sub-division of this region into the forest belts which are indicated on the forestry map. A belt is defined as the dominance of one tree type or a group of types, and between such belts transition zones occur where two or more dominant types struggle for mastery.

The *Aspen Grove Belt* forms a transition between the prairie grasslands in the south and the mixedwood forests of the north. In it the forest cover is not continuous, but is scattered in what are commonly called "poplar bluffs", and agriculture is the predominant industry of this area.

It is in the *Mixedwood Forest Belt* adjoining the northern limits of the Aspen Belt that the present and potential commercial forest of Saskatchewan exists. The unsorted glacial tills found here are, with few exceptions, unsuited to farming, but will produce excellent forest growth. The predominant tree species are aspen poplar and white spruce. The latter, ranging over the whole of the Boreal Forest to within 20 miles of the Arctic Ocean, achieves its finest development in Saskatchewan, generally growing 20 feet taller than the same species in Eastern Canada. In addition to the mixed growth, pure stands of white and black poplar, jack pine, and black spruce are quite common. The Mixedwood Belt covers an area of 55,219 square miles. Of this, 21,000 square miles are classified as productive and accessible, while 9,000 are productive but inaccessible. The remainder is either agricultural land or non-productive, consisting of muskeg and water.

The most recent estimate of the volume of standing timber by species is shown in the table below. Merchantability is based on a diameter, 4½ feet above the ground, of 12 inches and up for spruce and 10 inches for other species. The accessible area is estimated to contain 4,500 square miles of merchantable timber and 5,000 square miles of young growth. The area at present inaccessible for commercial purposes contains 1,700 square miles of merchantable timber and 7,300 square miles of young growth.

VOLUME OF STANDING TIMBER IN MIXEDWOOD BELT

	(1) Million FBM		(2) Thousand Cords		(3) Total of Col. 1 & 2 Thousand Cubic Feet	
	Accessible	Inaccessible	Accessible	Inaccessible	Accessible	Inaccessible
SOFT WOODS						
White Spruce	1,202	222	1,450	614	339,610	92,150
Black Spruce	....	....	1,209	953	102,765	81,005
Jack Pine	60	63	4,571	3,120	399,385	276,540
Tamarack	20	10	50	20	7,850	3,500
Balsam Fir	25	5	120	57	14,700	5,745
Total	1,307	300	7,400	4,764	864,310	458,940
HARDWOODS						
Poplar	1,739	940	33,141	6,920	2,964,300	722,800
White Birch	50	....	500	....	53,000	....
Ash	....	....	20	....	1,600	....
Elm	....	....	15	....	1,200	....
Maple	....	....	25	....	2,000	....
Total	1,789	940	33,701	6,920	3,022,100	722,800

NOTE: The figures in this table were compiled for the Royal Commission on Forestry in 1947. More accurate figures will be available with the completion of the forest inventory.

North of the Mixedwood Forest Belt lies the *Northern Coniferous Belt.* Dotted with sparse stands of jack pine, tamarack and poplar, the soil cover is thin, and over large areas the bedrock is exposed. At present, the trees in this belt possess no commercial value.

Over 80 per cent of the commercial forest of Saskatchewan is publicly owned. Privately owned farm woodlots make up nearly 8 per cent while companies and individuals own the remaining 12 per cent.

II. FOREST MANAGEMENT

To the uninitiated, the forest seems to stand vast, silent, dignified, and eternal. To the forester it is a complex, living thing whose life cycle spans many generations. With the encroachment of civilization it has become necessary to protect it from fire, from infestations, and above all from man himself.

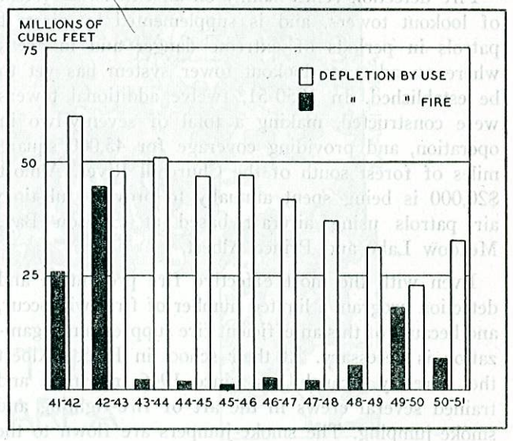
DEPLETION OF OUR FOREST RESOURCES

Since 1913 over 50 per cent of the forest land of Saskatchewan has been devastated by fire. The statistics indicate that since 1930, 863,000 acres of merchantable timber valued at $1,750,000 have been burned over. If one takes into consideration the value of the young growth destroyed, the deterioration of the forest soil, and the cost of suppression, the seriousness of the problem takes on grave proportions. The depletion of Saskatchewan's forests through use and fire since 1941-42 is illustrated in the graph below.

A Royal Commission on Forestry, appointed in 1945, considered the problem of forest fires so pressing as to warrant an interim report to the Government. This report, issued in November, 1945, stressed the fact that a few more fires of the magnitude of those in 1937 and 1942 would reduce the mature and realizable forests of Saskatchewan to negligible proportions. It was noted, moreover, that before any adequate forest management plan could be instituted the constant danger of uncontrolled forest fires would have to be overcome. The reasons for this are obvious. The chief aim of silvicultural practice is to assure a succeeding crop of trees equal to or better than the one last harvested. Such a program, which includes reforestation, the encouragement of natural regeneration, thinning of over-crowded areas, and selective cutting, would require a capital investment in our forests of from $5.00 to $20.00 an acre, depending upon local conditions. Moreover, a successful forest management plan, implying an effective sustained-yield program, requires an up-to-date inventory of all of the forest reserves of the province. The taking of such an inventory would entail the expenditure of vast sums of money. Clearly no government or industry can afford an outlay of such magnitude if the chances are very great that fire may sweep the area at any time.

It was recommended that an intensive educational campaign be launched to instill in the public mind the value of the forest resources and the urgency of the fire situation. With 90 per cent of all forest fires caused by human carelessness, the co-operation of the public was plainly required. It was further urged that settlers be prohibited from using fire as a method of land clearance during the danger season, and that more lookout towers, fire breaks, roads, bush trails, and fire-fighting equipment be provided.

FOREST DEPLETION THROUGH USE AND FIRE, 1941 - 1951



Fire was the greatest but not the only threat to the perpetuation of the forest. The uncontrolled and wasteful cutting practices of sawmill operators seriously depleted the merchantable timber reserves of the province, and during the war years the forests were virtually

"mined", the annual cut reaching 150,000,000 feet for white spruce alone. Carelessness in logging destroyed almost as much timber as that which reached the market. To have continued at the currrent rate and mode of cutting, would have exhausted supplies in from five to ten years, and entailed the near extinction of the province's most valuable species—white spruce. Thus it was that the province embarked upon a planned forest management program.

FIRE CONTROL

Implementation of the fire prevention, detection, and suppression program has gone ahead rapidly since the recommendations of the Royal Commission were placed before the government. At the present time Saskatchewan is spending approximately $300,000 annually for this purpose, that is to say, about $200,000 more than was spent on the average in each year from 1938 to 1948.

The basic element in the fire prevention program is public education through the medium of radio broadcasts, news releases, press advertisements, and road and highway signs. Prior to the 1950 fire season, conservation lectures and film showings were conducted in 264 schools across the frontier of the province. Forestry Branch officials believe that this campaign had a great deal to do with the reduction in the number of fires that year.

Fire detection relies mainly on an extensive system of lookout towers, and is supplemented by aircraft patrols in periods of extreme danger and in areas where an adequate lookout tower system has yet to be established. In 1950-51, twelve additional towers were constructed, making a total of seventy-two in operation, and providing coverage for 43,000 square miles of forest south of the Churchill River. Almost $20,000 is being spent annually to provide full-time air patrols using aircraft based at Hudson Bay, Meadow Lake and Prince Albert.

Even with the most effective fire prevention and detection program a limited number of fires will occur, and because of this an efficient fire suppression organization is necessary. At their school in Prince Albert the Forestry Branch has, since 1946, recruited and trained several crews in the art of fire-fighting and smoke-jumping. The smoke-jumpers are flown to the scene of an outbreak and parachute to the ground, to accomplish in a matter of minutes what formerly involved hours of laborious ground travel. These crews are provided with the most up-to-date equipment available. Additional roads, trails, and fire breaks have also been constructed to open up otherwise inaccessible areas to the fire patrols.

Largely as a result of this extended fire protection program, the forests of Saskatchewan are today an insurable risk, justifying the investment of large sums of money in forest management and industrial expansion.

FOREST INVENTORY

The Forest Inventory Division was organized in 1947, and immediately began the formidable task of gathering data on the extent and nature of the forest resources of the province. The purpose of the inventory, as its name implies, is to determine the location, volume, and type of the growing stock, the yearly growth or increment, and the annual depletion through use, fire, insects, and disease. Such an inventory is basic to a scientific forest management plan.

Data on the extent of commercial forest areas and the type of growing stock is gathered from aerial photographs which are supplemented by the study of ground samples. From these, detailed and accurate base maps are prepared, each covering an area of approximately 360 square miles.

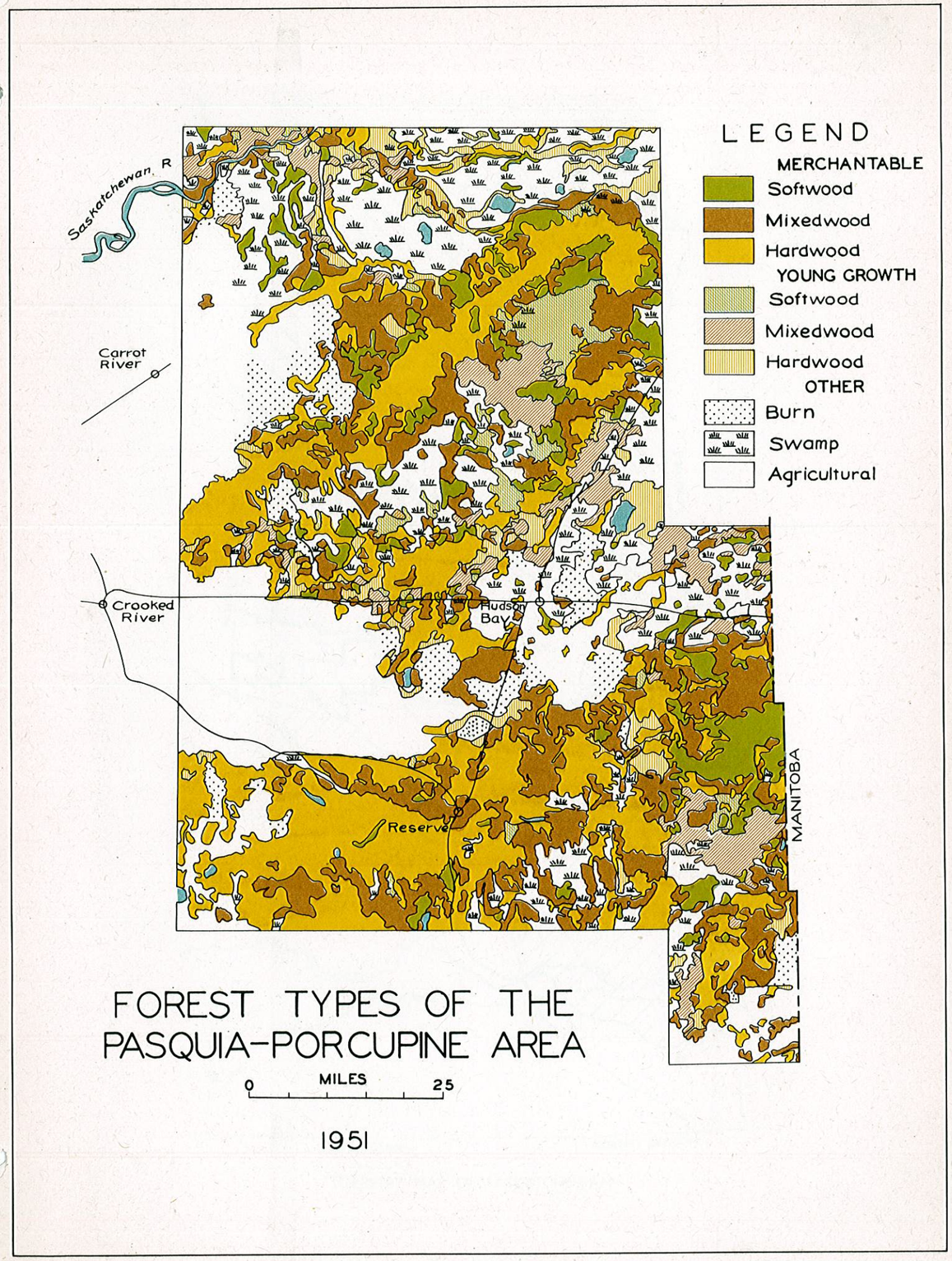
Last year colored inventory maps were prepared covering an area of 1,350,000 acres in the Porcupine and Big River forests. With the publication of the Porcupine maps, work on the Pasquia-Porcupine forestry division has now been completed. (A simplified map of the division has been inserted in this issue of the Review). Almost all of the field work and mapping on the Prince Albert area has been completed. and publication of inventory maps covering this huge territory which extends northeast to Cumberland House on the Manitoba boundary, is expected to be finished by the spring of 1953.

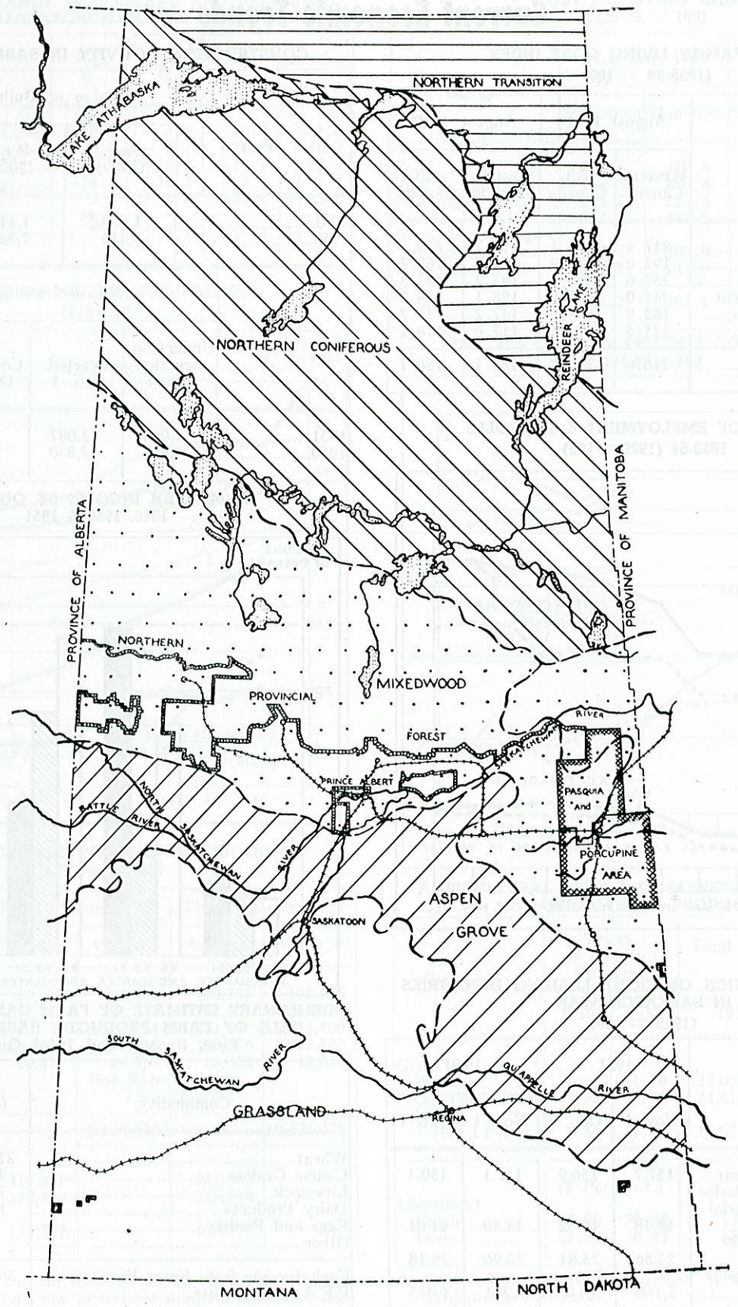
SILVICULTURE

The silviculture program of the Forestry Branch consists of two parts—the examination and marking of white spruce and jack pine for removal, and experimentation in stand improvement.

The object of selective cutting is to remove only those trees which are mature or over-mature. No tree of less than the minimum permissible diameter is marked unless its presence is detrimental to the stand, and an endeavour is made to retain at least 50 per cent crown cover to ensure adequate shade for the young growth. Last year alone some 55,000,000 feet of white spruce saw timber were marked for removal, and a considerable quantity of jack pine.

Experiments proceed continuously to determine the effectiveness of thinning over-stocked white spruce





FORESTRY MAP OF SASKATCHEWAN

Current Economic Trends

FARM FAMILY LIVING COST INDEX
(1935-39 = 100)

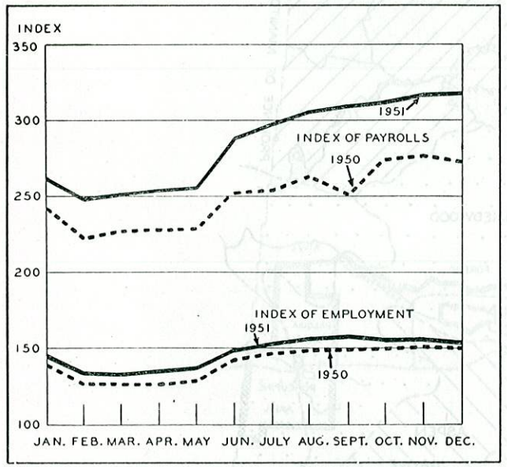
Group	August 1951		August 1950	
	Western Canada	All Canada	Western Canada	All Canada
Food	247.4	252.4	217.7	220.2
Fuel	192.0	178.9	184.9	168.7
Clothing	257.6	256.8	193.2	193.3
Household Equipment	241.0	230.8	198.1	189.0
Health Maintenance	162.9	162.9	147.2	147.2
Miscellaneous	121.5	122.0	117.6	118.1
Total	216.6	214.7	183.1	180.7

CONSTRUCTION ACTIVITY IN SASKATCHEWAN

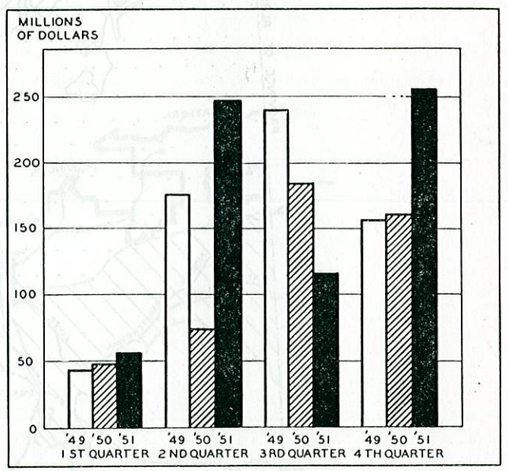
Year	Value of Building Permits		
	Aug. ($000)	Sept. ($000)	Oct. ($000)
1951	1,998	1,414	1,055
1950	3,414	2,529	1,854

Year	No. of Dwelling Units			
	Under Construction Jan. 1	Started Jan. 1	Completed Oct. 31	Under Construction Oct. 31
1951	1,060	2,097	1,518	1,613
1950	1,452	2,830	1,868	2,373

INDEXES OF EMPLOYMENT & PAYROLLS
1950-51 (1939 = 100)



FARM CASH INCOME BY QUARTERS
1949, 1950 & 1951



LABOUR STATISTICS OF EIGHT LEADING INDUSTRIES IN SASKATCHEWAN
(1939 = 100)

	1951		1950	
	Nov. 1	Oct. 1	Nov. 1	Oct. 1
Index of Employment	157.7	156.9	152.1	150.4
Average Weekly Salaries & Wages (Industrial Composite)	48.48	48.32	43.80	44.04
Real Wages (in 1939 dollars)	25.86	25.84	25.96	26.18
Unplaced Applicants (N.E.S.)	5,160	3,415	7,244	4,355
Unfilled Vacancies (N.E.S.)	822	1,258	679	1,061

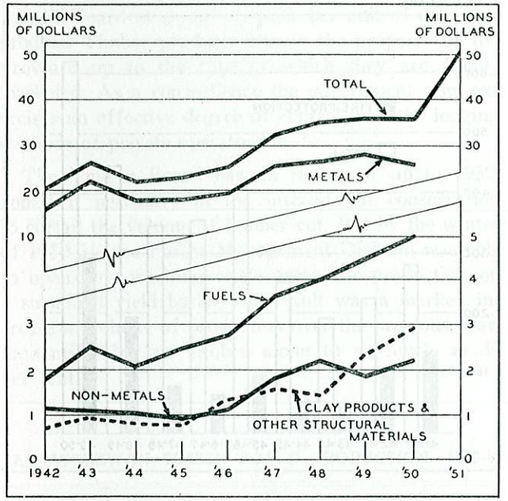
PRELIMINARY ESTIMATE OF FARM CASH INCOME FROM SALE OF FARM PRODUCTS, SASKATCHEWAN
First, Second and Third Quarters

Commodity	1951 ($000)	1950 ($000)
Wheat	216,278	130,010
Course Grains	38,740	23,113
Livestock	73,844	65,459
Dairy Products	17,539	15,587
Eggs and Poultry	8,556	6,183
Other	7,438	5,503
Cash Income from Farm Products	362,395	245,855
P.F.A.A. Payments	5,476	8,099
Total Cash Income	367,871	253,954

PERCENTAGE CHANGE IN SELECTED AND ALL RETAIL SALES IN SASKATCHEWAN, 1951 OVER 1950

Group	Aug. %	Sept. %	Oct. %	Jan.-Oct. %
Department Store	+16.9	− 4.3	− 0.8	+ 7.4
Country General	+ 5.1	− 3.4	+27.2	+10.2
Family Clothing	+14.0	+12.3	+13.1	+12.8
Furniture	−14.3	−19.2	+ 3.4	+ 8.8
Motor Vehicles	+ 3.5	+ 1.0	+21.4	+15.8
All Groups	+ 5.5	+ 3.7	+16.3	+11.1

VALUE OF MINERAL PRODUCTION
1942 - 1951



SASKATCHEWAN MINERAL PRODUCTION
1950 and 1951

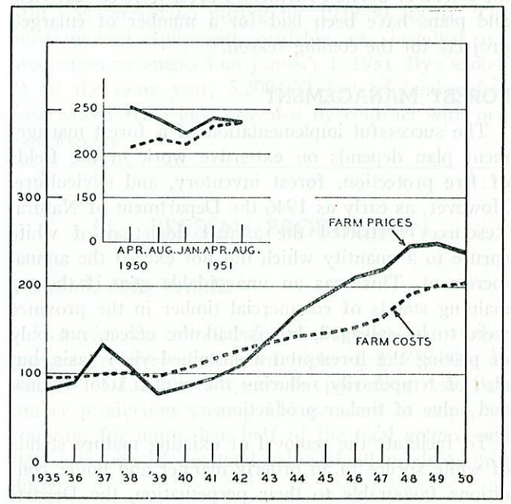
	Third Quarter, 1950		Third Quarter, 1951	
	Amount	Value $	Amount	Value $
Gold, ozs.	19,085	692,361	30,737	1,128,715
Silver, ozs.	272,748	206,514	382,162	346,276
Copper, lbs.	13,793,751	3,272,654	17,831,012	5,014,100
Zinc, lbs.	13,863,139	2,299,266	21,122,276	3,992,722
Cadmium, lbs.	20,571	49,878	16,963	44,614
Selenium, Tellurium		Not Reported for This Quarter		
Total		6,520,673		10,526,428
Coal (short tons)	310,877		341,840	
Crude Oil (bbl.)	282,248		348,840	
Natural Gas (m.c.f.)	153,707		156,325	

NOTE: In addition to the minerals shown above, there is substantial production of sodium sulphate and other non-metallic minerals, and clay products, sand, and gravel, which are included in the annual totals shown in the accompanying graph.

COST OF LIVING INDEX
(1935-39 = 100)

Group	December, 1951		December, 1950	
	Saskatoon	Dominion	Saskatoon	Dominion
Food	251.5	249.3	226.5	218.8
Fuel & Light	148.3	150.8	140.3	140.7
Clothing	223.5	215.5	190.2	184.9
Rent	132.3	144.8	126.1	136.4
Home Furnishings & Services	207.2	200.6	180.1	176.4
Miscellaneous	133.8	144.9	125.1	134.1
Total	187.2	191.1	169.6	171.1

INDEXES OF FARM PRICES & COSTS 1935-50
1935-39 = 100



AGRICULTURAL PRICES & MARKETING OF MAJOR AGRICULTURAL PRODUCTS

Commodity	Prices ($ per Bu.) Oct.-Dec.		Total Marketings (Bu.) Aug.-Dec.	
	1950	1951	1950	1951
Grain*			(All Grades)	
Wheat	1.62	1.70	127,058,701	128,869,000
Oats (No. 1 Feed)	.88	.96	24,478,748	19,657,000
Barley (No. 1 Feed)	1.36	1.40	15,971,045	16,109,000
	($ Per Cwt.)		(No.) (Oct.-Dec.)	
Livestock†				
Cattle	25.08	30.48	136,352	101,480
Hogs	27.33	26.85	89,214	133,860

*—Cash selling prices of Canadian Wheat Board basis Ft. William-Port Arthur.

†—Prices quoted at the Saskatoon public market for good steers up to 1,000 lbs. and hogs No. Grade B1. Marketings include all livestock of Saskatchewan origin.

and jack pine stands. Thinning increases the crop value of the remaining trees and may reduce the time required for the standing timber to reach optimum sawlog size to 75 years as compared with as much as 150 years under natural conditions. Last year 300 acres of young pine up to 25 feet high were thinned in strips with the aid of a bulldozer and Athens plow. Other small plots were thinned by hand to remove suppressed and deformed trees. When the most economical method has been determined the program will then be greatly accelerated.

In areas where a heavy humus cover retards natural seeding, scarification of the soil has proved successful in encouraging regeneration. Last year 128 acres in the Fort a la Corne Provincial Forest were so scarified, and plans have been laid for a number of enlarged projects for the coming season.

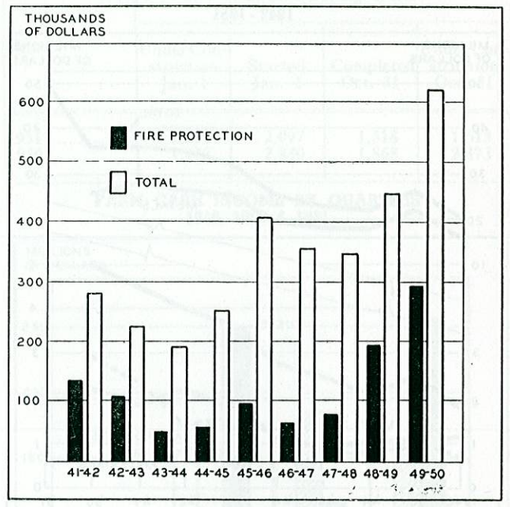
FOREST MANAGEMENT

The successful implementation of a forest management plan depends on extensive work in the fields of fire protection, forest inventory, and silviculture. However, as early as 1946 the Department of Natural Resources restricted the annual depletion of white spruce to a quantity which did not exceed the annual increment. This was an unavoidable step if the remaining stands of commercial timber in the province were to be salvaged, but it had the effect, not only of placing the forests on a sustained yield basis, but also of temporarily reducing the annual total volume and value of timber production.

To facilitate the removal of existing mature stands of white spruce in an orderly manner and under conditions favourable to their perpetuation, the Department of Natural Resources set up the Forest Management Division in 1948. The first task which faced the new division was the formulation of "working circle plans" for the larger remaining areas of commercially accessible timber. The formulation of such a plan demands an intimate knowledge of the area concerned, together with an insight into present and potential market conditions for timber products.

With the help of the inventory base maps, a detailed descriptive map of an area is prepared showing the volume, size, quality and accessibility of the stands. Tables and charts are then drawn up indicating the acreage, age, and maturity of the various species. From these an overall management plan is finally evolved which takes into consideration fire protection, water resources and transportation facilities, and ensures adequate conservation and a sustained yield. Contrary to popular opinion, sustained yield denotes more than perpetual production. It means producing at the economic optimum over a period of years, an objective which might require expenditures on silviculture, stand improvement, and reforestation, resulting in a greater and more valuable future forest reserve, perhaps at the cost of an immediate reduction in financial returns.

PROVINCIAL EXPENDITURES ON FORESTRY, 1941 - 1950



In 1948, some 140 square miles in the Armit area, carrying in excess of 50 million feet of mature timber, were placed on a working circle plan. The removal of the present crop will extend over a fifteen year period and be conducted in a manner that will enable successive crops to be removed in perpetuity.

During 1949 work was completed on 190 square miles in the Dore-Smoothstone area, and an adjacent 644 square miles in 1950. In addition 288,460 acres were cruised in the Sled-Beaupre-Clark Lakes area, where 21,700,000 feet of merchantable spruce sawtimber and 18,000 cords of pulpwood were found. This region together with Dore-Smoothstone, covering 408,000 acres bearing approximately 90 million feet of merchantable timber, are to be included in one management plan calling for the removal of 6 million feet annually for the next fifteen years. By 1954, the Forest Management Division expects to have completed working-circle plans covering all the remaining areas of mature timber.

SASKATCHEWAN TIMBER BOARD

In order to facilitate the policies of the Forestry Branch, the production and marketing of timber products was placed under the control of the Saskatchewan Timber Board in 1945. By 1946 it was handling the production and sale of all of the main forest products from crown lands in the province and was able to devote special attention to the conservation and utilization program of the Forestry Branch.

Instead of the former policy of disposing of crown timber stands on the stump, the Timber Board now lets contracts to operators for the production of lumber for the Board at an agreed price per unit of delivered product. Timber products remain the property of the province up to the time at which they are finally marketed. As a consequence the government now exercises an effective degree of control over the logging methods of private operators.

The Timber Board has, in each year up to 1950, found it necessary in the interests of conservation to curtail the volume of lumber cut. But by the winter of 1950-51, the Forest Management Division was able to open new working circle areas for production on a sustained yield basis. The result was a marked increase in volume of production over the previous year, amounting in saw timber alone to as much as 30 per cent.

SASKATCHEWAN TIMBER BOARD PRODUCTION, 1950-51

	Quantity
Lumber (fbm)	34,395,000
Pulpwood (cords)	51,307
Ties (pieces)	77,411
Poles (pieces)	72,015
Fuelwood (cords)	7,139
Fence Posts (pieces)	249,649
Boxwood (cords)	14,472

Of the total lumber sold last year, over two-thirds was sold within the province, about one-eighth was sold elsewhere in Canada, and the balance was exported to the United States. Since its formation the Timber Board has followed a policy of selling a portion of its lumber outside the province to preserve a diversified market. All of the pulpwood, of course, is exported. Ties are sold to the Canadian railway companies, poles to the Saskatchewan Government Telephones and Power Corporation, fenceposts to the provincial Department of Highways, and all the boxwood is absorbed by the Saskatchewan Box Factory.

THE BIG RIVER MILL

During the year 1948-49 extensive studies were carried out to determine the best means of utilizing the large stands of virgin spruce timber in the Dore-Smoothstone and Sled-Beaupre-Clark Lakes area in the northwest section of the Mixedwoods timber belt. It became apparent to the investigators that in the interest of economy, maximum utilization, and stability in production, the timber could be most efficiently processed by a single large high efficiency sawmill instead of a number of small ones. It was felt, too, that such a mill could better withstand the competition which might face Saskatchewan timber in the future. Work on the construction of the Big River Mill was carried on during the 1949-50 season. The most modern equipment available was installed and production commenced on January 1, 1951. By October 31 of the same year, 5,200,000 feet of lumber had been sawed from logs provided by contract with private loggers.

III. PRESENT PRODUCTION

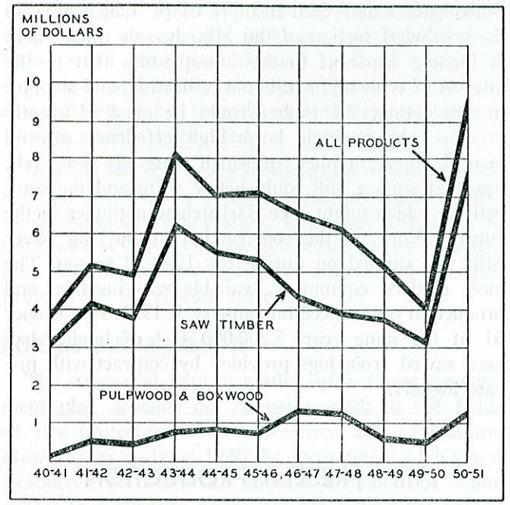
VOLUME AND VALUE

Last year the overall value of Saskatchewan timber products reached the record high of $9,758,000, an increase of 139 per cent over the preceding year. Saw timber production was up 144 per cent in value, accounting for more than half of the total volume and three-quarters of the total value of all products produced.

Pulpwood, boxwood, and power poles led the list of secondary products, reaching a value of $1,460,000, an increase of 200 per cent over 1949-50. The graph indicates the total value of all Saskatchewan forest products between the years 1941 and 1951, as well as the value of the principal products.

It will be observed that the value of sales declined steadily between 1945 and 1950, for reasons already noted. However, the encouraging results of the fire protection, the silvicultural, and the forest management program, and the opening last year of additional areas to production on a sustained yield basis signifies that five years of intensive work on the part of the Branch are now beginning to show returns, and the present policy of forest management is expected to result in a 20 million dollar forest industry in the province within the next few years, exclusive of possible developments in pulp and paper.

VALUE OF SASKATCHEWAN FOREST PRODUCTS
1940 - 1951



THE METHODS OF PRODUCTION

As long as white spruce saw timber remains the chief product of our provincial forests, production depends almost entirely on the output of the sawmills, the majority of which handle less than 50,000 feet of timber annually.

CLASSIFICATION OF SASKATCHEWAN SAWMILLS BY ANNUAL PRODUCTION, 1950-51

	Prince Albert	Hudson Bay	Meadow Lake	Northern Area	Regina	Total
5-10 million	.....	1	.....	.....	.....	1
1-5 million	4	5	1	.....	.....	10
½-1 million	3	9	.....	.....	.....	12
¼-½ million	3	9	2	2	1	17
100-250 thousand	12	38	9	2	1	62
50-100 thousand	15	33	19	1	.....	68
Less than 50 thousand	90	150	78	2	21	341
Total	127	245	109	7	23	511

Every tree to be cut is first marked by the field staff of the Forest Management Division. Permits are then issued to the Saskatchewan Timber Board, which, in turn, lets contracts to the private operators. The operators cut the logs not only for lumber, but also for pulp, poles, plywood, ties and boxwood, all of which are marketed through the Timber Board. In this way the Board is able to insure economy of production, and high utilization of each tree that is cut. Lumber, lath and railway ties are processed by the operators into finished products for the Timber Board, while all jack pine power poles, produced for the Saskatchewan Power Corporation, are sent to Prince Albert for creosoting by Northern Wood Preservers. A recent development in the industry was the establishment of the Hamjea Plywood factory in the town of Hudson Bay where it produces plywood from poplar bolts. Started on a modest scale in 1948, this enterprise has more than doubled the value of its production with each successive year of operation.

Pulpwood has been an export commodity since 1936, most of it going to mills in Manitoba, Ontario, Wisconsin and Minnesota. This year the Timber Board expects to ship 100,000 cords out of the province. While this is an all-time high in pulpwood production for the province, it is an insignificant fraction of the pulpwood available within its borders.

TRANSPORT — FROM FOREST TO MILL

Although Saskatchewan has relatively few rivers suitable for logging purposes, transportation facilities are adequate for successful forest operations. Railroad companies have constructed branch lines deep into the wooded areas north, east, and west of Prince Albert and Hudson Bay, and most of the commercial timber is within economical trucking distance of these lines.

In 1949 an all-weather heavy duty highway was constructed from Prince Albert north for 180 miles to Lac la Ronge, opening several new areas of forest to commercial development. Compared to Eastern Canada, the level terrain found in our northern forests makes for relatively inexpensive road construction and trucking operations are economically feasible.

A major factor governing the expansion of the forest industry has been the comparatively high cost of freighting timber products to the markets of Eastern Canada and the United States. Efforts have been made, such as machine-peeling of pulpwood prior to shipment, to reduce the adverse effects of high freight rates. But as the local prairie market develops, and the world demand for timber products increases, the significance of freight rates can be expected to diminish.

IV. FUTURE UTILIZATION OF THE FORESTS

PLYWOOD

The most immediate expansion is taking place in the plywood industry, first established in this province in 1948. The 1950-51 value of production of the Hamjea Plywood factory was four times as great as in its first year of operation. A second and larger factory has this month commenced operations in Prince Albert, and present plans contemplate the construction in the very near future of two more factories, one in Carrot River and one in Arborfield. As yet, the market for plywood has scarcely been touched, local needs remain unfilled, and the supply of raw material is more than adequate.

POPLAR UTILIZATION

Until recently, the aspen poplar which grows so profusely in the province was regarded as having no intrinsic value, in fact as little more than a forest weed. It is now recognized as a resource with very substantial latent possibilities for use in other forms than plywood. It is pointed out that aspen has been used successfully in the manufacture of mechanical and chemical pulp, wallboard, furniture, flooring, and other commercial products.

Aspen is found on 15,000 of the 21,000 square miles of accessible forest. In terms of volume this amounts to 1,739 million feet from trees 10 inches in diameter and up, and 33,141,000 cords from trees between 4 inches and 10 inches in diameter, in commercially accessible areas. On good sites this species reaches a diameter of two feet and grows to a height of 100 feet. Yields up to three-quarters of a cord per acre have been reported, representing, in monetary terms, a return equivalent to that received from an equal area of agricultural land.

Studies have shown that a three million dollar investment would be sufficient to establish an economical wallboard producing plant in this province. It is estimated that one cord of aspen poplar will produce 3,000 square feet of one-half inch material. Assuming that a demand exists for 20 square feet per capita per year, with an assured market of one million people, the manufacture of 20 million square feet per year would be a distinct possibility. Such a mill would require about 7,000 cords of aspen annually, that is to say, one-third as much as is now consumed each year as firewood. Moreover, the same mechanical methods used in producing poplar pulp for the purpose of wallboard manufacture lend themselves to the production of roofing paper, composition shingles, and building paper.

PULP AND PAPER

The logical culmination of the forest program demands the production of pulp. The most important single field for expansion, it is also an essential step if the past and projected expenditures in forest management are to justify themselves. Negotiations are currently underway for the establishment in Saskatchewan of a pulp and paper industry to utilize the tremendous reserves of pulpwood. These reserves are estimated to exceed 36,000,000 cords of poplar, 7,200,000 cords of jack pine, and 2,450,000 cords of spruce.

Last year, Wallace A. Delahey, a well known eastern forestry consultant, was engaged to survey Saskatchewan's pulpwood possibilities. His report listed three conditions whose fulfillment warranted the establishment of a mill: an assured supply of pulpwood for at least eighty years, its location in an area from which it can be delivered to the mill at low cost, and the availability of risk and working capital. Eastern Canada can no longer meet the first requirement, since areas not now leased are required to supply wood for the future expansion of established industries. The report observed that Saskatchewan was one of the few remaining areas on the North American Continent where this requirement could adequately be met.

Saskatchewan possesses the only commercial salt cake deposits in Canada thereby assuring a cheap and plentiful supply of sulphate for the pulp mill digesters. Economical sites for a pulp and paper industry exist at Prince Albert and Nipawin. There are, within economic distance of Prince Albert in excess of 45 million cords of pulpwood, which is more than enough to sustain a mill of 90,000-ton capacity. Sufficient electric power is available, and the North Saskatchewan Rivers flows through the city to provide an adequate volume of water, essential in the manufacture of pulp and paper. The Saskatchewan Timber Board has indicated its readiness to undertake the cutting and hauling of the pulpwood. This would not only aid in the implementation of a composite forest management policy, but would also offer a number of advantages to the prospective investor by way of reduced capital investment, guaranteed delivery, reduction in costs through an integrated cutting program, and elimination of expense for road construction and fire protection.

When the industry expands into the field of pulp

and paper manufacture, as it inevitably will, a mill of the capacity described above will provide employment for an additional 500 persons, and another 1,500 men will be required in logging and transport operations. The construction of dwellings, and the provision of community facilities and services, together with the appearance of ancillary industries manufacturing such commodities as paper bags and corrugated boxes, all of which will undoubtedly follow upon the establishment of a pulp and paper mill, will result in a substantial increase in the economic activity of Saskatchewan.

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A Note on Oil and Gas

Since the last issue of this Review appeared, some notable developments have occurred in Saskatchewan's oil and gas exploration program. A few days ago the Husky-Phillips Brock No. 4 well blew in with an initial gas flow of 7,500,000 cubic feet daily, signalling the third successful step-out well since the Brock gas field was first located several months ago. Following the customary practice, wells to determine the extent of the field have been put down at intervals of one mile from the discovery well, and the second of these tested at 40 million cubic feet per day. This is the province's largest gasser so far, and it is a substantial well by any standard.

Within a radius of about 30 miles from the field, two other gas strikes have been made near the towns of Elrose and Dodsland, while in the same area gas has also been found in the dual horizon black oil field in the vicinity of the town of Coleville. At this time the logical market for gas from this region is the city of Saskatoon lying some 100 miles to the northeast. As the unfolding development program proves up gas reserves in these three areas it is anticipated that a considerably larger market will have to be found, and the time may not be too distant when Saskatchewan will be faced with the problem of establishing an export market for surplus natural gas.

Of even greater significance has been the discovery of the province's first medium oil reservoir. It is located near the town of Fosterton in the arid ranching country east of the Great Sand Hills lying in west-central Saskatchewan. Brought in on the third day of the new year, the Socony-Western Prairie wildcat registered an initial open flow of more than a thousand barrels a day of 24 gravity oil. In addition, the Coleville heavy oil field, discovered in the latter part of 1951, has since undergone rapid development and now stands at 20 completed oil wells and 2 gassers, with 5 new wells in the process of being drilled.

There are now approximately 85 oil companies and individual operators actively engaged in the province, of which about 23 have entered during the past year. A total of 404 licences to drill were issued by the Department of Natural Resources during 1951. Sixty-one of these were for development wells in the Lloydminster field, 85 were for wildcats, and the balance for test holes throughout the province. With a production of over 1,200,000 barrels of oil from the Lloydminster and Coleville fields, output has increased appreciably as compared with 1950, and has firmly established Saskatchewan as Canada's second largest oil producing province.

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