

6-215 c-2
There must be a reduction and more economical use of paper, envelopes and labour in respect of the free mailing list. This is the last issue of this publication you will receive unless you desire to have it continued, in which event you must advise this Bureau and give the reason for such continuation. This does not apply to copies going to paid-up subscribers or exchange publications.

Published by Authority of the HON. JAMES A. MacKINNON, M.P. 44-6-5-43
Minister of Trade and Commerce JUN 2 Price -
25 cents

DEPARTMENT OF TRADE AND COMMERCE
DOMINION BUREAU OF STATISTICS
CENSUS OF INDUSTRY
MINING, METALLURGICAL AND CHEMICAL BRANCH
OTTAWA - CANADA

DOMINION BUREAU
OF STATISTICS
PROPERTY OF THE
LIBRARY.

Dominion Statistician: S. A. Cudmore, M.A. (Oxon.), F.S.S., F.R.S.C.
Chief - Mining, Metallurgical and Chemical Branch: W. H. Losee, B.Sc.
Mining Statistician: R. J. McDowall, B.Sc.

THE SAND AND GRAVEL INDUSTRY, 1941

Commercial production of sand and gravel in Canada during 1941 totalled 31,604,806 short tons valued at \$10,375,723 compared with 31,375,415 short tons worth \$11,759,245 in 1940. In the totals for both 1941 and 1940 are sand and gravel from all sources, including recoveries by dredges and material used by railroads as ballast and by mines as backfill.

Quebec and Ontario are Canada's largest sand and gravel producing provinces, the output in these provinces in 1941 being, respectively, 11,681,390 short tons and 11,569,382 short tons; in 1941, the quantity of material washed or screened at Canadian sand and gravel plants totalled 4,458,426 short tons compared with 3,589,933 short tons in 1940, while the quantity of bank or pit-run grades amounted to 27,146,380 short tons as against a corresponding tonnage of 27,785,482 in the preceding year.

Of the total sand and gravel output in 1941, there were 19,769,798 tons used for concrete, roads, etc., and 4,836,908 tons as railroad ballast. In addition there were produced 2,192,405 tons of straight run sand for building, etc., 38,309 tons for moulding; 37,541 tons as core sand and 92,018 tons for other purposes. The quantity of crushed gravel produced during the year under review amounted to 3,274,510 tons, and 1,363,317 tons of sand were employed as mine fill.

Firms (including individuals) reported as active in the Canadian sand and gravel industry numbered 1,399 in 1941; of these, 902 were located in Quebec, 422 in Ontario, 28 in British Columbia and lesser numbers in Nova Scotia, New Brunswick, Manitoba, Saskatchewan and Alberta. Capital employed by the industry totalled \$4,287,789; employees were reported at 3,252; salaries and wages paid totalled \$2,995,526; fuel, electricity and process supplies used aggregated \$474,647, and the total net value of production was estimated at \$9,901,076.

The following is from a report prepared by the Bureau of Mines, Ottawa:

"Deposits of gravel and sand are numerous throughout eastern Canada, with the exception of Prince Edward Island, where gravels are scarce. Owing to the widespread occurrence of gravels and sands and to their bulk in relation to value, local

needs for these materials are usually supplied from the nearest deposits, as their cost to the consumer is governed largely by the length of haul. Hence the large number of small pits and the small number of large plants. Some grades of sand particularly suitable for certain industries command a much higher price than does ordinary sand.

"Most of the gravel used for road work comes from pits worked for that purpose. Usually a portable or semi-portable plant is used to extract enough gravel to supply the immediate need and then a sufficient reserve is built up, in the form of stock piles, for two years' requirements. Road pits may remain idle for two years or more. The amount of gravel produced from year to year thus fluctuates, depending on the program of road construction and improvement. Intermittent operation also applies to railway pits, which may remain idle for several years.

"Part of the gravel used is crushed, screened and in some cases even washed and the proportion thus processed is increasing steadily. Some Provincial Highway Departments have used crushed instead of pit-run gravel on their main highways for a number of years. Most of the large commercial plants are equipped for producing crushed gravel, a product that can compete with crushed stone.

"The amount of sand consumed follows the trend of building activity, as most of it is used in the building industry for concrete work, cement and lime mortar, or wall plaster. The sand must be clean, that is, free from dust, loam, organic matter or clay, and contain but little silt, and is usually obtainable from local deposits.

"Other important uses of sand are for moulding in foundries, filtering of water supply, and glass making, all of which require special grades of sand.

"War conditions did not materially affect the total consumption of sand and gravel, as the extra amount absorbed by war services is partly if not wholly offset by a decreased activity in ordinary industry due to the war.

"Prices of sand, gravel and crushed stone in the four largest cities in Canada were as follows, at the end of 1940 and 1941. Prices per ton or cubic yard, as indicated below, are for carlots, f.o.b. cars:

	<u>Montreal</u>		<u>Toronto</u>		<u>Winnipeg</u>		<u>Vancouver</u>	
	per ton		per ton		per cu.yd.		per cu.yd.	
	<u>1940</u>	<u>1941</u>	<u>1940</u>	<u>1941</u>	<u>1940</u>	<u>1941</u>	<u>1940</u>	<u>1941</u>
Sand	1.15	1.15	.93	1.00	1.00	1.00	1.00	1.00
Gravel	1.10	1.10	1.43	1.53	1.00	1.00	1.00	1.00
Crushed stone .....	.75	.82	1.35	1.61	-	-	1.13	1.13

"Every province except New Brunswick and Prince Edward Island produces natural bonded moulding sand. One deposit in New Brunswick was operated in 1918 and another in 1921 and 1922. A small production also came from Prince Edward Island of a grade suitable only for light-weight castings. By far the greater part of the output has come from the Niagara peninsula, Ontario. Occasionally new deposits have been opened up, mostly in Ontario and in the western provinces.

"The results of a general investigation of moulding sands in Canada were published in 1936 by the Bureau of Mines, Ottawa, in the form of report No. 767, "Natural Bonded Moulding Sands of Canada." This report directs attention to the

large number of deposits from which supplies have been obtained for local foundries and the probability of replacing imported material with Canadian sands."

Table 1 - PRODUCTION IN CANADA OF SAND AND GRAVEL, 1940 and 1941

	Washed or screened Tons	Bank or pit run Tons	TOTAL VALUE \$
<u>1 9 4 0</u>			
<u>PRODUCTION (x) -</u>			
<u>SAND -</u>			
Moulding sand	17,852	11,750	30,538
Building sand and sand for concrete, roadwork, etc.	723,864	1,237,740	537,937
Core sand	2,031	34	3,119
Mine filling	8,058	1,022,988	150,209
Other sand (including blast sands, engine sands, etc.)	3,313	48,027	20,395
<u>SAND AND GRAVEL -</u>			
Sand and gravel for railway ballast ...	105,175	3,729,729	639,518
Sand and gravel for concrete, road- building, etc.	2,110,401	19,355,560	9,100,612
Crushed gravel	619,239	2,379,604	1,216,917
TOTAL	3,589,933	27,785,482	11,759,245
Cost of fuel, electricity and process supplies used .....	...	...	291,003
TOTAL NET VALUE .....	...	...	11,468,237
<u>1 9 4 1</u>			
<u>PRODUCTION (x) -</u>			
<u>SAND -</u>			
Moulding sand	25,624	12,635	40,066
Building sand and sand for concrete, roadwork, etc.	1,305,256	387,149	729,901
Core sand	37,468	75	17,650
Mine filling .....	...	1,363,317	190,504
Other sand (including blast sands, engine sands, etc.)	7,485	84,533	26,054
<u>SAND AND GRAVEL -</u>			
Sand and gravel for railway ballast ...	340,005	4,496,903	916,979
Sand and gravel for concrete, road- building, etc.	2,194,901	17,574,997	7,135,258
Crushed gravel	547,687	2,726,323	1,319,281
TOTAL	4,458,426	27,146,380	10,575,723
Cost of fuel, electricity and process supplies used .....	...	...	474,647
TOTAL NET VALUE .....	...	...	9,901,076

(x) Does not include production of natural silica sand or of silica sand manufactured from quartz or silica rock; production of these are recorded under quartz in the bulletin--The Feldspar and Quartz Mining Industry.

Table 2 - PRODUCTION(x) OF SAND AND GRAVEL IN CANADA, 1932-1941

Year	Tons	\$	Year	Tons	\$
1932	14,469,942	4,480,596	1937	27,001,301	10,492,696
1933	11,738,823	4,464,285	1938	32,223,832	12,002,554
1934	14,854,159	4,035,477	1939	31,294,341	11,241,102
1935	21,213,489	6,389,440	1940 (A) ..	31,375,415	11,759,245
1936	22,124,160	6,921,399	1941 (xx).	31,604,806	10,375,723

(x) Does not include production of natural silica sand or of silica sand manufactured from quartz or silica rock; production of these are recorded under quartz. Also does not include natural sand used for back filling at mines prior to 1936.

(xx) Includes 4,751,081 tons valued at \$821,739 produced by railroad companies.

(A) Includes 3,840,844 tons valued at \$660,627 produced by railroad companies.

Table 3 - PRODUCTION OF SAND AND GRAVEL, BY PROVINCES, 1938-1941

Province		1938	1939	1940	1941
Prince Edward Island	Tons	(a)	(a)	(a)	(a)
	\$	(a)	(a)	(a)	(a)
Nova Scotia	Tons	2,077,378	2,159,427	1,440,140	749,441
	\$	1,013,266	1,225,827	867,490	332,531
New Brunswick	Tons	3,833,540	3,373,303	944,033	962,433
	\$	1,825,383	1,363,051	278,710	423,772
Quebec	Tons	12,523,404	10,050,935	12,177,624	11,681,390
	\$	3,532,873	2,703,032	3,127,931	2,673,300
Ontario	Tons	8,531,281	9,350,875	9,678,745	11,569,332
	\$	3,046,043	3,537,216	4,025,026	4,524,463
Manitoba	Tons	1,216,084	1,363,593	1,851,645	1,503,901
	\$	645,812	514,404	833,993	429,996
Saskatchewan	Tons	1,307,753	1,913,995	1,472,885	1,220,801
	\$	662,511	408,199	741,353	406,835
Alberta	Tons	792,760	817,168	1,722,465	956,484
	\$	525,175	619,105	1,069,677	433,504
British Columbia ...	Tons	2,211,682	2,284,995	2,087,878	2,960,924
	\$	751,491	870,268	809,075	1,151,322

(a) Data not available.

Table 4 - PRODUCTION OF WASHED AND SCREENED AND PIT RUN GRADES, 1941

Province	Washed or screened Tons	Bank or pit run Tons	TOTAL VALUE \$
Nova Scotia .....	...	749,441	332,531
New Brunswick .....	...	962,483	423,772
Quebec	490,716	11,190,674	2,673,300
Ontario	2,568,703	9,000,679	4,524,463
Manitoba	435,816	1,068,085	429,996
Saskatchewan	96,564	1,124,237	406,835
Alberta	25,781	930,703	433,504
British Columbia	840,846	2,120,078	1,151,322
TOTAL	4,458,426	27,146,380	10,375,723

Table 5 - PRODUCTION OF SAND FOR BUILDING AND CONCRETE, ROADS, ETC., AND SAND AND GRAVEL FOR RAILWAY BALLAST AND FOR CONCRETE, ROADS, ETC., 1932-1941

Year	S A N D		S A N D A N D		G R A V E L	
	For building, concrete, roads, etc.		For railway ballast		For concrete, roads, etc.	
	Tons	\$	Tons	\$	Tons	\$
1932	2,368,304	745,091	2,097,224	324,648	9,604,113	3,181,105
1933	775,412	218,559	561,538	110,449	9,957,832	3,907,911
1934	686,631	209,002	1,454,618	266,292	12,418,408	3,411,751
1935	787,412	264,435	2,267,195	415,092	17,531,047	5,357,331
1936	956,502	362,542	6,318,681	1,054,703	14,538,640	5,216,342
1937	1,356,269	476,824	2,764,639	533,876	19,453,188	8,340,764
1938	1,750,187	685,976	2,359,703	443,936	22,513,256	9,101,882
1939	1,169,899	364,829	3,223,718	603,288	22,899,751	8,988,114
1940	1,961,604	537,937	3,834,904	699,518	21,465,961	9,100,612
1941 -						
Nova Scotia..	121	45	120,284	22,731	530,077	264,286
New Brunswick	116,100	27,000	374,179	44,984	471,151	351,016
Quebec	924,601	264,497	1,020,762	173,062	7,143,746	1,280,877
Ontario	1,013,921	373,113	1,375,695	320,316	7,539,662	3,334,307
Manitoba	26,774	11,766	579,703	100,083	859,989	297,880
Saskatchewan.	11,894	4,312	509,743	106,745	669,710	289,960
Alberta	11,467	12,359	233,314	42,692	707,171	377,497
British Columbia ..	87,527	36,809	623,228	106,366	1,848,292	939,435
CANADA ..	2,192,405	729,901	4,836,906	916,979	19,769,798	7,135,258

Table 6 - PRODUCTION OF MOULDING AND CORE SAND AND CRUSHED GRAVEL, 1941

	Moulding Sand		Core Sand		Crushed Gravel	
	Tons	\$	Tons	\$	Tons	\$
Nova Scotia	825	2,435	...	...	98,134	43,034
New Brunswick .....	...	...	...	...	...	...
Quebec .....	...	...	24,159	8,455	2,538,218	940,131
Ontario	36,599	36,599	13,309	9,117	534,687	274,361
Manitoba	797	874	...	...	31,773	17,233
Saskatchewan	28	63	...	...	564	627
Alberta	60	95	73	108	...	...
British Columbia .....	...	...	...	...	71,129	43,895
CANADA, 1941	38,309	40,066	37,541	17,680	3,274,510	1,319,281
CANADA, 1940	29,602	30,538	2,115	3,119	2,998,843	1,216,917

Table 7 - PRINCIPAL STATISTICS OF THE SAND AND GRAVEL INDUSTRY IN CANADA(x),
1939-1941

	1939	1940	1941
Number of firms	1,403	1,458	1,399
Capital employed	\$ 2,735,690	3,456,502	4,287,789
Number of employees - On salary	101	103	(/) 109
On wages	6,019	4,140	3,143
Total	6,120	4,243	3,252
Salaries and wages - Salaries	\$ 169,394	192,696	214,840
Wages	\$ 3,812,519	3,551,889	2,780,686
Total	\$ 3,981,913	3,744,585	2,995,526
Selling value of sand and gravel produced by railway companies (Gross)	\$ 468,887	660,627	821,789
Selling value of sand and gravel produced by other operators (Gross)	\$ 10,772,215	11,098,618	9,553,934
Total Selling Value of Sand and Gravel Produced (Gross)	\$ 11,241,102	11,759,245	10,375,723
Cost of fuel and electricity	\$ 195,444	244,631	389,643
Cost of process supplies used	\$ 79,065	46,377	85,004
TOTAL NET VALUE OF PRODUCTION	\$ 10,966,593	11,463,237	9,901,076

(x) Includes data relating to sand production by dredgers and railways.

(/) Includes 12 females.

Table 8 - CAPITAL EMPLOYED, NUMBER OF EMPLOYEES, SALARIES AND WAGES PAID, AND FUEL
AND ELECTRICITY CONSUMED, BY PROVINCES, 1940 and 1941

Province	Number of opera- tors	Capital employed (x) \$	Number of em- ployees	Salaries and wages \$	Cost of fuel and electri- city used \$	Cost of process supplies used \$	Net value of pro- duction \$
<u>1940</u>							
Nova Scotia..	7	(x)	149	142,066	(x)	(x)	867,490
New Brunswick	5	(x) 5,000	319	170,616	(x)	(x)	278,710
Quebec	889	129,922	2,395	2,121,926	15,346	5,525	3,109,060
Ontario	484	1,838,326	333	380,704	139,139	13,458	3,872,429
Manitoba	12	683,085	368	288,020	14,300	11,073	814,620
Saskatchewan.	24	166,563	308	256,326	31,848	9,396	700,109
Alberta	8	55,139	207	222,457	9,709	2,071	1,057,887
British Columbia ..	29	578,467	164	162,470	34,289	6,854	767,932
<u>1941</u>							
Nova Scotia..	6	(x) 10,320	579	257,045	(x)	(x) 175	532,356
New Brunswick.	6	(x) 5,000	393	202,926	(x)	(x)	423,772
Quebec	902	265,447	928	965,638	58,304	5,115	2,609,881
Ontario	422	2,269,369	455	532,019	246,334	26,794	4,251,335
Manitoba	11	839,174	319	393,951	19,400	24,692	385,904
Saskatchewan.	15	237,772	129	149,312	16,255	18,605	371,975
Alberta	9	50,484	265	276,159	8,587	1,744	423,173
British Columbia ..	23	560,223	184	218,476	40,763	7,879	1,102,680

(x) Complete data not available.

Table 9 - FUEL AND ELECTRICITY USED, 1940 and 1941

Kind	Unit of measure	1 9 4 0		1 9 4 1	
		Quantity	Value	Quantity	Value
			\$		\$
Bituminous coal - Canadian	short ton	1,070	8,452	2,874	23,174
Foreign.	short ton	3,657	25,970	5,427	44,464
Anthracite coal	short ton	618	3,734	2,223	15,040
Coke	short ton	1	11	...	...
Gasoline	Imp. gal.	480,811	116,143	718,630	205,817
Kerosene	Imp. gal.	9,120	1,766	3,641	883
Fuel oil	Imp. gal.	172,070	24,569	276,667	32,381
Wood	cord	3	32	3	37
Natural gas	M cu. ft.	65	45	135	77
Other fuel .....	...	...	...	...	5
Electricity purchased	K. W. H.	3,614,057	63,909	5,657,545	67,765
TOTAL .....	...	...	244,631	...	389,643

Table 10 - AVERAGE NUMBER OF WAGE-EARNERS, BY MONTHS, 1937-1941

	1937	1938	1939	1940	1941
January	280	458	203	274	450
February	265	476	245	268	440
March	305	466	340	346	517
April	1,885	935	821	629	815
May	8,514	12,762	11,054	3,275	4,400
June	14,961	14,195	13,444	8,182	8,493
July	15,153	13,889	13,591	11,504	8,023
August	11,503	13,872	12,451	11,526	7,225
September	11,307	12,305	10,253	8,644	3,421
October	4,893	9,559	5,199	3,372	2,570
November	2,026	1,259	1,032	886	764
December	434	574	382	628	412

Table 11 - NUMBER OF WAGE-EARNERS WHO WORKED THE NUMBER OF HOURS SPECIFIED, DURING ONE WEEK IN MONTH OF HIGHEST EMPLOYMENT, 1941

Hours	Number	Hours	Number
30 hours or less	121	51-54 hours	101
31-43 hours	73	55 hours	48
44 hours	53	56-64 hours	317
45-47 hours	17	65 hours and over	248
48 hours	6,700	GRAND TOTAL	7,702
49-50 hours	24	Total wages paid in that week	\$ 139,955

Table 12 - POWER EQUIPMENT INSTALLATION, 1941

	Number of units	Horse power
Steam engines and steam turbines	18	949
Diesel engines	24	1,615
Gasoline, gas and oil engines	74	3,233
Hydraulic turbines or water wheels	7	240
Electric motors operated by purchased power	212	7,191
Electric motors operated by establishments' power	2	45
Stationary boilers	13	790

STATISTICS CANADA LIBRARY
BIBLIOTHÈQUE STATISTIQUE CANADA



1010692249