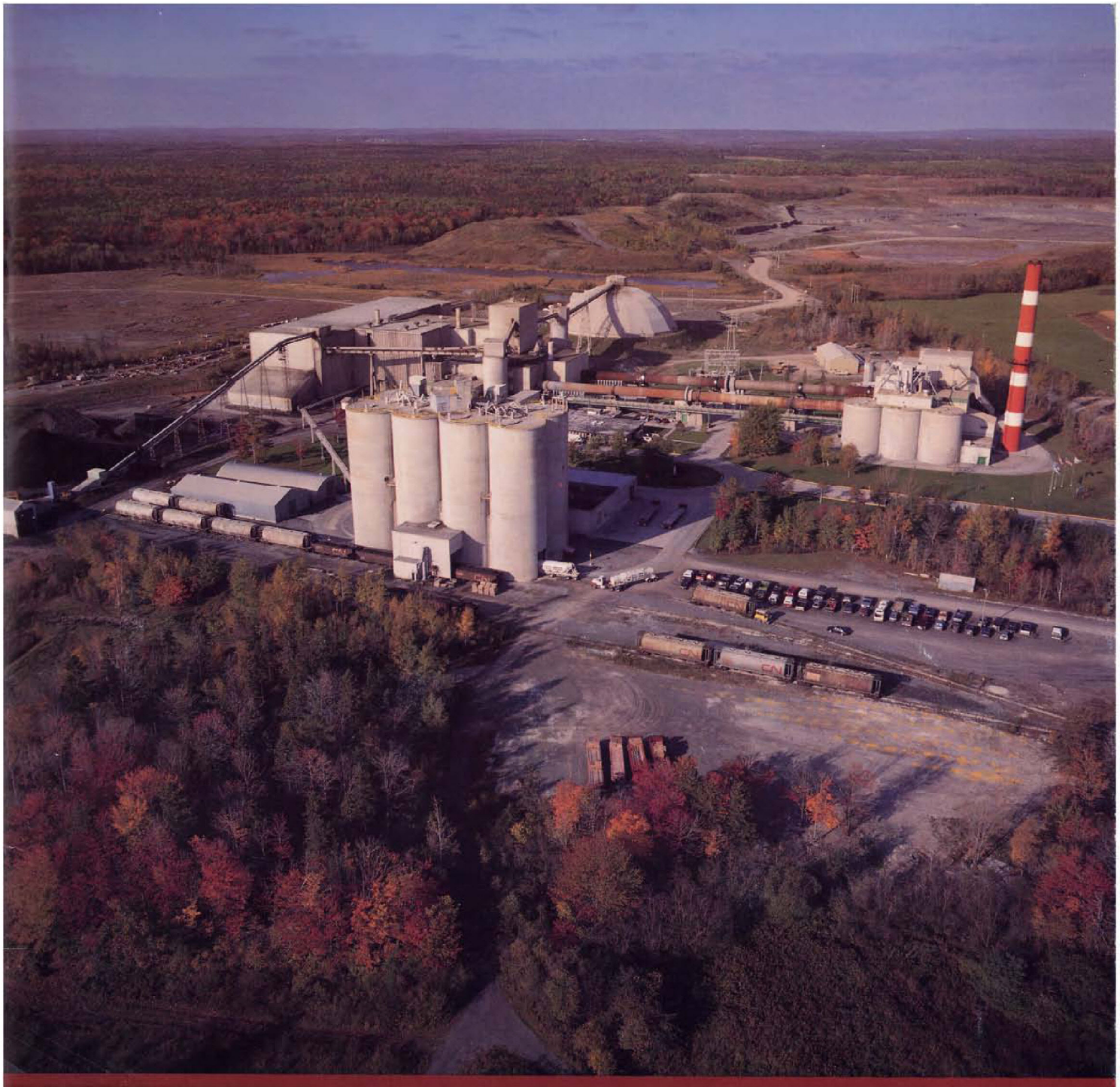


Industrial Minerals in Nova Scotia

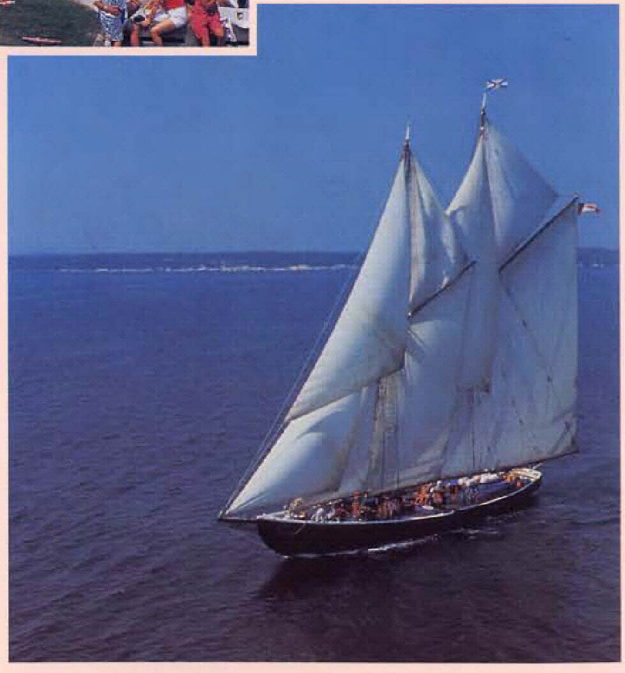
Introduction

Nova Scotia is one of Canada's most eastern provinces, located along the edge of North America within 80 km of the Northeastern United States. Linked to the mainland by a narrow neck of land, the Province extends as an arm into the Atlantic, surrounded by 7400 km of picturesque ocean shoreline. Inland over 10 000 lakes dot a diverse landscape which ranges from the fertile bottom lands of the Annapolis Valley to the rugged uplands of Cape Breton Island. The Province straddles the 45th parallel, also making it Canada's most southern province. The temperate climate found here is strongly influenced by the proximity of marine waters and ocean breezes.

There are over 900 000 inhabitants of the Province, making Nova Scotia the largest population base in Atlantic Canada. From its European roots almost four centuries ago, the culture of the Province has been deeply steeped in a seafaring tradition. Perhaps the most well known example of this is the sailing schooner, Bluenose, internationally renowned for its racing success in the early part of this Century.

The centre of activity for Nova Scotia is the capital city of Halifax. Situated by a world class, deep water port, Halifax is the commercial and transportation hub of Atlantic Canada. Its location adjacent to the main shipping lanes between Europe and the North-eastern United States makes it a prominent port in the international shipping industry. Halifax's location also makes it the eastern entrance for distribution to the rest of Canada.

The climate, the culture and the beauty of the Province make Nova Scotia not only an interesting place to visit, but an exceptional place to live. Nova Scotia possesses a richness achieved through heritage and diversity. ◇



Cover: Lafarge Canada Incorporated's quarry and cement plant at Brookfield. Top: Peggys Cove. Middle: Halifax waterfront. Bottom: Bluenose II.

Industrial Minerals

Industrial minerals include all non-metallic, nonfuel minerals and rocks of economic value. They can be either low cost, bulk commodities produced and used in large volumes or low volume, high value, processed materials used to enhance the physical and chemical properties of products. From the flints and dyes of early man to the acid neutralizing limestones of today, industrial minerals have played an important role in our social and economic development.

Each day of our lives we are surrounded by industrial minerals, materials which have become an integral part of our modern lifestyle. Thousands of products have industrial minerals as their main component or a necessary ingredient of their manufacture. They are essential in the production of the food we eat (potash and phosphate in fertilizers); the homes we live in (gypsum in wallboard; aggregate and limestone in concrete; clay in bricks); the containers we eat and drink from (silica in glass; clay in ceramics) and the highways we travel on (aggregate for asphalt, concrete and road base). They are also commonly found in products where their presence is less conspicuous (limestone in toothpaste; kaolin clay and soda ash in paper; titanium dioxide and limestone in paint). Industrial minerals are playing an increasingly important role in environmental protection (limestone for controlling acidity in lakes and scrubbing flue gases; perlite and peat moss in oil spill cleanup; zeolites and soda ash in the replacement of phosphates in detergents). Finally, industrial minerals are positioned to play a significant role in our technology driven future. An example is advanced ceramics, key ingredients for new high performance products such as semiconductors, automotive components and opto-electronics. ◇

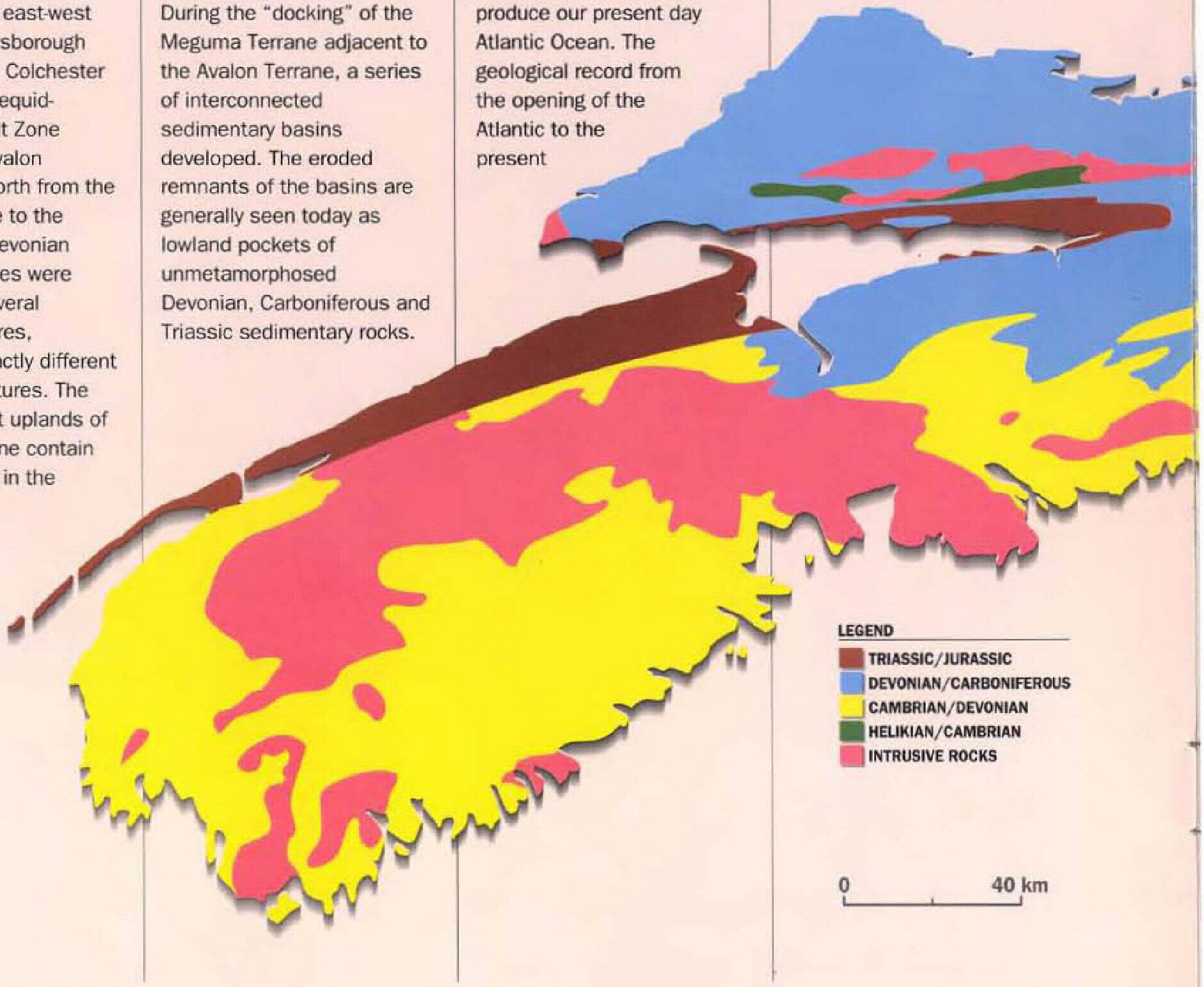
Geology

The geology of Nova Scotia lies within the Appalachian Mountain chain of Eastern North America. The highly complex assemblage of rocks found here ranges in age from Middle Precambrian to Cretaceous, with the oldest being approximately 1.4 billion years.

The Province can be divided into two distinct geological zones or terranes separated by a major fault complex running east-west from Canso, Guysborough County, to Truro, Colchester County. The Cobequid-Chedabucto Fault Zone separates the Avalon Terrane to the north from the Meguma Terrane to the south. Prior to Devonian times the Terranes were separated by several hundred kilometres, developing distinctly different geological signatures. The erosion resistant uplands of the Avalon Terrane contain the oldest rocks in the Province, dating back to the Precambrian. They comprise a variety of metamorphic rocks including gneisses, schists, quartzites, marbles and metavolcanics. The oldest rocks of the Meguma Terrane are Cambrian to Silurian in age, consisting of slates, greywackes, quartzites and metavolcanics. Four hundred million years ago the two Terranes slid toward one another during several stages of plate collision. During the "docking" of the Meguma Terrane adjacent to the Avalon Terrane, a series of interconnected sedimentary basins developed. The eroded remnants of the basins are generally seen today as lowland pockets of unmetamorphosed Devonian, Carboniferous and Triassic sedimentary rocks.

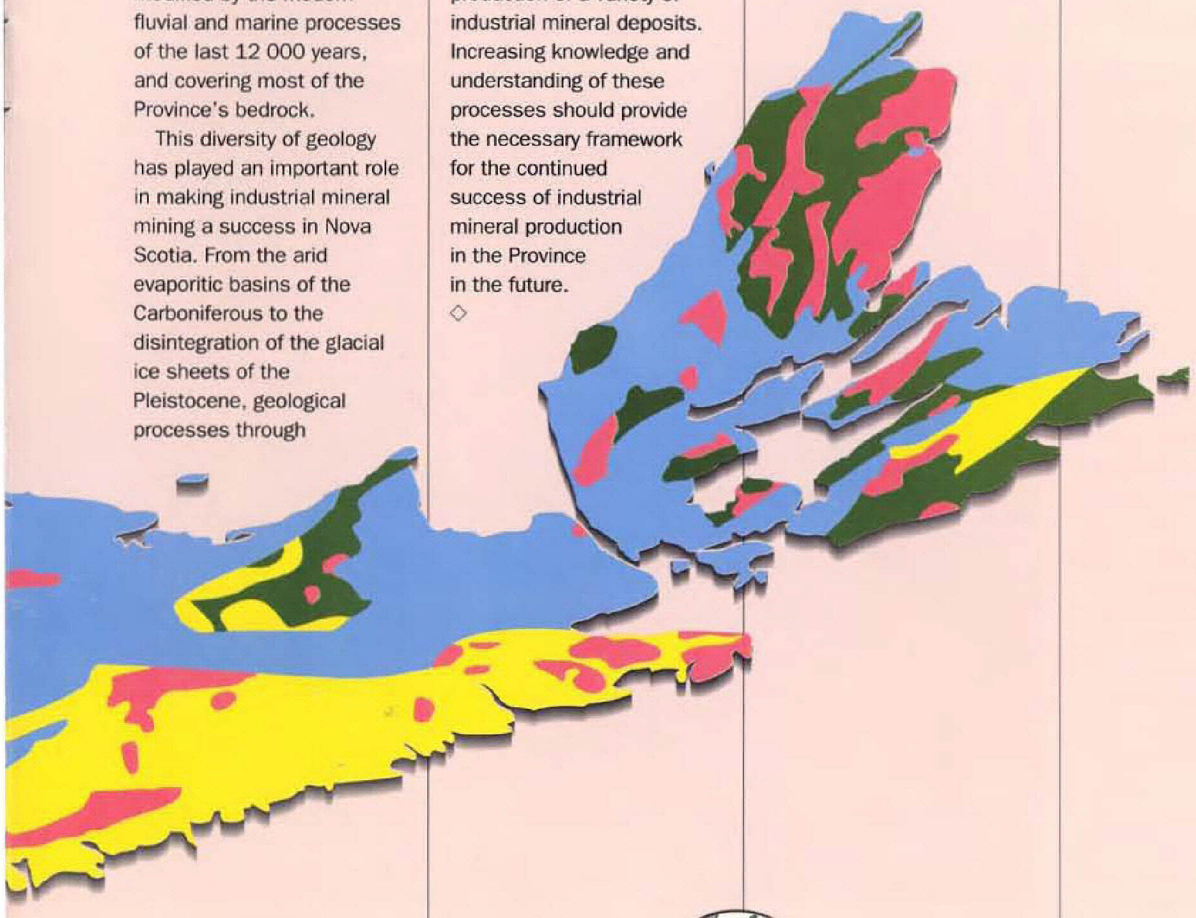
By approximately 290 million years before present the Terranes had welded together into their present position. From Precambrian to Carboniferous, periodic episodes of mountain building resulted in the emplacement of several stages of granitic intrusives into both Terranes.

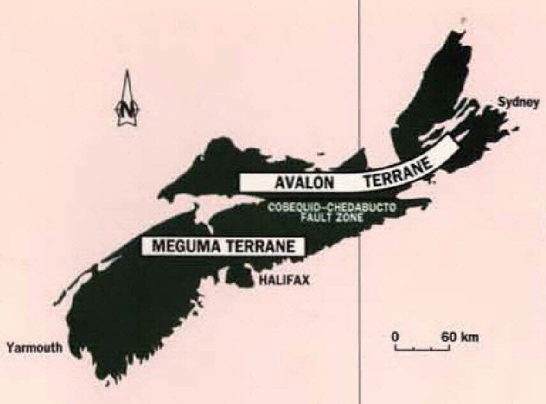
From 290 to 140 million years ago, Nova Scotia was caught within a supracontinent which subsequently broke apart to produce our present day Atlantic Ocean. The geological record from the opening of the Atlantic to the present has largely been obscured by erosion and deposition associated with episodic glacial movement over Nova Scotia during the last 100 000 years. However, sedimentation over the Province continued at least into the Cretaceous, as evidenced by the rare occurrences of Jurassic sedimentary rock and unconsolidated Cretaceous sediments. The completion of the geological record is a thick blanket

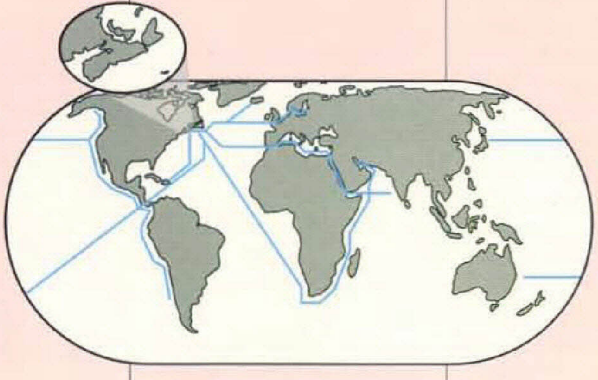


of Pleistocene glacial drift, modified by the modern fluvial and marine processes of the last 12 000 years, and covering most of the Province's bedrock.

This diversity of geology has played an important role in making industrial mineral mining a success in Nova Scotia. From the arid evaporitic basins of the Carboniferous to the disintegration of the glacial ice sheets of the Pleistocene, geological processes through time have favoured the production of a variety of industrial mineral deposits. Increasing knowledge and understanding of these processes should provide the necessary framework for the continued success of industrial mineral production in the Province in the future. ◇







A Thriving Industry

Historic Perspective

Nova Scotia has a rich history in industrial mineral production spanning a period of over 200 years. From the earliest extraction of aggregate for local road construction the industry has developed into a supplier of numerous industrial mineral commodities for local, interprovincial and international markets. Gypsum quarrying has become synonymous with mining in the Province, representing over 200 years of uninterrupted production dating back to the first exports of gypsum in 1759. Salt was first produced in the Province in 1813 with the first underground salt mine in Canada being opened at Malagash in 1919. The quarrying of sandstone and granite for dimension stone dates back to the mid 1700s. By the mid 1800s Nova Scotia had become a major exporter of stone with as many as 75 quarries in production.

Secondary processing of industrial minerals has also played an historic role in the shaping of our industry. A gypsum plaster mill at Windsor has been in operation for over a century. Clay bricks have been manufactured in Nova Scotia for more than two centuries. L. E. Shaw Limited, a major manufacturer of a variety of industrial mineral products, has been in operation for 130 years.

Present

Today, 18 industrial mineral producers operate 29 sites in Nova Scotia to produce gypsum, silica sand, building stone, limestone, barite, anhydrite, clay, shale and peat moss. In addition, over 75 aggregate producers process mineral aggregate at numerous pits and quarries throughout the Province. The total value of industrial mineral production (including secondary products) in 1990 was over $247 million or

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Top Far Left: Control panel at Lafarge Canada Incorporated's cement plant. Bottom Far Left: The Strait of Canso provides ice free shipping for Louisiana–Pacific Canada Limited's gypsum fiber board plant. Above: Sifto Canada Incorporated's Nappan plant. Left: Precast – prestressed concrete products, Strescon Limited, Bedford.

49.3% of Nova Scotia's total value of mineral production. Over 1860 people are employed directly in industrial mineral production, the impact of which is felt Province wide.

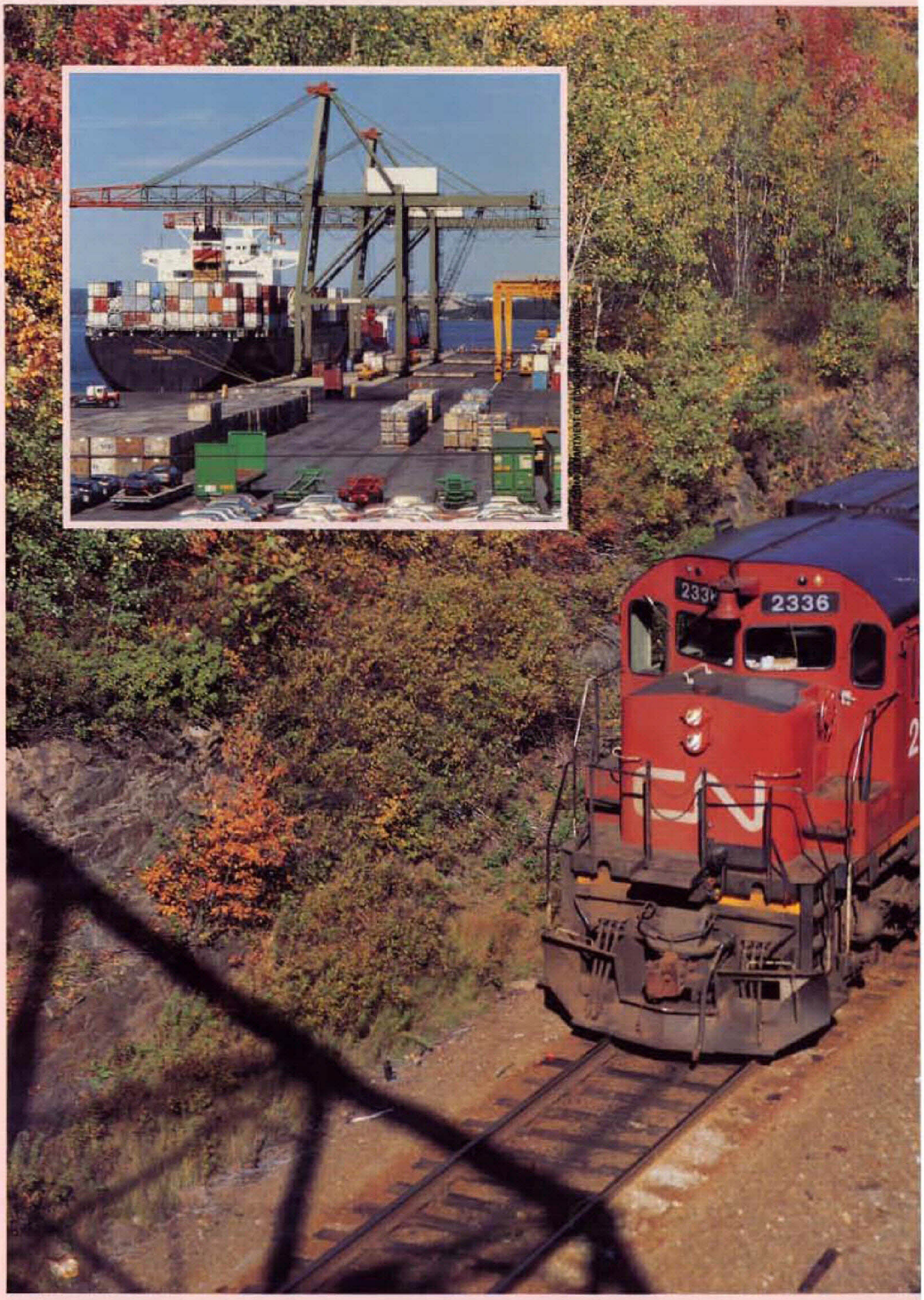
The gypsum industry is one of the strongest performers in the Province's mining industry, producing 6 Mt annually. The largest gypsum quarry in the world is located at East Milford, Hants County. Salt production tops 1 Mt annually, servicing the chemical, fishing, agricultural, food and paper industries. Sifto Salt Incorporated has recently installed an ultramodern evaporating system at its facility in Nappan, Cumberland County. This computerized production method, the first of its kind in North America, produces salt at 99.9% purity. At Aulds Cove, Guysborough County, a state-of-the-art marine quarry produces and exports high quality aggregate to Eastern Canada and points south along the Eastern Seaboard of the United States. Most recently a secondary processing facility at Point Tupper, Richmond County, (near Port Hawkesbury, Inverness County) has been established to produce an advanced line of gypsum based wallboard.

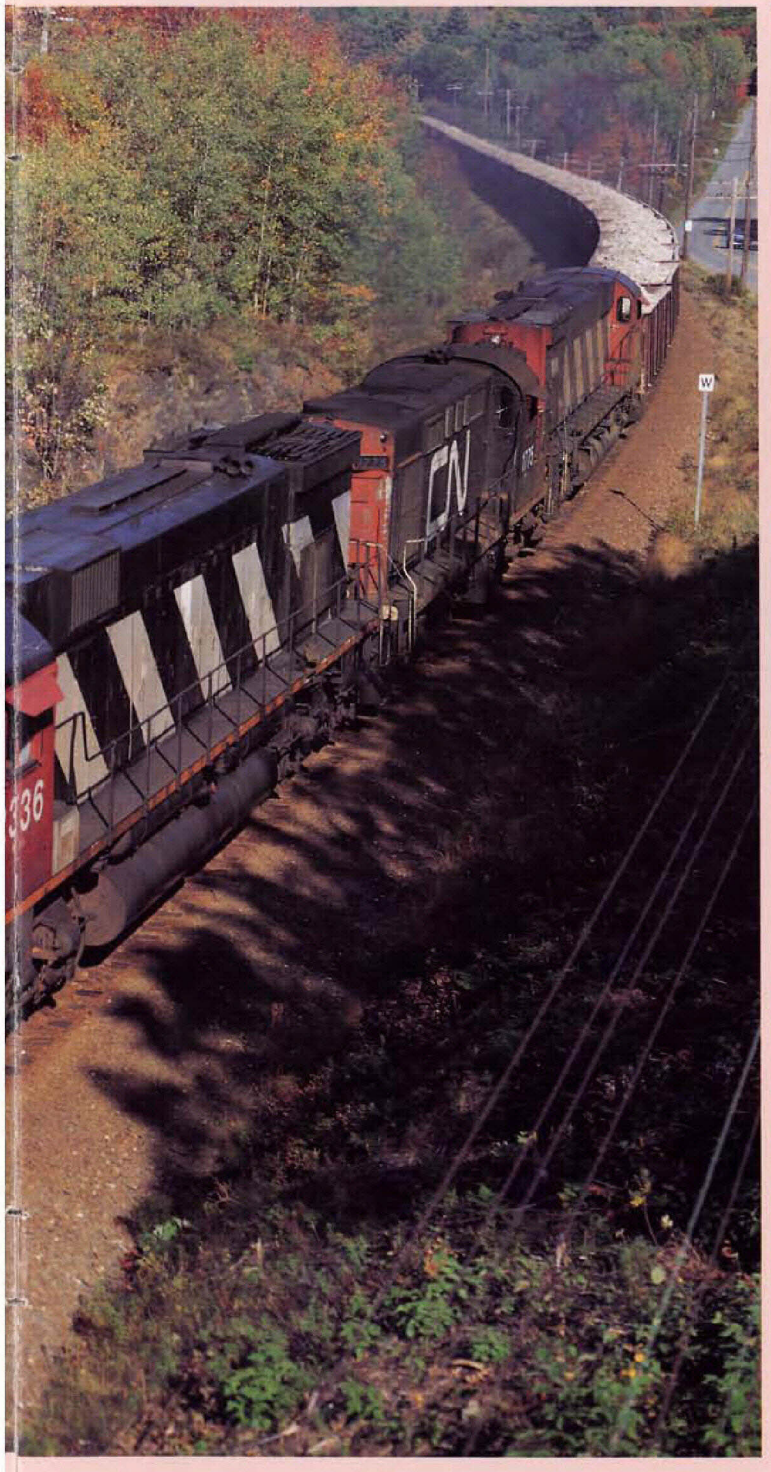
A Bright Future

Nova Scotia has a long history and proven track record in industrial mineral mining and manufacturing. This is largely a reflection of the diverse and favourable geology of the Province coupled with the strong entrepreneurial spirit of its people. A dependable and skilled work force, so essential in our global market, has been instrumental in achieving a world class competitiveness. The industry has also enjoyed the support and experience of several government agencies and the numerous excellent research facilities which are found here. The people and the Government of Nova Scotia are committed to the continued growth and development of industrial mineral production in our Province, ensuring a long and prosperous future for this vital industry. ◇

Accessing World Markets

Nova Scotia has an efficient network of sea, rail, road and air links between industrial mineral producers and markets around the world. The Province has a number of excellent, year-round ports, including Halifax, Port Hawkesbury, Sydney and Yarmouth. Halifax, the Provincial capital, has a deep water harbour with two container terminals and is Canada's second largest container port. The biggest ships in the world can be loaded at Port Hawkesbury on the Strait of Canso for destinations in the United States, Europe and the Orient. Several other ports handle ferries capable of transporting large trucks to neighbouring provinces and the United States. Nova Scotia's geographic position decreases the travel time to Western Europe by up to a full day's sail compared to other ports in North America. Rail lines connect the region with the major rail centres of Montreal, Toronto and the United States. Nova Scotia has a fine network of all weather, high speed highways which connect with the rest of Canada and the United States. ◇





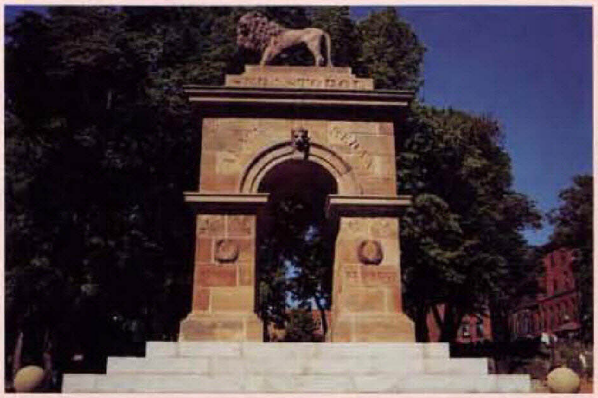
BOB MARTIN, BOB MARTIN PHOTOGRAPHIC

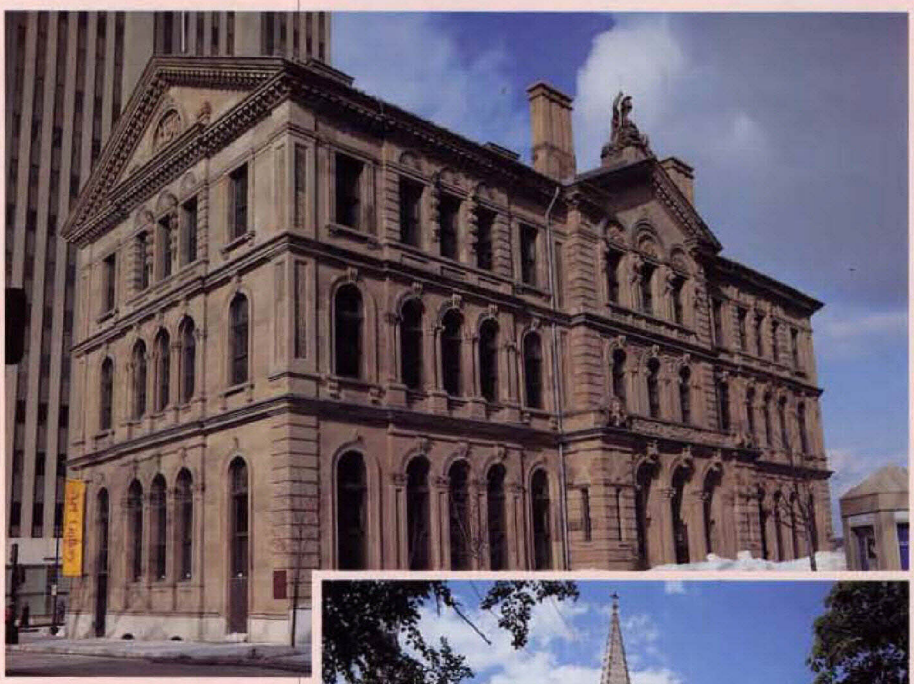
Inset Left: Cerescorp Incorporated's container terminal, Halifax. Left: Gypsum unit train from National Gypsum's quarry, bound for port of Halifax. Top: Bulk cargo transfer, Strait of Canso. Above: Silica sand tanker, Nova Scotia Sand and Gravel, Shubenacadie plant.

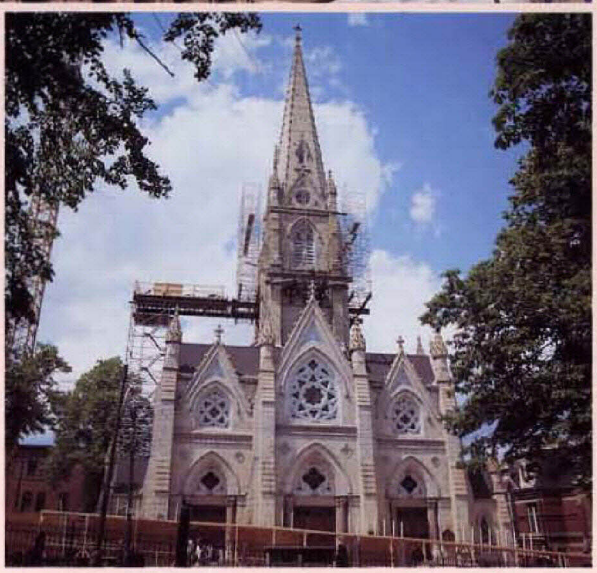
Building Stone

Building stone refers to stone used in building construction. The use can be structural or decorative. Although any type of stone may be used, the more frequently utilized stones for this purpose include sandstone, granite and marble. The Nova Scotia industry dates back to the 18th Century. In those times local stone was used to construct some of the first buildings in the area. Local sandstone and granite have been widely used in the construction of private and government buildings in the Province. Nova Scotia sandstone has also been exported to the Eastern Seaboard of the United States and as far west as California for residential construction.

A number of granite deposits suitable for building stone production exist in the Province with the largest being at Terence Bay, Halifax County. The most northern section of Terence Bay is considered to be the best site for building stone, and test drilling has outlined a total of 220 000 m^3 to a depth of 14 m. Major deposits of sandstone occur at Wallace and Amherst, Cumberland County, and Eight Mile Brook and Hardwood Hill, Pictou County. A variety of colours are available, from grey to red, including olive and buff, and many tens of thousands of tonnes are available for development. The building stone industry has potential for expansion due to the increasing need for stone used in restoration and new construction. With an abundance of high quality stone and trained masons, Nova Scotia's building stone industry is experiencing a revival. ◇

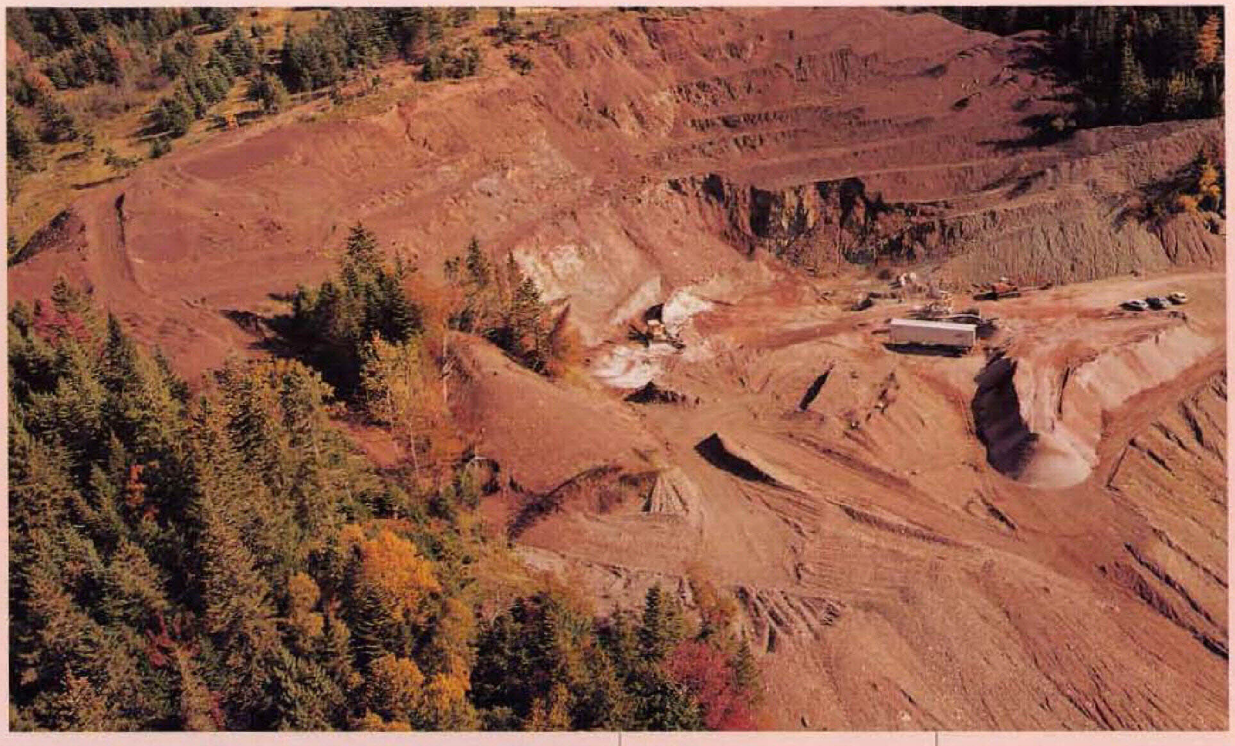


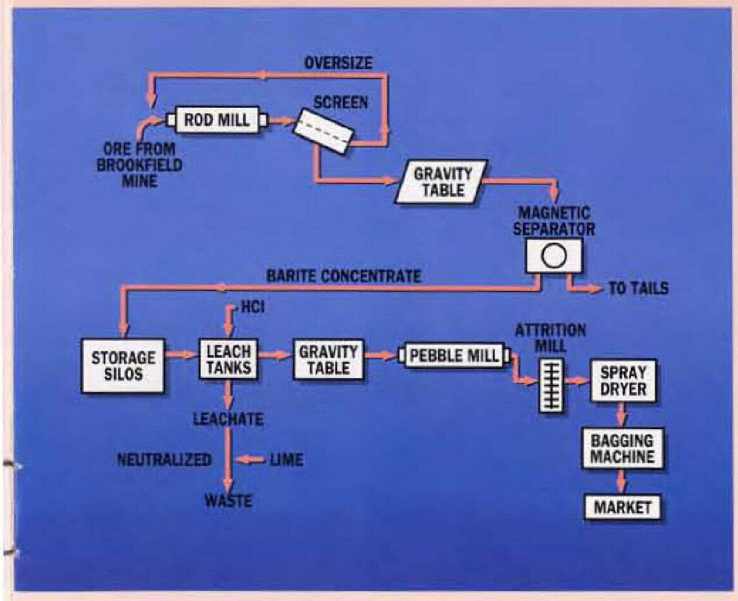




Top: Restored sandstone monument, Halifax.
Middle: Restored Art Gallery of Nova Scotia, Halifax.
Bottom: Restoration of North America's tallest granite spire, St. Mary's Basilica, Halifax.

Barite





Nystone's Upper Brookfield barite quarry.

Most barite is used in drilling fluids for oil and gas exploration. The remainder is used in the manufacture of barium chemicals, glass and as a pigment, filler or extender. One company in Nova Scotia, E-Z-EM Canada Incorporated, Nystone Division, quarries and processes barite into USP grade barium sulphate. Their quarry at Brookfield, Colchester County, operates on an intermittent basis to provide ore for a manufacturing plant located at Debert, Colchester County. In 1989, E-Z-EM Canada Incorporated, Nystone Division produced 782 t of high purity barite worth approximately $1 million and employed 16 people.

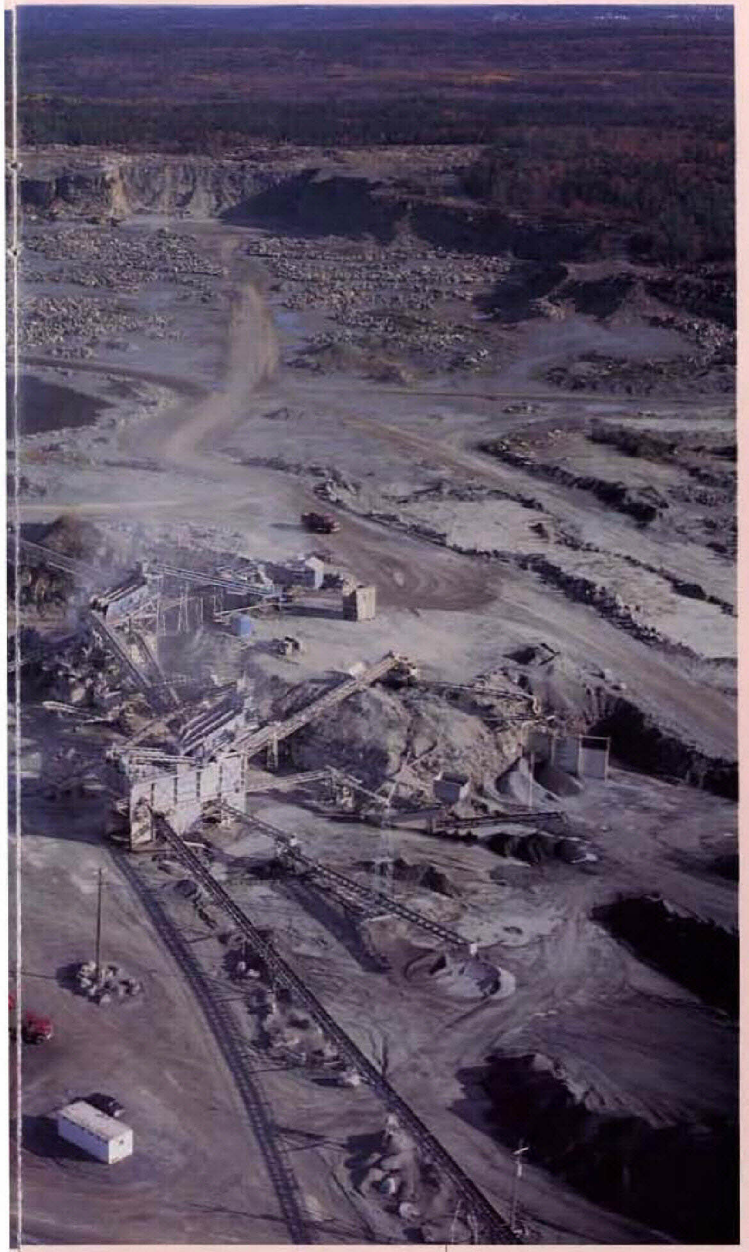
There are numerous occurrences and deposits of barite, and associated fluorite and celestite, in Nova Scotia. The two deposits with the greatest potential for barite and fluorite are on Cape Breton Island. The Conwest deposit at Trout River, Inverness County, contains 5 Mt of 34% barite and 17% fluorite and the Scotsville deposit at Scotsville, Inverness County, has 95 000 t of 60% barite. ◇

Aggregate

Mineral aggregate are structural materials fundamental to the infrastructure of Nova Scotia. Comprised of sand, gravel, crushed stone and slag, these materials are utilized in most aspects of construction. They are used alone for applications such as base coarses, railroad ballast, erosion control and graded fill or with a binder to produce Portland cement concrete, asphalt and mortar. Annual production (1990) in the Province was greater than 14 Mt with a product value (FOB plant site) of $62 million. The majority of these materials are consumed within the Province, the largest market being Halifax, where more than 3 Mt are used annually. Three companies ship materials outside the Province with one company exporting more than 1 Mt to destinations along the Eastern Seaboard and Gulf Coast regions of the United States.

The primary sources of aggregate in Nova Scotia are the sand and gravel extracted from glacial deposits. Crushed stone from bedrock quarries is the major alternative to these granular materials. The production of quarried stone has grown from 30% of the total production in 1981 to 45% today. The shift toward bedrock materials largely reflects the depletion of granular deposits over the last half Century. Slag, a byproduct of the steelmaking industry at Sydney, Cape Breton County, has made a recent entrance into the aggregate market, however it remains a minor component of aggregate production in the Province.

The geology of Nova Scotia offers excellent potential for the production of quality aggregate materials. Several areas contain extensive bedrock



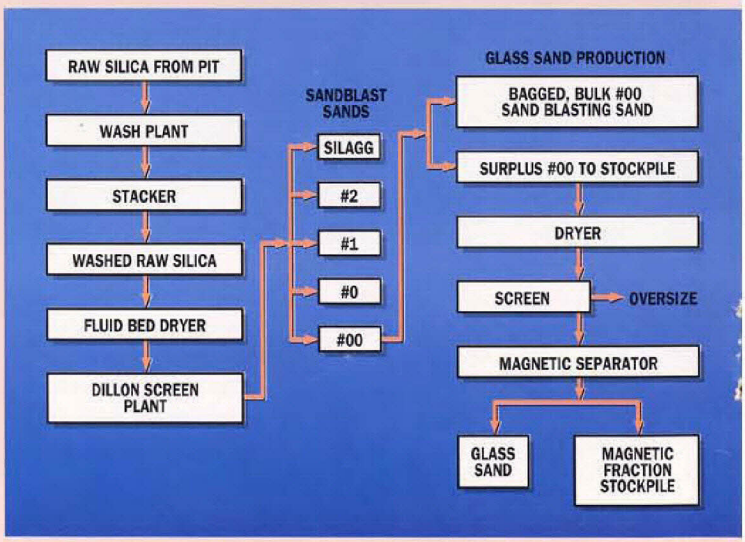
deposits of quartzite, granite and trap rock (basalt), all durable rock types capable of producing the best aggregate. Some of the deposits are in proximity to tidewater, opening the possibility of new marine quarry opportunities. The surficial geology of the continental shelf contains extensive deposits of sand and gravel which formed by marine reworking of glacial drift. This untapped resource offers good potential for an offshore sand and gravel industry in the future. ◇

Clockwise From Bottom Left: Industrial sand production, G. K. Keddy, Coldbrook; Aggregate from slag, Heckett Canada, Sydney; Rocky Lake Quarry, Bedford; Potential greywacke aggregate site, Sheet Harbour; Export aggregate site, Construction Aggregates Limited, Aulds Cove.

Silica

Silicon, the most abundant element on the earth's surface, occurs in many mineral forms. As silica (SiO_2), in sand and lump form, it is used in the manufacture of glass, glass containers, fibreglas insulation, refractories, sandpaper, smelter flux and as a sand blasting agent. Nova Scotia has silica sand deposits of Cretaceous age in Hants, Halifax and Inverness Counties. Studies indicate that reserves of several million tonnes of up to 99.6% SiO_2 exist in these deposits. A large tonnage of 99.7% SiO_2 rock occurs on tidewater at Chegoggin Point, Yarmouth County. Nova Scotia Sand and Gravel at Shubenacadie, Hants County, is our only silica sand producer shipping most of its production to a glass container manufacturer in New Brunswick and to the sand blasting industry in Atlantic Canada. ◇

Above: Shubenacadie silica sand operation. Right: Sand processing flow diagram.

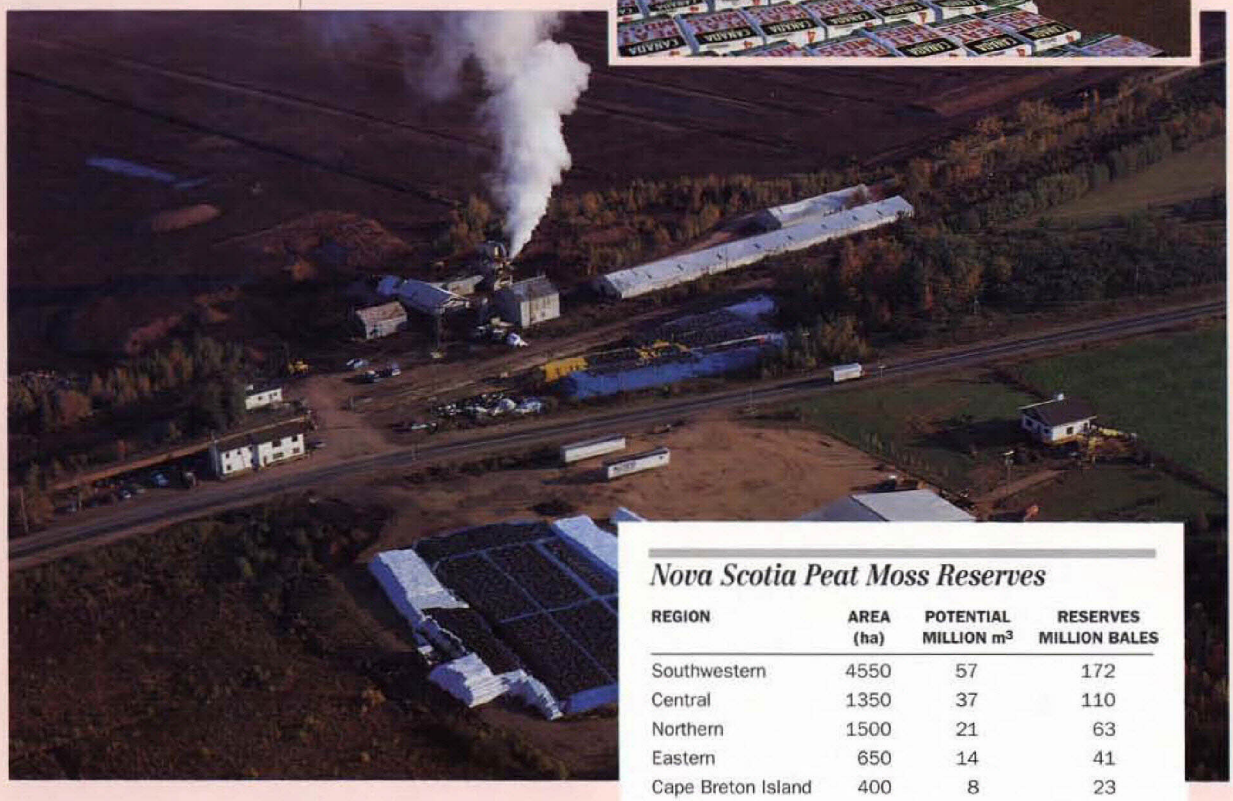


Peat Moss

Peat moss, formed by the partial decomposition of plant matter, is in world-wide demand. At present, peat is used as a soil conditioner, in potting soils, and to add organic matter to depleted soils. Peat is also used in industry as an oil absorbent, as a binder in the production of iron pellets, and as a filtration agent. Other uses include the production of chemical products, activated carbon and medical products. Nova Scotia peat moss is exported to the United States, Japan, Iceland, Bermuda and the Middle East. Annual production by Annapolis Valley Peat Moss Company Limited is 200 000 bales. With several undeveloped deposits, Nova Scotia can not only maintain its current production rate for many years, but can also provide the opportunity for much greater production. At the present time work is underway to bring additional deposits into production in the near future. ◇

ANNAPOLIS VALLEY PEAT MOSS COMPANY LIMITED

ANNAPOLIS VALLEY PEAT MOSS COMPANY LIMITED



Nova Scotia Peat Moss Reserves

REGION	AREA (ha)	POTENTIAL MILLION m^3	RESERVES MILLION BALES
Southwestern	4550	57	172
Central	1350	37	110
Northern	1500	21	63
Eastern	650	14	41
Cape Breton Island	400	8	23
Totals	**8450**	**137**	**409**

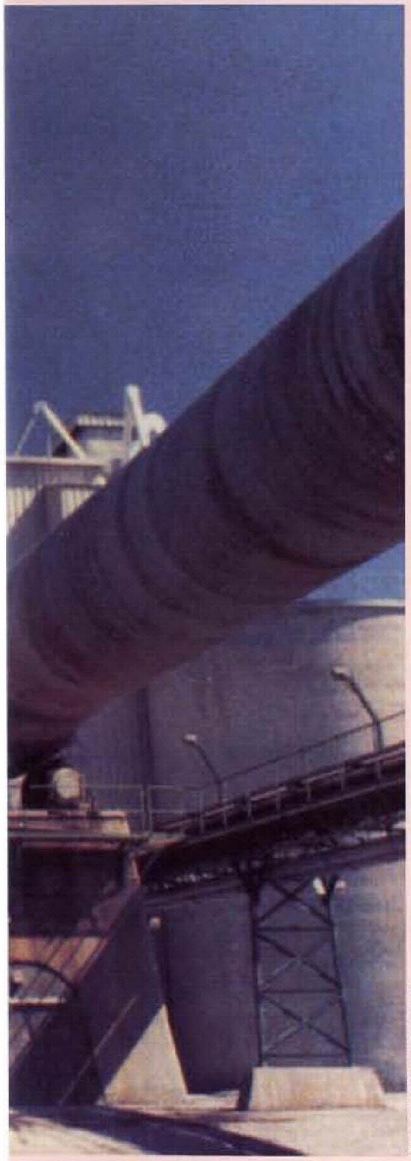
Top: Grow-in-bags. Middle: Baled peat moss. Above: Annapolis Valley Peat Moss Company Limited, Berwick.

Limestone and Dolomite

Limestone and dolomite are essential for modern living forming the backbone of today's construction, chemical and manufacturing industries. Nearly every product made today has required limestone either directly or indirectly in its manufacture. Traditionally, limestone and dolomite are used as chemically processed stone in pulp mills and glass plants, and as smelter flux; pulverized stone as aglime and asphalt filler, and in dusting coal mines; and crushed stone in cement plants, and quick and hydrated lime applications. Emerging uses of limestone and dolomite are in the environmental field as an acid neutralizer and sulphur emission controller from coal fired power plants. Increased use is forecast in the filler and extender markets, especially in the form of precipitated calcium carbonate.

There are many documented occurrences and deposits of limestone

and dolomite in Nova Scotia. Producing deposits are located at Brookfield, Colchester County, where Lafarge Canada Incorporated has the capability of producing 450 000 t of cement from this unique, naturally occurring cement rock which requires no additional additives to manufacture Normal Portland cement. Aglime has been produced for many years from deposits at Upper Musquodoboit, Halifax County, and Kellys Cove, Victoria County; deposits at Southside Antigonish Harbour, Antigonish County, and Kellys Cove supply chemically processed stone for pulp mills, and as smelter flux. A high calcium limestone deposit is presently being developed at Glen Morrison, Cape Breton County, to supply limestone to the coal fired, circulating fluidized bed boiler at Nova Scotia Power's Point Aconi generating station, Cape Breton County, due to come online in 1993. ◇



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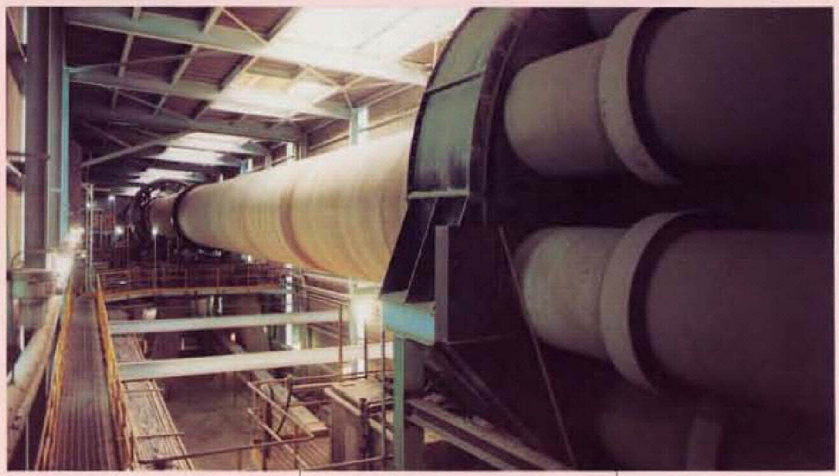
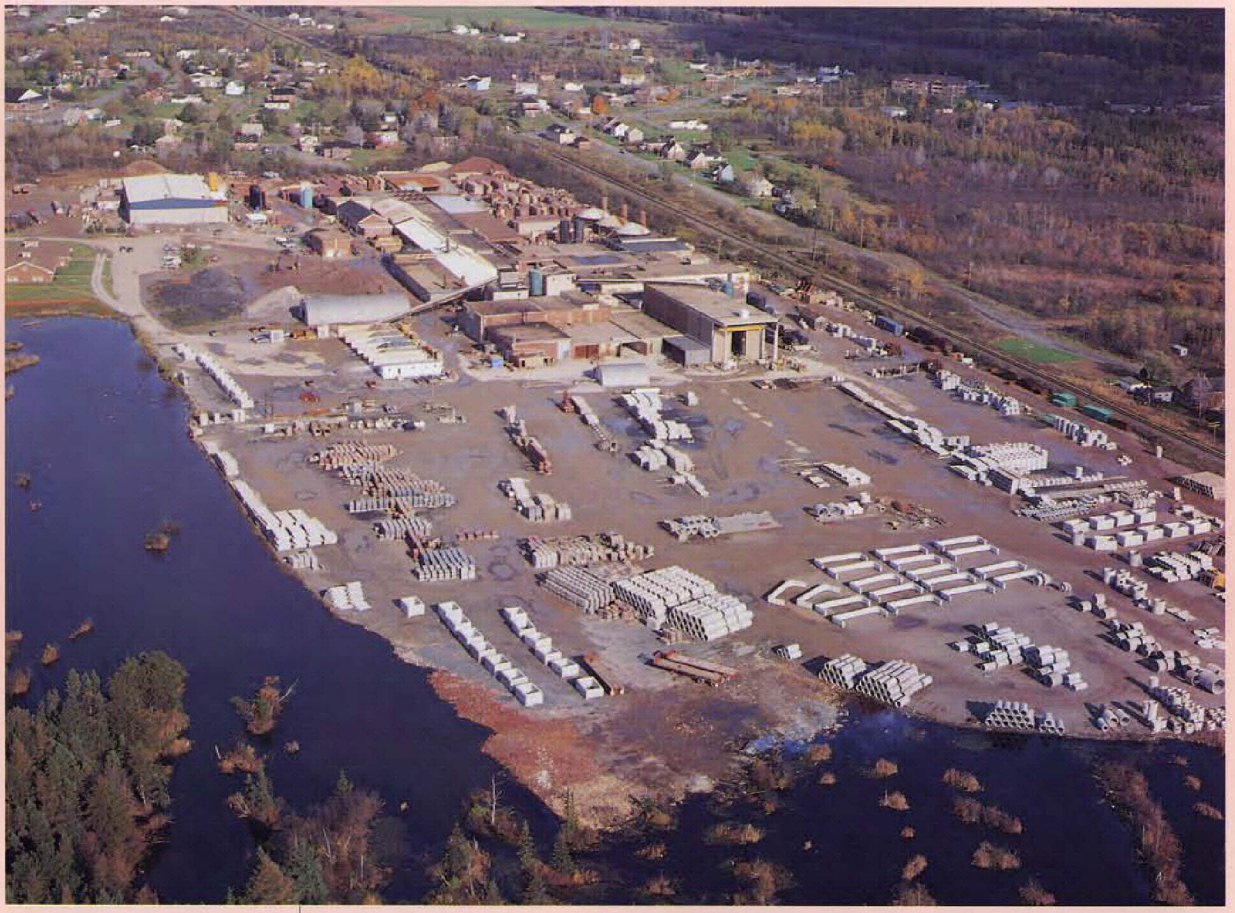
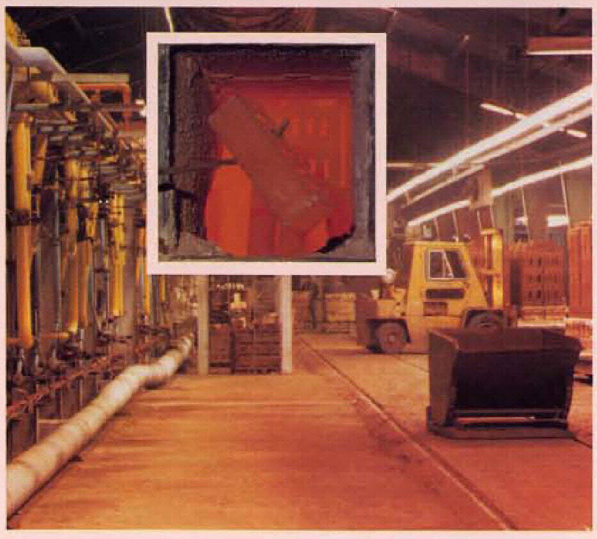


Left: Cement kilns, Lafarge Canada Incorporated.
Top: CFB Power plant, Point Aconi.
Above: Lime kiln, Scott Paper Incorporated, Abercrombie.

Clay and Shale



Clay and shale have been used in the manufacturing of bricks in Nova Scotia for over 200 years. Historically, numerous brickyards were operated across the Province, however today only one, L. E. Shaw Limited, manufactures clay and shale products in Nova Scotia. Originally established in Avonport, Kings County, over 125 years ago, L. E. Shaw today utilizes 27 800 t of clay and 11 900 t of shale to make 17 million bricks as well as other clay products at their manufacturing facility located at Lantz, Hants County. They supply markets throughout Maritime Canada. ◇



Above: Lantz brickworks, L. E. Shaw Limited. Right: Brick kiln at Lantz.

Salt

Salt (NaCl) has been produced in Nova Scotia since the early 1800s. With over 14 000 uses in industry, salt is the most versatile of minerals. The largest use at present is in the chemical industry. Nova Scotia markets 1 Mt of salt annually from Canadian Salt Company Limited's underground mine at Pugwash, Cumberland County, and Sifto Canada Incorporated's solution mining operation at Nappan, Cumberland County, for a wide range of uses.

Twenty deposits and 13 occurrences of salt have been identified in Nova Scotia. One deposit in the Shubenacadie-Stewiacke area of Hants and Colchester Counties is estimated to contain reserves of 5.0×10^{10} t of 85% NaCl. The Hants-Colchester area is attractive because of its proximity to proposed natural gas pipeline routes. There is interest in developing salt caverns for underground storage of hydrocarbons at the Strait of Canso because of its thick salt deposits and proximity to the Canso superport. ◇

Top: Pugwash Salt Mine. Left: Control panel, Sifto Canada Incorporated. Above: Barge being loaded with salt at Pugwash wharf.

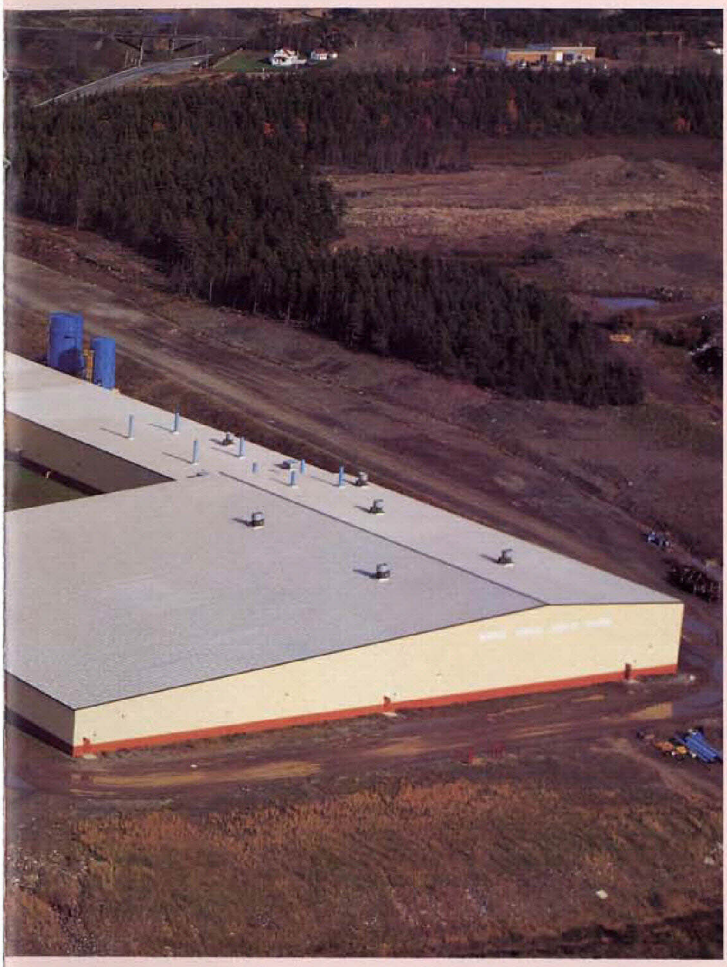
Gypsum and Anhydrite

Calcined gypsum (Plaster of Paris) is one of the most common building materials in the world. It is primarily used in the manufacturing of wallboard and other plaster products with additional uses for creating dental plasters, modelling casts, moulds, surgical casts and in drilling muds. Uncalcined gypsum and anhydrite are mainly used as set retarders for cement with other applications in agriculture to neutralize alkaline and saline soils, improve the permeability of clayey soils and to provide sulphur and calcium ions. Anhydrite can also be used for back-filling or as a cementitious construction material in the mining industry.

Gypsum and anhydrite have been mined and exported from sites in Nova Scotia for over 200 years. The earliest reported shipments of gypsum date back to 1759 when cargoes of

GEORGIA - PACIFIC CORPORATION

Top: Fiber gypsum board plant, Point Tupper. Above: 12 cubic yard dragline at Georgia-Pacific Corporation's Sugar Camp Quarry. Right: Loading fiber gypsum board at Halifax bound for Singapore.



"land plaster" were sent from Windsor, Hants County, to parts of New England.

Today Nova Scotia is the most productive gypsum mining area in the world. National Gypsum (Canada) Limited's East Milford Quarry, Halifax County, produces more gypsum each year than any other quarry in the world. In 1990, four large and two small producers quarried a total of 6.5 Mt of gypsum and 151 000 t of anhydrite in the Province. These products were valued at $61 million and directly employed 486 people. The companies also used three dedicated unit trains, a fleet of highway trucks and numerous large ocean going freighters to deliver gypsum and anhydrite to markets from Mississauga, Ontario, to Galveston, Texas.

Until recently secondary processing in the Province was restricted to 12 000 tpa of plaster produced by Domtar Gypsum at its plant in Windsor, Hants County.

Late in 1988 Louisiana-Pacific Corporation announced that it would construct a $64.5 million fiber gypsum wallboard plant at Point Tupper, Richmond County. Construction of the plant began in early 1989 and it was completed in early 1990. Full production on the first of two parallel production lines was achieved by early 1991. The plant, operated by Louisiana-Pacific Canada Limited, employs 100 workers and is capable of transporting its product by ship to markets in North America, Europe and Asia.

Recently completed resource evaluation studies indicate excellent potential for additional minable reserves in the Province. This sound resource base combined with solid infrastructure and stable operations ensure that the Nova Scotia gypsum and anhydrite industry will continue to prosper. ◇

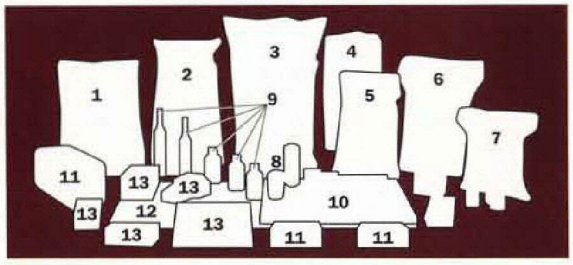
Left: Fundy Gypsum Company Limited's Hantsport shipping terminal.
Above: Gypsum exposures, Bras d'Or Lake.

Secondary Processing

Secondary processing forms an integral part of industrial mineral production in Nova Scotia. Through innovation and excellence, the producers of the Province have developed an extensive line of value added products which are marketed around the world. Several new product lines including salt products, Portland cement, pharmaceutical barite products and fiber gypsum wallboard are manufactured in the Province. Research into recovery enhancement of silica sand deposits has recently resulted in the use of a magnetic separator system to produce glass grade silica sand for export. Anhydrite is being tested for its potential as a cementitious construction material in underground mining. Research is currently being conducted into the agricultural application of gypsum as a fertilizer for local markets.

Several initiatives demonstrate the industry's awareness and sensitivity to resource conservation and the environment. Slag, a byproduct of the steel industry, is being used as an alternative aggregate material. Fly ash, a waste produced in coal fired electricity generation, is being added to concrete to stabilize reactive aggregate, prolonging the life and integrity of concrete products. Waste fuel is being used as an energy source in the kilns of the Lafarge Canada Incorporated's cement plant. It is beneficial both in providing a safe method of waste disposal and in conserving fossil fuels.

The Governments of Nova Scotia and Canada are supportive of industry's initiatives in product development and marketing. The Department of Natural Resources encourages research and development activities designed to supply new, competitively priced products which have been developed from Nova Scotia's industrial mineral resources. ◇



1 Lafarge Canada Incorporated, Cement product
2 Nova Scotia Sand and Gravel, Silica sand product
3 Annapolis Valley Peat Moss Company Limited, Peat moss product
4 Mosher Limestone Company Limited, Agricultural limestone product
5 Domtar Gypsum, Plaster product
6 Sifto Canada Incorporated, Salt products

7 The Canadian Salt Company Limited, Salt products

8 E-Z-EM Canada Incorporated, Nystone Division, Pharmaceutical barite products

9 Consumers Glass Incorporated of Scoudouc, New Brunswick, Glass products made from Nova Scotia Sand and Gravel silica sand

10 Louisiana-Pacific Canada Limited, Fiber gypsum wallboard

11 L. E. Shaw Limited, Clay products

12 Terence Bay granite

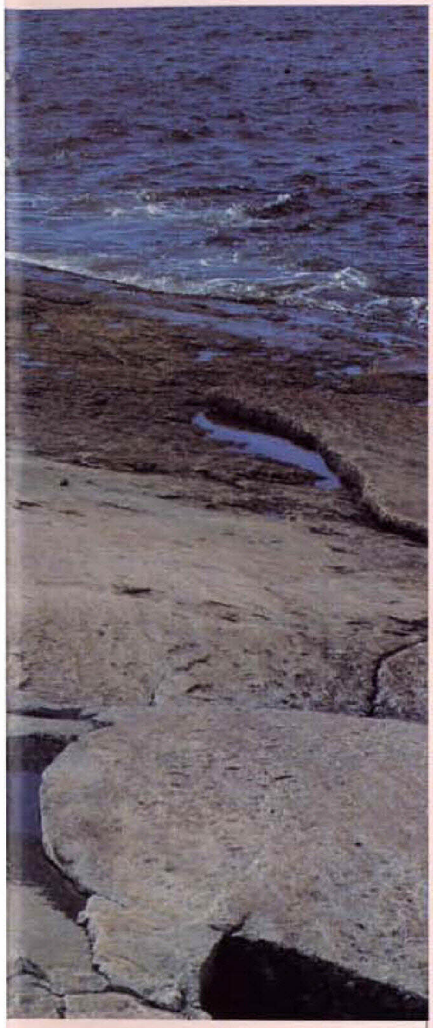
13 Local aggregate products

Resource Management

Nova Scotia's industrial mineral industry is not only an important contributor to the Province's economy, but also plays a significant role in meeting the world's needs. To ensure the continuation of this tradition, resource management has been made a priority. The Government and producers in Nova Scotia, working together, are dedicated to this task.

The Nova Scotia Department of Natural Resources has been involved in identifying industrial mineral resources for over a century, with efforts increasing dramatically in recent years. For almost two decades cooperation agreements between the Governments of Nova Scotia and Canada have implemented a series of programs designed to promote industrial mineral activities in the Province. The result has been a thorough evaluation of a number of the Province's industrial mineral commodities.

These geological investigations have lead to the identification of a variety of potential industrial mineral resources. Among them is a large silica deposit of extremely pure (>99% SiO_2) quartzite at Chegoggin Point, Yarmouth County, which is estimated to contain reserves of over 9 Mt. At Glencoe, Inverness County, a large, high quality, carbonate deposit contains in excess of 300 Mt of cement grade limestone. A gypsum deposit



Inset Far Left: Undeveloped peat bog, eastern Nova Scotia. Far Left: Granite on tidewater, Canso. Above: Silica and garnet deposit, Chegoggin Point. Left: Bulk sampling limestone, Glencoe.

at Murchyville, Halifax County, has been shown to contain approximately 60 Mt of gypsum with an average grade of 87%. Large, high quality, bedrock aggregate deposits have been identified in several areas, including some locations with tidewater export potential. Building stone opportunities have been identified at several locations in a variety of rock types. Peat resource studies have shown that at least 30 deposits have good potential for commercial peat moss production.

The Province has an abundance of industrial mineral wealth, much of which remains to be developed. The Government of Nova Scotia is committed to maximizing the use of these resources, and is strongly encouraging their exploration and development. To this end, the Department of Natural Resources has available a broad range of assistance, including geotechnical data and staff expertise. Other federal and provincial agencies are in a position to provide financial assistance for resource development projects. ◇

Industrial Mineral Producers

ANHYDRITE

1
Fundy Gypsum Company Limited, P.O. Box 400, Windsor, Nova Scotia B0N 2T0.
Tel: (902) 798-4676; Fax: (902) 798-5639

2
Little Narrows Gypsum Company Limited, Little Narrows, Nova Scotia B0E 1T0.
Tel: (902) 756-2081; Fax: (902) 756-2493

BARITE

3
E-Z-EM Canada Incorporated, Nystone Division, P.O. Box 69, Debert, Nova Scotia B0M 1G0.
Tel: (902) 662-3250; Fax: (902) 662-3235

CLAY AND SHALE

4–7
L. E. Shaw Limited, P.O. Box 2130, Lantz, Nova Scotia B0N 1R0.
Tel: (902) 883-2201; Fax: (902) 883-1273

DOLOMITE

8
Mosher Limestone Company Limited, P.O. Box 28, Upper Musquodoboit, Nova Scotia B0N 2M0.
Tel: (902) 568-2654; Fax: (902) 568-2983

GYPSUM

9,10
Fundy Gypsum Company Limited, P.O. Box 400, Windsor, Nova Scotia B0N 2T0.
Tel: (902) 798-4676; Fax: (902) 798-5639

11
Domtar Gypsum, P.O. Box 758, Windsor, Nova Scotia B0N 2T0.
Tel: (902) 798-2287; Fax: (902) 798-8554

12
National Gypsum (Canada) Limited, P.O. Box 57, Milford Station, Nova Scotia B0N 1Y0.
Tel: (902) 883-2224; Fax: (902) 758-3955

13,14
Georgia-Pacific Corporation, P.O. Box 400, Port Hawkesbury, Nova Scotia B0E 2V0.
Tel: (902) 625-3550;
Fax: (902) 625-1223

15,16
Little Narrows Gypsum Company Limited, Little Narrows, Nova Scotia B0E 1T0.
Tel: (902) 756-2081; Fax: (902) 756-2493

17
Nova Construction Company Limited, P.O. Box 1328, Antigonish, Nova Scotia B2G 2L7.
Tel: (902) 863-4004; Fax: (902) 863-2291

LIMESTONE

18
Lafarge Canada Incorporated, P.O. Box 5, Brookfield, Nova Scotia B0N 1C0.
Tel: (902) 673-2281; Fax: (902) 673-3206

19
Mosher Limestone Company Limited, P.O. Box 28, Upper Musquodoboit, Nova Scotia B0N 2M0.
Tel: (902) 568-2654; Fax: (902) 568-2983

20
Ridge Brokers Limited, P.O. Box 175, Havelock, New Brunswick, E0A 1W0.
Tel: (506) 534-2241; Fax: (506) 534-8263

21
Scotia Limestone Limited, P.O. Box 1450, Sydney, Nova Scotia B1P 6K5.
Tel: (902) 564-7918; Fax: (902) 564-7904

22
Nova Scotia Sand and Gravel, P.O. Box 60, Shubenacadie, Nova Scotia B0N 2H0.
Tel: (902) 883-2220; Fax: (902) 758-3622

SALT

23
Sifto Canada Incorporated, P.O. Box 550, Amherst, Nova Scotia B4H 4A1.
Tel: (902) 667-3388;
Fax: (902) 667-0112

24
The Canadian Salt Company Limited, P.O. Box 160, Pugwash, Nova Scotia B0K 1L0.
Tel: (902) 243-2511; Fax: (902) 243-2667

SILICA SAND

25
Nova Scotia Sand and Gravel, P.O. Box 60, Shubenacadie, Nova Scotia B0N 2H0.
Tel: (902) 883-2220; Fax: (902) 758-3622

STONE

26
Heritage Memorials Limited, P.O. Box 308, Windsor, Nova Scotia B0N 2T0.
Tel: (902) 798-4780; Fax: (902) 798-2475

27
Wallace Quarries Limited, P.O. Box 203, Wallace, Nova Scotia B0K 1Y0.
Tel: (902) 257-2014

PEAT MOSS

28
Annapolis Valley Peat Moss Company Limited, R.R. #1, Berwick, Nova Scotia B0P 1E0.
Tel: (902) 538-8022; Fax: (902) 538-9609

SLAG

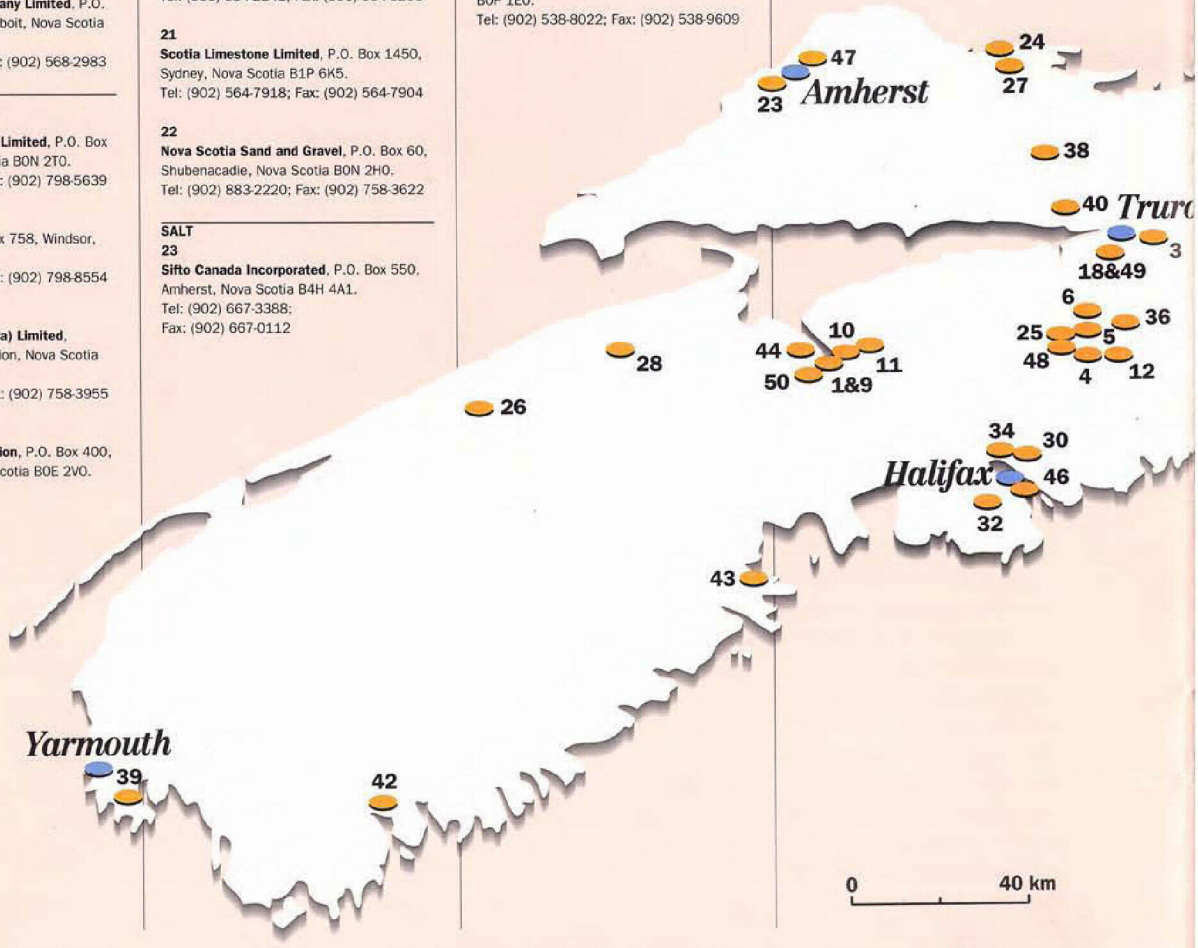
29
Heckett Canada, Division of Harsco Canada Limited, P.O. Box 656, Sydney, Nova Scotia B1P 6H7.
Tel: (902) 564-0201; Fax: (902) 539-3089

MAJOR AGGREGATE PRODUCERS

CRUSHED STONE
(>250 000 tpa)

30
Conrad Brothers Limited, P.O. Box 2129, Dartmouth, Nova Scotia B2W 3Y2.
Tel: (902) 435-3233; Fax: (902) 462-0318

31
Construction Aggregates Limited, P.O. Box 278, Mulgrave, Nova Scotia B0E 2G0.
Tel: (902) 747-3242; Fax: (902) 747-2396



32
Gateway Materials Limited, 20 MacDonald Avenue, Dartmouth, Nova Scotia B3B 1C5.
Tel: (902) 443-6602; Fax: (902) 468-4839

33
Pictou County Excavators Limited, R.R. #2, New Glasgow, Nova Scotia B2H 5C5.
Tel: (902) 752-1185; Fax: (902) 752-8686

34
Rocky Lake Quarry Limited, P.O. Box 70, Bedford, Nova Scotia B4A 2X1.
Tel: (902) 835-3381; Fax: (902) 835-7300

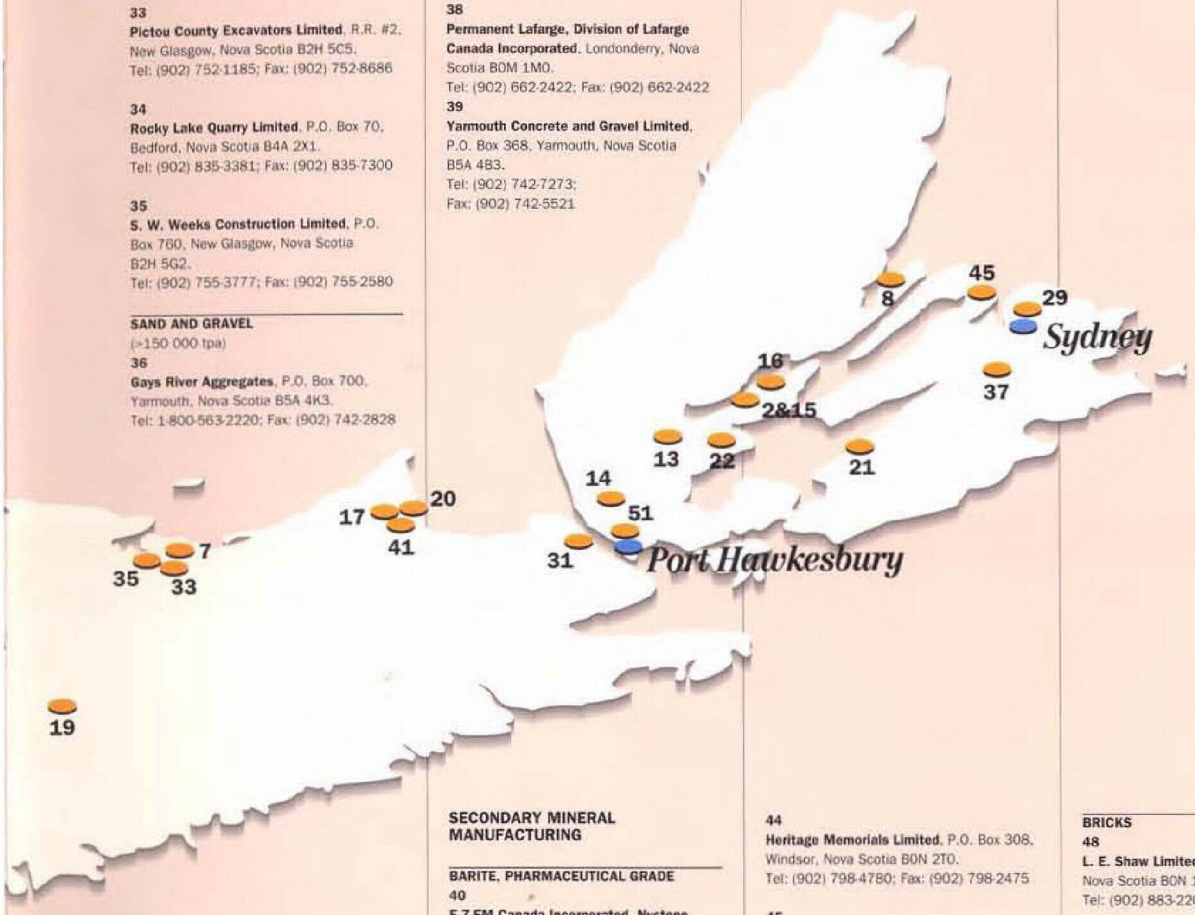
35
S. W. Weeks Construction Limited, P.O. Box 760, New Glasgow, Nova Scotia B2H 5G2.
Tel: (902) 755-3777; Fax: (902) 755-2580

SAND AND GRAVEL
(>150 000 tpa)
36
Gays River Aggregates, P.O. Box 700, Yarmouth, Nova Scotia B5A 4K3.
Tel: 1-800-563-2220; Fax: (902) 742-2828

37
Municipal Ready-Mix Limited, P.O. Box 237, Sydney, Nova Scotia B1P 6H1.
Tel: (902) 564-4541; Fax: (902) 562-6057

38
Permanent Lafarge, Division of Lafarge Canada Incorporated, Londonderry, Nova Scotia B0M 1M0.
Tel: (902) 662-2422; Fax: (902) 662-2422

39
Yarmouth Concrete and Gravel Limited, P.O. Box 368, Yarmouth, Nova Scotia B5A 4B3.
Tel: (902) 742-7273;
Fax: (902) 742-5521



SECONDARY MINERAL MANUFACTURING

BARITE, PHARMACEUTICAL GRADE
40
E-Z-EM Canada Incorporated, Nystone Division, P.O. Box 69, Debert, Nova Scotia B0M 1G0.
Tel: (902) 662-3250; Fax: (902) 662-3235

BUILDING STONE
41
Arsenault Monument Works Limited, P.O. Box 1475, Antigonish, Nova Scotia B2G 2L1.
Tel: (902) 863-3455

42
Dauphinee Memorial Art, P.O. Box 68, Shelburne, Nova Scotia B0T 1W0.
Tel: (902) 634-4621; Fax: (902) 875-3187

43
DeMone's Monuments Limited, P.O. Box 447, Lunenburg, Nova Scotia B0J 2C0.
Tel: (902) 634-4621; Fax: (902) 634-8142

44
Heritage Memorials Limited, P.O. Box 308, Windsor, Nova Scotia B0N 2T0.
Tel: (902) 798-4780; Fax: (902) 798-2475

45
John D. Steele's Sons Limited, P.O. Box 173, North Sydney, Nova Scotia B2A 3M3.
Tel: (902) 794-2713

46
Maritime Canstone Incorporated, Suite 510, 1800 Argyle Street, Halifax, Nova Scotia B3J 3N8.
Tel: (902) 420-0692; Fax: (902) 429-1241

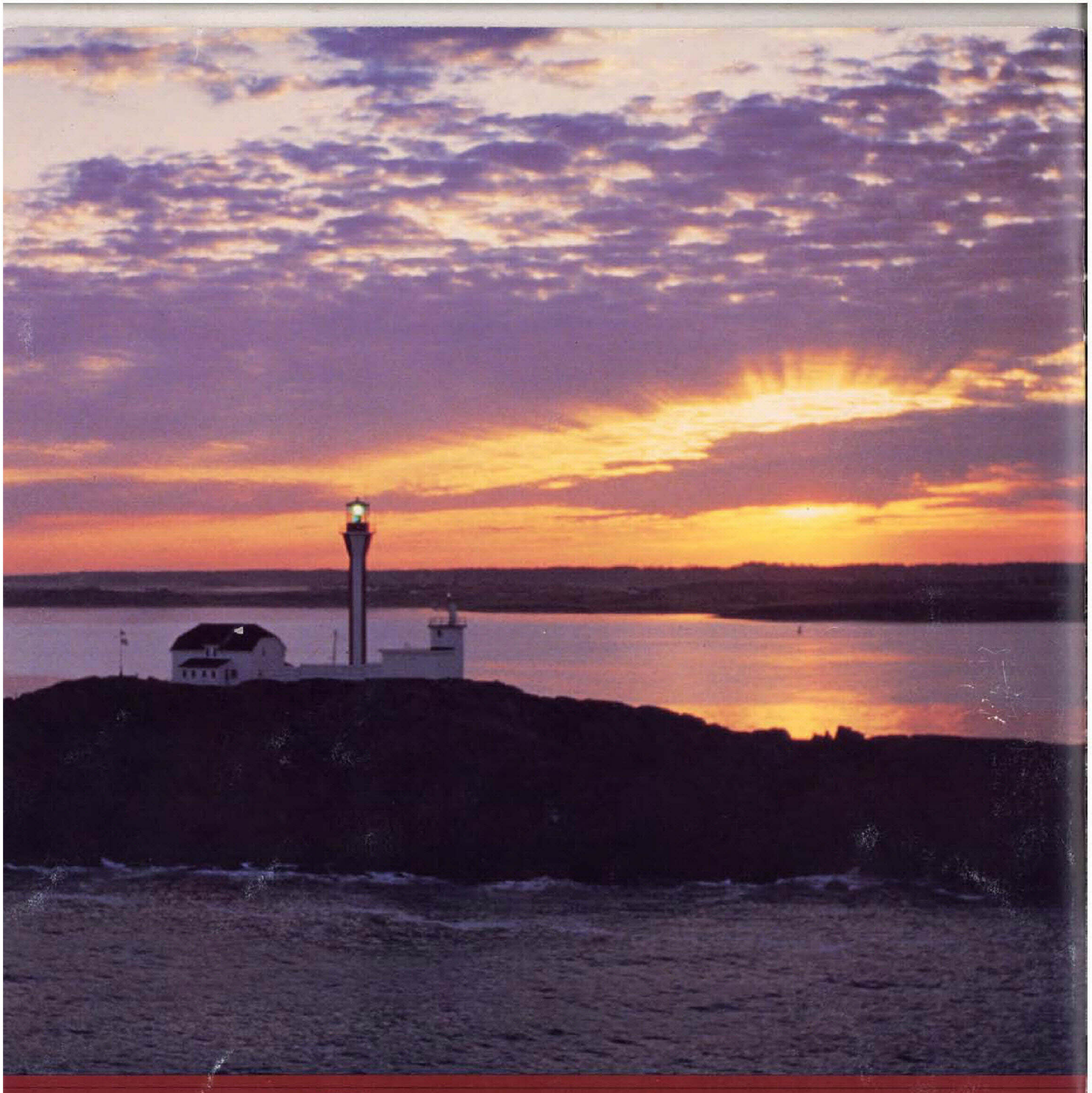
47
Tingley Monuments Limited, P.O. Box 432, Amherst, Nova Scotia B4H 3Z5.
Tel: (902) 667-2861; Fax: (902) 667-0794

BRICKS
48
L. E. Shaw Limited, P.O. Box 2130, Lantz, Nova Scotia B0N 1R0.
Tel: (902) 883-2201; Fax: (902) 883-1273

CEMENT
49
Lafarge Canada Incorporated, P. O. Box 5, Brookfield, Nova Scotia B0N 1C0.
Tel: (902) 673-2281; Fax: (902) 673-3206

PLASTER PRODUCTS
50
Domtar Gypsum, P.O. Box 758, Windsor, Nova Scotia B0N 2T0.
Tel: (902) 798-2287; Fax: (902) 798-8554

51
Louisiana-Pacific Canada Limited, P.O. Box 2102, Port Hawkesbury, Nova Scotia B0E 2V0.
Tel: (902) 625-3070; Fax: (902) 625-3347



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1701 Hollis Street, P.O. Box 698, Halifax, Nova Scotia B3J 2T9
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Fax: (902) 424-7735

NOVA SCOTIA DEPARTMENT OF ECONOMIC DEVELOPMENT
Seventh Floor, World Trade and Convention Centre, 1800 Argyle Street, P.O. Box 519, Halifax, Nova Scotia B3J 2R7
Tel: (902) 424-8920
Fax: (902) 424-0582

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INFORMATION CIRCULAR NO. 24

COOPERATION

COOPERATION AGREEMENT ON MINERAL DEVELOPMENT

ENTENTE DE COOPÉRATION SUR LE DÉVELOPPEMENT DES MINÉRAUX

Canada and Nova Scotia, Working for a Stronger Mineral Industry

Canada

Nova Scotia

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