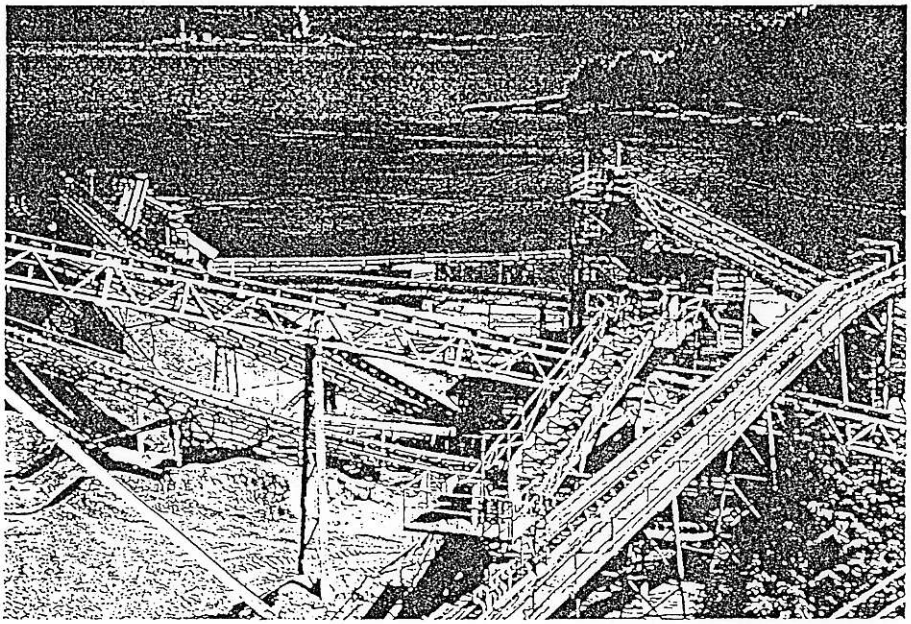
New era for B.C. coastal quarry

The historic Blubber Bay Quarry on Texada Island upgrades to capitalize on newly developed limestone aggregate markets.



Overview of the Blubber Bay Quarry processing facilities on Texada Island.

Worked continuously since 1907, Blubber Bay Quarry on Texada Island boasts a proud history, but nevertheless it has its eye firmly on the future.

Owned and operated by Ash Grove Cement Company of Kansas, Blubber Bay recently completed a $2-million plant upgrade, has added new and larger mobile mining machines, and has a toe solidly into new and promising aggregate markets.

Quarry manager Ted Thomson, whose office walls include photos of mining at the site dating back 50 and 60 years, describes the history of the quarry and mining on the Island as "a point of considerable pride with everybody who lives and works here. But we aren't ready to become a working museum quite yet."

Opened by the Pacific Lime Company in the wake of the fading gold rush boom of the late 1800s, Blubber Bay is one of three working limestone quarries on the Island, a principal limerock supply source on the coast from California to Alaska. In addition to agriculture, limerock is broadly used in a variety of commercial and industrial products, from cement to paint, and even in common aspirin.

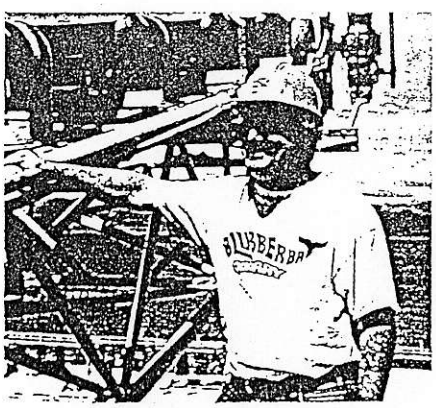
"Last year, without the benefit of the added production the plant upgrade gives us, we shipped two million tonnes of limestone," says Thomson, who left the giant Bullmoose coal mine in northeast B.C. to lead the comparatively small quarry through its expansion phase.

"That was a record for us, but realistically it stretched our existing two-line setup to the limit to meet our orders. With installation of a third line we now have added production capacity – to over three million tonnes a year – but also some badly needed flexibility to service both our traditional limerock markets and our aggregate customers."

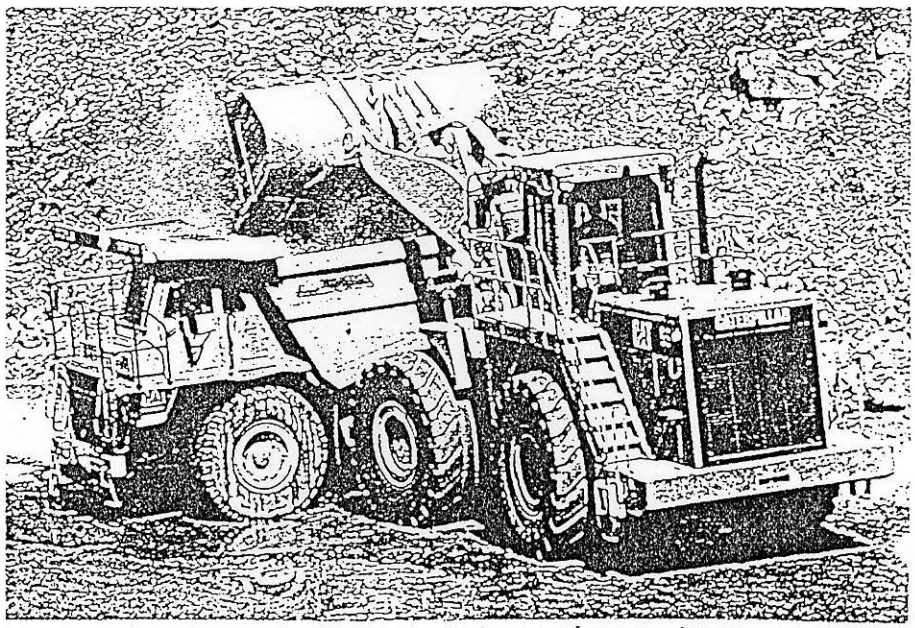
The new third crushing line, called the M-System, is dedicated to aggregate production, ironically a business in which Blubber Bay finds itself the new kid on the block. "After 90 years in operation that is an interesting position to be in," Thomson observes, "the reason being that traditionally the construction industry has viewed limestone as too soft for concrete aggregate. We've set out to change that view and have had some excellent results in this market."

Going into the '90s, Blubber Bay was shipping about 150,000 tonnes of agriculture lime and 800,000 tonnes of cement rock a year, all of the latter sent to Ash Grove's recently rebuilt and expanded cement plant in Seattle.

The quarry might have continued as a 'dedicated supplier' to the plant for the forseeable future but for feelers at about



Quarry manager Ted Thomson.



New Cat 990 loading one of the quarry's two Cat 775 quarry trucks.

the same time from construction firms on the Lower Mainland looking for new aggregate sources.

Reacting quickly to the overtures, by 1992 the quarry was producing about 400,000 tonnes of coarse aggregate for the Vancouver-area market. In doing so, it began to accrue a significant amount of surplus fine material, which it began to market as 2" x 3/4" densification rock, initially for ground stabilization in silty areas.

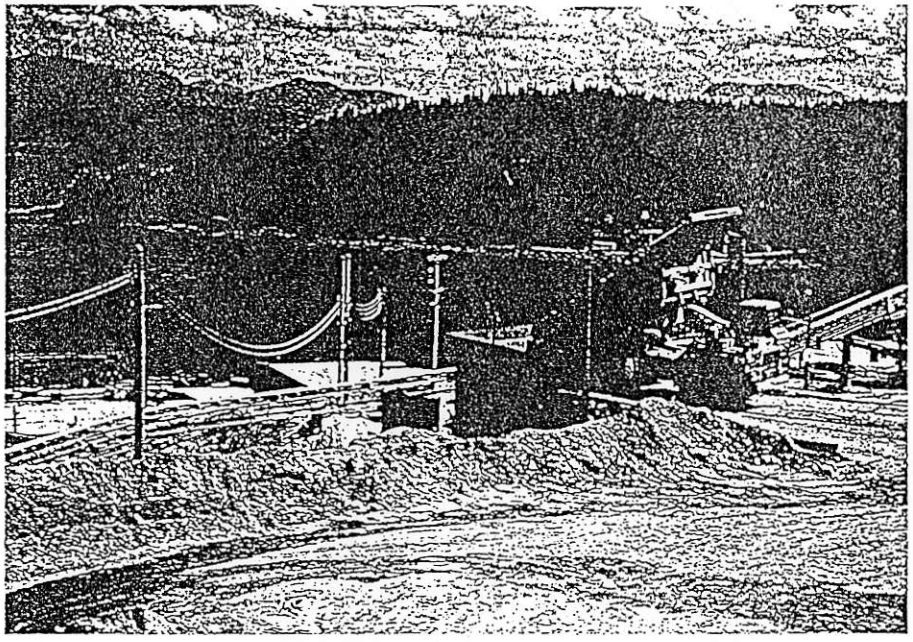
"We are fortunate in Pit #6 in having a unique deposit that contains a tremendous amount of higher-magnesium limestone," Thomson says. "Chemically, this rock is not suitable for our traditional cement and chemical lime customers, but it does have excellent wear capacities for aggregate. Before going to the market with it, we put it through very stringent lab testing to bear them out. We supplied a fair amount of densification rock for the new airport terminal and parkade in Vancouver. That in turn led us into the production of concrete aggregate – a market we very much wanted to crack – for the new airport runway, which was built entirely utilizing Blubber Bay limestone concrete aggregate. That was a big breakthrough for us."

Thomson tips a hat to George Reith, Ash Grove manager for construction aggregates, who guided the breakthrough sale through to completion from his office in Cobble Hill, B.C. "George is an icon, really, in the aggregate industry in this part of the world. His savvy and experience have been invaluable in guiding this along."

Fortuitous in more ways than one, the new market has also helped solve some of the less fortunate aspects of Pit #6. The deposit at the surface comprises aggregate quality limestone, with higher-calcium reserves increasing with depth. As quarry superintendent Jim Balmer explains, this has presented "a considerable juggling act" at times to economically produce sufficient quantities of the differing limestone grades requested by customers.

"The high-calcium chemical grade limestone at the lower depths is very much in demand, but to mine it economically you also need markets for the other grades that have to be mined first. Production of aggregate, and concrete aggregate in particular, will play a big role for us in more ways than one."

Completed last October, the M-System line consists of a dump bunker, a vibrating grizzly feeding a 3648 Traylor primary jaw crusher, a double-deck screening system, and 5-1/4-ft Symons cone crusher. Primary output includes 1-1/4" and 3/4" minus, which can be mixed in almost any proportion to meet specifications for a number of different products.



Cat 775D discharging shot rock at the primary plant's dump bunker. In 1996, the quarry processed more than 2 million tonnes of construction aggregates.

A 146 m long reclaim tunnel and conveyor was added to tie in with the sophisticated underground system already servicing the quarry's two existing crushing lines. Hoppers located beneath the stockpiles feed the system, which carries the desired product at 1100 tonnes/h to an ocean barge loading facility.

"With the setup we had, we could either produce cement rock or aggregate rock, but not both at the same time," says Balmer. "We were getting to the point where at times it was nip and tuck in meeting the demand for cement rock and what has been a growing demand for aggregate. Now we can relegate our older T-System for cement rock and agricultural lime and use the M-System strictly for aggregate."

Balmer, like Thomson, is a veteran of larger open pit (Quintette and Syncrude) operations. He oversees a conventional loader-truck operation that last year mined 3.5 million tonnes of materials. The fleet is currently anchored by a newly acquired 625-hp Cat 990 loader, fitted with a 8.5 m^3 bucket, and two 58.9-tonne Cat 775D quarry trucks, one acquired last year and the other in 1995. The quarry also runs older 45.3-tonne Cat 773 trucks and two 988B loaders.

"These new machines are the largest pieces of equipment that have ever worked at this site," says Balmer, who has played a major part in revamping the quarry's fleet to meet its increasing production. All told, the mine runs eight haul trucks, five loaders, two dozers, one grader, two drills, and support vehicles including a water truck.

"By necessity an operation like this tends to run an older fleet than you might see in larger mines. We have turned out some of our really old iron over the past couple of years, but we still productively run what would be considered very high-hour machines at other operations. We have 1970 and 1980 vintage machines in service and we still run a Cat D9H that is certainly no youngster. Our philosophy here, given the tight margins we operate under, is to get every bit of life we can out of our equipment. It can't be any other way. We also look long and hard at every new machine acquisition, including most recently the 990, even with the success we have had with Cat machines over the years. The decisions on these machines are critical to our bottom line."

All of the Caterpillar machines on the site are enrolled in Finning's Planned Component Replacement program, in which major components such as engines, transmissions, final drives, and differentials are turned out at a guaranteed cost at scheduled intervals.

"We want long service life but not at a prohibitive cost down the road – and that includes the cost of the production disruptions common with high-hour iron. We consider that the cost of running machines as long as we want to run them would be prohibitive without a program like PCR." ❑

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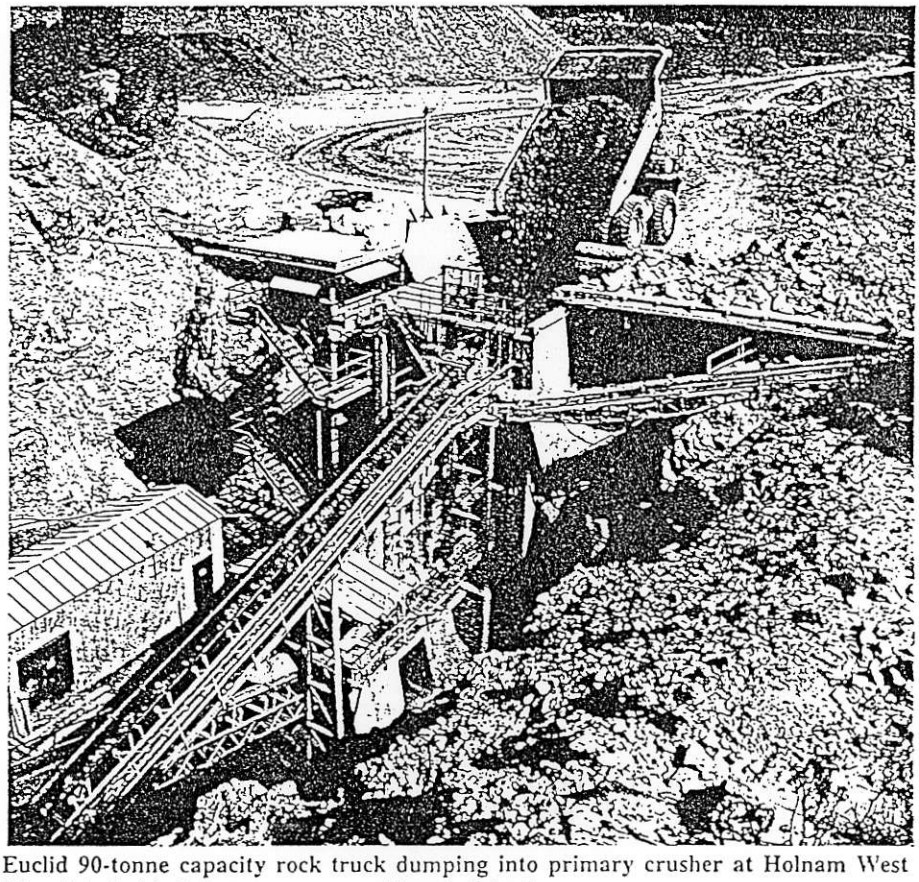
③ Texada Quarry

Just a few kilometres down the road from Blubber Bay Quarry on the west coast of Texada Island is Canada's third largest crushed stone operation in 1996 — Holnam West Materials Ltd.'s Texada Quarry. With a 1996 production output of 3 million tonnes, the quarry supplies up to 23 premium quality stone products ranging from 3 mm to rip rap as well as agglime. Its customers include cement plants, lime plants, pulp mills, marine and construction projects, railroads and other consumers of stone.

In 1995, Texada generated 3.5 million tonnes. The main reason behind the downturn, states the quarry's general manager, Harold Diggon, was the completion of a 1 million tonne contract for 100 mm minus stone for the Deltaport container terminal project. Based on current and anticipated orders in the coming months, he estimates that the quarry will produce approximately 3 million tonnes of crushed stone in 1997.

Holnam West Materials is a wholly-owned subsidiary of Holnam Inc., Dundee, Michigan, which is 95 per cent owned by the Swiss-based Holderbank Financière Glaris. Holderbank is also the parent company of St. Lawrence Cement which is the largest producer of aggregates in Eastern Canada.



Euclid 90-tonne capacity rock truck dumping into primary crusher at Holnam West Materials Ltd.'s limestone quarry on Texada Island.

Holnam West Materials and its predecessor Ideal Cement Company have been actively quarrying on the 2000 acre property since 1957. The present quarry operations cover roughly 250 acres. The company ships aggregates to mainland British Columbia and the U.S. west coast. In recent years, the company has supplied customers in California and Alaska. The docking facilities handle barges, Panamax-class 70 000 tonne ships and Cape-class 120 000 tonne vessels.

In 1996, the quarry completed construction of a new 350 tonnes/h crushing and screening system within the main processing plant to simultaneously produce cement-grade and chemical-grade products.

The quarry face is worked 12 months a year. Stripping is accomplished using a Komatsu D375A ripper-dozer with an Ingersoll-Rand DM45E DTH drill putting down 203 mm diameter, 12.2 m deep blast holes. The blasted limestone is loaded into a fleet of five 90-tonne Euclid R100 trucks using two wheel loaders — an 11.4 m^3 Komatsu WA800 and a 10 m^3 Michigan L480.

The trucks haul the shot rock to three separate primary crushing stations – a Jeffrey 526 single-impeller Rockbuster, a 4654 Missouri-Rogers Dynapactor and a 3648 Traylor Bulldog jaw. The jaw crusher works in conjunction with a 4-1/4 Symons Standard secondary cone and a 7x16 Hewitt-Robins triple-deck screen to produce construction aggregates. A fourth crushing and screening circuit produces up to 100 tonnes/h of white limestone for use in the manufacture of a wide variety of products including paper, paint filler, plastics and wallboard crack filler.

Holnam West Materials' Texada Quarry has over a 100-year supply of reserves at current rates of extraction. It is also well positioned to meet the growing demand for premium quality aggregates in British Columbia and neighbouring U.S. states such as Washington where the Sea Tac airport project looms large on the horizon.