

## AN EXAMINATION OF SOME CURRENT, FORMER AND POTENTIAL DIMENSION-STONE QUARRIES IN NEWFOUNDLAND

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### ABSTRACT

*Quarries suitable for dimension stone are scattered throughout Newfoundland. Many of these sites have long been abandoned, whilst several new quarries are now in production. Many of these occur on Bell Island, near Pynn's Brook and near Bay d'Espoir. The flagstone quarries of Bell Island produce white and light-grey Ordovician sandstone commonly used in wall construction. At Fisher Hills, near Pynn's Brook, flagstone is produced from a grey Carboniferous sandstone used in making patios, walkways, walls, and garden furniture. The flagstone quarry north of Bay d'Espoir produces a slate flagstone that is used to make walkways and retaining walls.*

*A dormant granite quarry is located along the abandoned rail line, north of Goobies. Material from this quarry may have been used in the 1880s for the construction of railway-bridge abutments, and more recently several test blocks were produced in the 1990s. The dormant granite quarry located north of Middle Brook produced some test blocks of coarse-grained biotite granite. An abandoned granite quarry adjacent to the abandoned rail line, east of Benton, contains a stockpile of at least 50 small blocks of granite. The quarry was used in the 1880s to produce granite blocks for bridge abutments. The abandoned Old Bay granite quarry, located north of the community of Wreck Cove in southern Newfoundland, was worked in the early 1900s and numerous large blocks lie scattered at the site. The granite was used for monument construction; numerous large blocks lie abandoned in the quarry. The abandoned Kellys Island quarry site is a cliff located near the northeast corner of the island. A large tonnage of white and light-grey sandstone was quarried from this site and used in the construction of buildings such as the historic Basilica in St. John's and the courthouses in Harbour Grace and St. John's. The abandoned Cobbs Arm limestone quarry was used as a source of building stone before being used as a source of lime for various industrial and agricultural applications. The limestone is too highly fractured to be used for any significant building-stone uses.*

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### INTRODUCTION

Several abandoned, dormant and producing dimension-stone quarries were visited during 2003 (Figure 1). These include two producing flagstone quarries on Bell Island, two flagstone quarries near Pynn's Brook, and a flagstone quarry north of Milltown, Bay d'Espoir, the dormant granite quarries north of Goobies and north of Middle Brook, the abandoned granite quarry east of Benton, the sandstone quarry on Kellys Island and the limestone quarry at Cobbs Arm. An attempt to visit the abandoned granite quarry at Old Bay, located about 20 km west of Belleoram, was unsuccessful as the quarry could not be located in the woods.

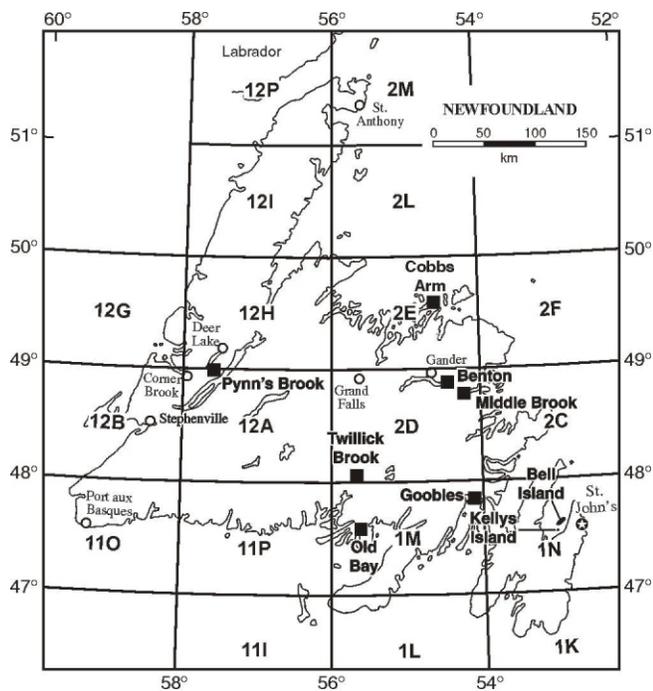
### ACTIVE FLAGSTONE QUARRIES

#### BELL ISLAND

The flagstone quarry, operated by G.S. Hunt, is located near the centre of Bell Island (NTS map area 1N/10 at UTM

location 352850E 5276700N, NAD 27). The rock lies within the Redmans Formation of the Cambro-Ordovician Bell Island Group and is described as grey to white, orthoquartzite and minor siltstone (King, 1988). The strata dip gently to the northwest. Glacial overburden is thin and the bedrock is easily exposed. The quarry produces thin, white to buff sandstone slabs that vary from 5 to 20 cm in thickness and generally vary in length from about 30- to 50-cm-long equant pieces due to rectilinear vertical joints that cut the sandstone. The slabs are extracted by an excavator and the slabs of sandstone are collected and stockpiled (Plate 1). The material is commonly used in the construction of garden and retaining walls and examples can be seen in many parts of St. John's and also along the Portugal Cove-St. Phillips road (Route 40) at Beachy Cove.

A small flagstone quarry is operated by Hammond Construction Co. Ltd., near the southwest corner of Bell Island (NTS map area 1N/10 at UTM coordinates 350750E 5276040N, NAD 27). It is located about 3.5 km southwest



INDEX MAP

**Figure 1.** Location of study areas indicated by square black boxes.



**Plate 1.** Stacked and sorted blocks of sandstone at Hunt's quarry, Bell Island. The blocks are about 25 cm long.

from Hunt's quarry, and about 100 m east of Route 41. The thin overburden has been removed to expose the white-weathering, grey-green sandstone bedrock of the Redmans Formation. Slabs in the quarry are partially extracted by excavator and vary from 5 to 10 cm in thickness. The slabs are irregular in shape and vary in length up to about 60 cm (Plate 2). Much of the exposed, intact bedrock is more thickly bedded and does not produce flagstone but should still be suitable for wall construction.



**Plate 2.** Ripped-up slabs of sandstone at Hammond's quarry, Bell Island. The slabs are up to 60 cm long.

### PYNN'S BROOK

The two flagstone quarries located about 8 km east of Pynn's Brook are operated by J. Tuach Geological Consultants Inc. and Carew Services Ltd. The quarries are located in NTS map area 12/H4 (UTM coordinates 464000E 5432300E, NAD27, and 464140E 5431950N, NAD27). The quarried rock is part of the Saltwater Cove Formation of the Carboniferous Anguille Group (Hyde, 1979). The rock quarried by J. Tuach Geological Consultants Inc. has been termed "Fisher Hills Bluestone". The detailed geological description of the area around the flagstone quarries has been described by Knight (1994) who reported that the flagstone is dominantly a hard, micaceous, blue-grey to green, fine-grained sandstone containing planar to undulating, thin stratification and lamination. Both quarries produce a grey to buff sandstone flagstone in a variety of sizes up to about 1 m<sup>2</sup> and thicknesses from about 2 to 25 cm (Plates 3 and 4). The sandstone contains micaceous partings and some slabs display rippled surfaces. The slabs range up to about 1.5 m<sup>2</sup> and vary in thickness from about 8 to 25 cm. The flagstone has been used in walkways, patios, steps, walls, and benches. The operations include mechanical extraction using excavators as well as traditional plug and feather techniques. The flats are sorted and some are shaped by a splitter to provide a variety of stone sizes and applications.

### BAY d'ESPOIR

The Bay d'Espoir flagstone quarry operated by Carew Services Ltd., is located north of Milltown, Bay d'Espoir, NTS map area 2D/4, at UTM location 605000E 5320500N, NAD 27, in a former road aggregate quarry, about 100 m west of Route 360. The rocks are part of the St. Josephs Cove Formation of the Baie d'Espoir Group of Colman-Sadd (1979) who describes the bedrock as thinly bedded



**Plate 3.** *Quarry face at J. Tuach's flagstone quarry, Fisher Hills, near Pynn's Brook. The slabs in the foreground are about 75 cm long.*



**Plate 5.** *Carew Services' Twillick Brook flagstone quarry, north of Milltown, Bay d'Espoir.*



**Plate 4.** *Stacked oversize slabs at Carew Services' quarry, Fisher Hills, near Pynn's Brook. The slabs are up to 1.5 m long.*

pelite and siltstone associated with minor, thickly bedded sandstone. The flagstone is a dark- to light-grey slate and medium-bedded sandstone containing selvages of slate. Cleavage is subparallel to bedding, which results in large slabs, commonly from 10 to 30 cm thick (Plate 5).

## **DORMANT AND ABANDONED GRANITE DIMENSION-STONE QUARRIES**

### **GOOBIES**

A dormant granite quarry is located about 8 km north of Goobies adjacent to the abandoned rail line (NTS map area 2C/4, at UTM coordinates 276675E 5321775N, NAD27). The quarry site was probably originally developed during construction of the Newfoundland railway in the 1890s and is today held under Mining Lease 162 by Eugene Kenney.



**Plate 6.** *Quarried granite block in Eugene Kenney's quarry, north of Goobies. Hammer on block is 32 cm long.*

The granite is part of the late Precambrian Swift Current Granite. The granite quarry is located in a uniform, massive, medium-grained, light-pink, equigranular, biotite granite (Plate 6). Minor, thin, fine-grained pegmatite veins occur locally. There is no significant alteration in the granite. The orthogonal jointing is vertical and subhorizontal and the joints are generally widely spaced. The vertical joints are around 3 m apart and the horizontal joints are 2 to 3 m apart. Several rectangular blocks (2 by 2 by 1.5 m), which were extracted by drilling, have been left on the property. A sizeable area of granite is exposed and very large blocks of granite could be extracted. Blocks of granite have been used in the construction of abutments for railway bridges and culverts in the area west of the quarry. Since there is no other known source of this variety of granite along the rail line, the quarry is probably the source of the blocks. A good example may be seen at the east end of Port Blandford where the railway crosses Southwest River.

## MIDDLE BROOK

The Middle Brook granite quarry is located about 5 km north of Middle Brook and about 400 m west of Route 320. The quarry is located in NTS map area 2D/16, at UTM 710220E 5413210N, NAD27 and is held by BBK Quarry Limited (Mining Lease 161). The quarry has been dormant for about three years. The granite was assigned to the Devonian Middle Brook Granite by Blackwood (1977). The quarried rock is a blue-grey, coarse-grained, biotite-rich, K-feldspar porphyritic granite that commonly contains <10-cm- to 40-cm-long inclusions of dark-grey biotite psammite (Plate 7). The blue colour is caused by the dark-blue quartz crystals. The granite is cut by a few light-pink, garnet-muscovite aplite dykes. Vertical jointing in the main granite is widely spaced, commonly up to 8 m. Several drilled-off small granite blocks (about 2 m<sup>3</sup>) lie on the site and there is clear potential for large blocks. The presence of the xenoliths precludes its use as a monument stone but the rock could be acceptable for floor tiles, wall cladding, and building stone.

## BENTON

An abandoned granite quarry, which is located 8 km east of Benton (NTS map area 2D/15 at UTM location 695845E 5414500N, NAD27) on the south side of the abandoned rail line, is held under mineral licence 9258M by Stephen Stares. The granite forms the northern portion of the Devonian Gander Lake Granite (O'Neill and Colman-Sadd, 1993) and is a coarse-grained, pale pink, K-feldspar porphyritic, biotite granite containing traces of secondary muscovite along some joint surfaces, and rarely thin stringers of pyrite. This site is a former Newfoundland Railway quarry, and probably last used in the 1890s to produce granite blocks for bridge abutments. The quarry site is small and lies adjacent to the railway embankment, forming a small depression containing about 30 cm of water and a few quarried blocks. About 30 m to the east of the quarry, over 50 abandoned blocks of quarried granite, each about 1 to 1.5 m long by 60 cm by 40 to 50 cm thick, lie along the south side of the track (Plate 8). Most blocks are rectangular but some have been shaped and have a pointed end. Although the quarry lies just south of the rail bed, there is no realistic potential for further block production. The only resource is the abandoned blocks. Granite blocks similar to the rock quarried at this site were probably used in the abutments for the railway bridges at Soulis Brook, just west of Benton, and at Rattling Brook, west of Norris Arm.

## OLD BAY

The Old Bay granite quarry in southern Newfoundland, is located about 5 km west of Route 362 and 10 km north of



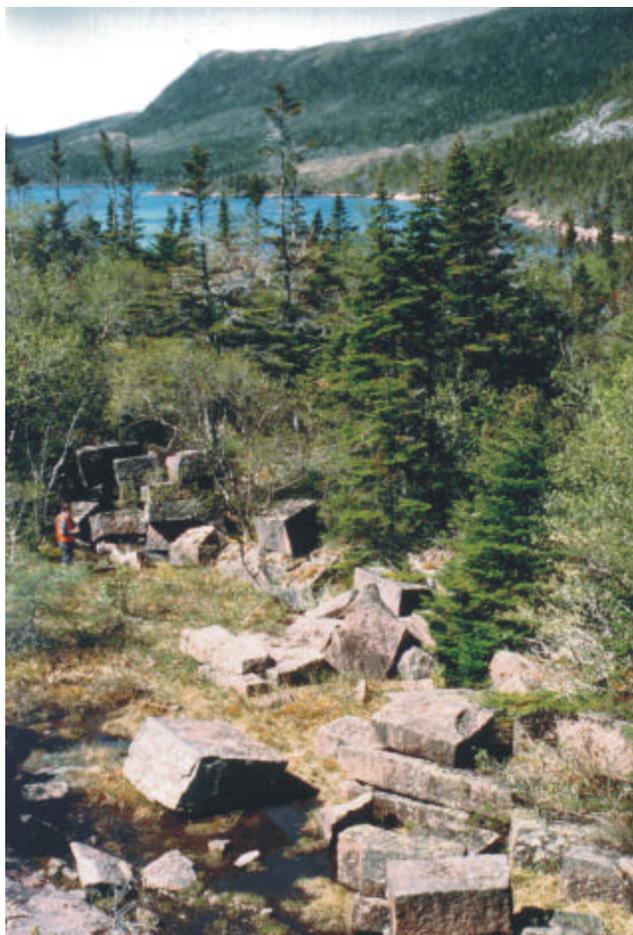
**Plate 7.** Drilled-off block of granite at BBK Quarry Limited's granite quarry, north of Middle Brook. The notebook is 17.5 cm long.



**Plate 8.** Abandoned granite blocks at the former Benton granite quarry. The notebook is 17.5 cm long.

Wreck Cove, Great Bay de l'Eau, on the hillside about 300 to 400 m northeast of Old Bay. The quarry is located in NTS map area 1M/12, in the vicinity of UTM coordinates 607000E 5270750N, NAD 27. The ground is open for staking. The quarry is obscured by forest and could not be located. The granite forms part of the Old Woman's Stock (O'Brien, 1998), a red to pink, high-level, miarolitic, biotite granite of Devonian age. This quarry was abandoned in the 1914 having produced a reported 1200 tons of blocks for export to Nova Scotia (Martin, 1983).

The description of the quarry site is based on photographs and discussions with Sean O'Brien of the Geological Survey in 2003. Numerous abandoned blocks remain in the quarry and some are over 2 m long (Plate 9). Some of the blocks have clearly been split from much larger blocks and have been squared off by hand. An abandoned granite jetty remains on the shoreline and a tramway is reported to have been used to transport blocks from the quarry. There is



**Plate 9.** *Abandoned granite blocks at the former Old Bay granite quarry. The blocks are about 30 to 60 cm thick.*

potential for production of large blocks at this site. It is located about 4 km from a highway but there is little other infrastructure in the area. A few blocks of granite from the quarry were used to construct the John Guy monument in Cupids around 1914. The granite in the monument is a dark-pink to reddish, medium- to coarse-grained, massive, uniform, equigranular, biotite granite containing a few miarolitic cavities. The polished rock in the monument shows very little if any deterioration in the nearly 90 years since it was erected.

## **ABANDONED SANDSTONE AND LIMESTONE DIMENSION-STONE QUARRIES**

### **KELLYS ISLAND**

The abandoned sandstone quarry on Kellys Island, Conception Bay, is located near the northeast corner of the island and is probably the current cliff face. The cliff face is located in NTS map area 1N/10 and the UTM coordinates are 348940E 5267980N, NAD27. King (1988) has assigned



**Plate 10.** *Jointed sandstone at the abandoned Kellys Island quarry. The lower block is about 40 cm thick.*

the sequence to the Late Cambrian Kellys Island Formation of the Bell Island Group and describes it as a sequence of dark, silty shale and thickly bedded quartzose sandstone. The quartz-rich sandstone beds are cut by orthogonal vertical joints and there is a parting along the bedding planes. Natural blocks of sandstone have a roughly rectangular shape and vary in size from about 10 to 40 cm thick and from 30 cm to 1 m in length (Plate 10). This is the only rock in the area that could have been used as building stone.

Rock from Kellys Island is reported to have been used in the mid 1830s for several buildings in Harbour Grace, e.g., the Court House, Ridley Hall and Ridley Office, and also in the mid-1840s for the Basilica in St. John's. The stone used in the Basilica was used for the foundations and is not readily observed. There is little potential for further quarrying of dimension stone using modern techniques at this locality. This ground is open for staking.

### **COBBS ARM**

The abandoned Cobbs Arm limestone quarry is located along the south shore of Cobbs Arm, New World Island, in north-central Newfoundland. The quarry location is NTS map area 2E/10, and the central part of the quarry has UTM coordinates 674850E 5498140N, NAD 27. The Cobbs Arm Limestone and the overlying Rogers Cove Shale are part of the Middle Ordovician Summerford Group. The quarry is about 800 m long and the floor is up to 50 m wide and about 5 m above sea level. The Cobbs Arm Limestone is reported by Martin (1983) to have been used as a source of "excellent" limestone for construction purposes starting in the 1870s. The limestone was quarried for construction, agricultural and chemical purposes until the 1930s. It provided quicklime for cement, aglime (agricultural limestone) and as a neutralizer for acid mine tailings at the Buchans Mine. From the 1930s to the early 1950s the greatest quantity of



**Plate 11.** *Highly fractured limestone at the Cobbs Arm Quarry, New World Island. The rectangular block at the top of the photo is 35 cm on a side.*

quarried limestone was used in the paper-making process at Grand Falls. A vast amount of limestone has been removed from the site and only about 10 m of limestone remain on the quarry face before the overlying shales are encountered. The limestone in the quarry is pale-grey, recrystallized, thick-bedded and locally cut by thin calcite veins. Fracturing is intense and only small blocks usually much less than 1 m long can be obtained (Plate 11). This is possibly due in part to blasting. There are few partings along the bedding planes. There is no potential for block production but small building blocks less than 50 by 40 by 30 cm could be made by hand or by a saw. The ground is open for staking.

## CONCLUSIONS

The producing flagstone quarries at Bell Island, Fisher Hills and Bay d'Espoir are producing a quality stone that is in demand. The abandoned and dormant granite quarries also have potential for development although the resource at Benton is limited to the stockpiled blocks and the isolated Old Bay quarry would require the installation of much infrastructure. The Goobies granite quarry has potential for the production of large blocks. There is little dimension-stone potential at the Kellys Island and Cobbs Arm quarries.

## ACKNOWLEDGMENTS

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