W.A. No. .....

NAME SAB

SUBJECT MINISTRY REF

EMPR AR 1962 p 156.

British Columbia Cement Company Limited.*—Cobble Hill (48° 123° N.W.). Head office, 540 Burrard Street, Vancouver 1. W. F. Foster, president; B. M. Brabant, executive vice-president; R. E. Haskins, vice-president in charge of production. Limestone for the Bamberton cement plant is quarried by this company from a deposit at Cobble Hill on Vancouver Island. In 1962, 286,788 tons of raw material was mined.

Brisco
Jab 1, 2 & 3

MAGNESITE†

Brisco (F)

A. P. Green Fire Brick Company Limited

Dunbar Creek (50° 116° N.E.). Company office, 2122 Eighth Avenue Southeast, Calgary, Alta. This company has an option on the Jab 1, 2, and 3 mineral claims. These claims were located on a magnesite deposit by J. A. Brown, of Calgary, in June, 1959. The deposit is about 1,000 feet west of Dunbar Creek, 4 miles airline southwest of Brisco. It is reached by an 800-foot-long tractor-road off the west side of the Dunbar Lake road at a point 8¼ miles from Brisco station.

The magnesite forms a bare, oval, 50-foot-high knoll about 400 feet long and 100 to 170 feet wide, with the length oriented a little west of north. A circular 10-foot-wide patch of bluish dolomite, possibly float, was found 100 feet west of the south end of the magnesite. Apart from this, no other rock was seen near the showing. Two magnesite boulders occur 150 and 200 feet southeast of the main outcrop, and a 100-foot-long slab 30 feet wide lies just off the southeast tip of the knoll. On the lake road, thin-bedded white quartzite forms bluffs one-quarter mile south of the magnesite, and interbedded dolomite and quartzites are exposed one-third of a mile north of the showing. These rocks were mapped by Reesor (Ref.) as part of the Proterozoic Upper Purcell Mount Nelson Formation.

Most of the visible magnesite is pale-grey to white coarse-grained rock with crystals one-eighth to one-half inch in diameter. It weathers to a buff or brown stained rough surface. A few patches of the rock are fine grained and bluish grey. In some parts of the outcrop white quartz and bluish chalcedony form discontinuous ⅛- to 1-inch-wide stringers 1 to 3 feet long. At scattered points pyrite crystals as long as one-quarter inch occur in patches and 2- to 3-inch-long stringers. Traces of chalcopyrite are associated with the pyrite. A few small patches of very coarse-grained white dolomite with some talc are present on the top of the knoll. On the whole, the outcropping is quite massive and structureless, but in places it exhibits a vague colour layering that may represent relic bedding. At the south end of the exposure the layers strike north 15 degrees west and dip 65 degrees southwest, whereas at the north end the strike is north 10 degrees east and the dip is 25 degrees northwest. One sample, consisting of chips collected at random across the top of the knoll, had the following percentage composition: MgO=44.02; CO_2=43.82; SiO_2=8.99; CaO=0.47; Fe=0.99.

Development work done on the property has consisted of diamond drilling and bulldozer trenching. Four diamond-drill hole sites were located, but no cores or core logs were seen. Four east-west trenches up to 10 feet deep and 100 feet long were dug at 100-foot intervals south of the knoll, but none reached bedrock. A road, in parts dug 10 feet deep, was excavated completely around the magnesite knoll, but it revealed nothing of apparent interest.

[Reference: Reesor, J. E., *Geol. Surv., Canada,* Lardeau (East Half), Map 12-1957.]

* By R. B. Bonar.
† By J. W. McCammon.

MMAR 1962

A. P. Green Fire Brick Company Limited*

Cleland Lake (50° 116° N.E.). This company holds an option on the Whitehorse 1, 2, 3, 4, 5, and 6 mineral claims. These claims were located on a magnesite deposit in August, 1960, and July, 1961, by John and Gordon Hart, of Brisco. The claims are 5 miles due west of Brisco. They lie along a low, narrow ridge at the south end of Topaz Lake, about one-quarter of a mile southwest of Cleland Lake. Access is by means of a rough road, 7½ miles long, from Brisco by way of Cleland Lake.

On the property, magnesite is exposed in one main mass and four smaller ones. Two additional small outcrops occur to the northwest beyond the claim limits. The main showing is a flat mass 200 to 400 feet wide that is exposed for 800 feet along the top of a low ridge. Diamond drilling has shown it is 50 to 100 feet thick and is underlain by dolomite. Two small showings—one about 200 feet long and 100 feet wide and the other about 50 feet in diameter—form low mounds on the flat 200 feet west of the main showing. A third minor showing forms a lens 400 feet long and 100 feet wide along the edge of the ridge 500 feet south of the main exposure. The fourth minor outcropping is 100 to 200 feet wide and is exposed for nearly 400 feet along a small ridge parallel to the main ridge and 250 feet northeast of it. About 1,300 feet north of the principal showing and 150 feet east of Topaz Lake, an irregular patch of magnesite 15 to 20 feet in diameter is exposed on the face of a dolomite bluff. Half a mile northwest of the main showing and 500 feet west of the north end of Topaz Lake, magnesite is exposed in an area 100 feet in diameter on the western slope of a low dolomite ridge. Dolomite is the only other rock found near the magnesite. Outcrops of it are relatively abundant north and east of the main showing but are scarce elsewhere.

The magnesite is light- to pearl-grey rock that weathers to a rusty brown rough surface. Most of it is coarse grained with crystals ranging from one-eighth to one-half inch in diameter. The chief visible impurities are quartz in scattered veinlets and talc in minute shears. The dolomite is generally fine-grained blue-grey rock. Parts are quite siliceous, and in one or two places interbedded chert is visible. Contacts between magnesite and dolomite where seen in two or three places were sharp. No attitudes were recognized in the magnesite. East of the main showing the dolomite strikes northwest and dips between 15 and 65 degrees northeast. Reesor (Ref.) has mapped these rocks as Proterozoic Upper Purcell Mount Nelson Formation. A sample consisting of chips picked up at random from the top of the main exposure had the following percentage composition: MgO—43.34; CO_2—47.60; SiO_2—5.54; CaO—0.51; Fe—1.02. A sample consisting of chips picked up at random from the exposure west of the north end of Topaz Lake had the following percentage composition: MgO—42.79; CO_2—46.72; SiO_2—6.48; CaO—1.04; Fe—0.87.

Under the direction of James F. Westcott, chief geologist, a four-man crew drilled twenty-eight diamond-drill holes, totalling 3,542 feet, on the property. In addition, a series of bulk samples for test work were taken.

[Reference: Reesor, J. E., *Geol. Surv., Canada,* Lardeau (East Half), Map 12-1957.]

MARL†

Cheam Marl Products

Popkum (49° 121° S.W.). Office, 13 Fletcher Street South, Chilliwack. P. C. Woodward, general manager. This property consists of a lake deposit of marl ranging up to 10 feet thick. The deposit is post-glacial and accumulated on the

* By J. W. McCammon and D. R. Morgan.
† By A. R. C. James.

west limb is steep near the floor of the cirque, but flattens to a 40-degree east dip at the top of the cirque wall. Considerable shearing has taken place nearly parallel to the fold axis. Magnesite is exposed for 430 feet along a north 20 degrees east strike in the centre of the cirque floor and then is missing for 380 feet to the foot of the cirque wall, where it reappears and can be traced up the wall to the ridge-top a distance of about 700 feet horizontally and 400 feet vertically.

A small open cut has been excavated in the east limb of the magnesite at the base of the outcrop in the cirque wall. The west limb of the fold is not exposed here, but it must be very close. The cut is 10 feet wide across the strike of the rocks, 5 feet long, and has a 10-foot high face. The magnesite in the cut is badly sheared and fractured and contains abundant quartz in pods and veinlets. It is very coarse grained, pearly grey to buff in colour, and weathers brown. A sample of chips from across the 10-foot-wide face of the cut had the following percentage composition: MgO=40.47; CaO=0.78; Fe (total)=2.07; SiO_2=5.97; Al_2O_3=3.98; CO_2=44.02. A sample that Cairnes had analysed had the following percentage composition: MgO=42.09; CaO=1.79; $Fe_2O_3+Al_2O_3$=5.11; SiO_2=5.92; Insol.=2.20.

[References: Cairnes, C. E., *Geol. Surv., Canada,* Sum. Rept., 1932, Pt. A II, p. 103; Rice, H. M. A., *Geol. Surv., Canada,* Mem. 228, Nelson Map-area, East Half, British Columbia, 1941, pp. 29, 57.]

The Brisco Magnesite Area (50° 116° N.E.)*

Introduction

Barite has been produced from the area west of Brisco since 1945. In June, 1959, mining interest in the region increased when J. A. Brown, of Calgary, recorded three claims on a magnesite discovery. In August, 1960, more claims were recorded on magnesite by John and Gordon Hart, of Brisco. Later several additional small deposits of the mineral were found. The A. P. Green Fire Brick Company Limited optioned the two original claim groups and did some diamond drilling and trenching on them in 1961 and 1962. There has been no commercial magnesite production yet.

Brisco is a small community beside the Columbia River in the Rocky Mountain Trench, 48 miles south of Golden. Provincial Highway No. 95 and the Canadian Pacific Railway branch line from Crowsnest Pass to Golden both pass through the village.

Reconnaissance geological reports accompanied by maps that cover this area sketchily were published by J. F. Walker in 1925 and C. S. Evans in 1932. A preliminary geological map by J. E. Reesor in 1957 also included the region. Brief reports on two of the magnesite deposits were published in the Annual Report of the Minister of Mines and Petroleum Resources for 1962. The barite has been mentioned in several Annual Reports since 1945, particularly in 1952 and 1958.

This account is based on work carried out during one-month periods in each of the 1963 and 1964 field seasons. An area 4 miles wide and 6 miles long was mapped geologically. It is bounded along the northeast by the Columbia River, on the north by Bugaboo Creek, and on the south by Dunbar Creek. Geology was plotted on a map-sheet scaled at 1,000 feet to the inch, specially prepared by the Topographic Division of the Surveys and Mapping Branch of the British Columbia Department of Lands, Forests, and Water Resources. Air photographs taken by the Provincial Government in 1960 were used in conjunction with the map.

* By J. W. McCammon.

[References: Evans, C. S., *Geol. Surv., Canada,* Sum. Rept., 1932, Pt. A II, pp. 106–176; Reesor, J. E., *Geol. Surv., Canada,* Map 12-1957, Lardeau, British Columbia, 1957; Walker, J. F., *Geol. Surv., Canada,* Sum. Rept., 1925, Pt. A, pp. 222–229; *Minister of Mines, B.C.,* Ann. Repts., 1945, p. 130; 1952, pp. 246–248; 1958, pp. 84–85; 1962, pp. 156–157.]

General Nature of the Area

The map-area is in the western part of the Rocky Mountain Trench in a hummocky, lake-pocked region between the ends of the intravalley ridges formed by Steamboat and Jubilee Mountains. The lowest part of the Trench at this latitude is 2,600 feet above sea level. It consists of a mile-wide flat through which the Columbia River meanders in several channels. On the west side, from the flat there is an abrupt rise to a hummocky bench with an average elevation of 3,200 feet. A steep northwest-trending fault scarp through the centre of the area separates this bench from a higher one to the southwest. The surface of the second bench is broken up by numerous hills and knolls. Its elevation ranges from 3,600 feet in the lower parts to over 4,500 feet on the peak of Red Mountain. Bedrock outcrops are absent in the bottom of the Trench, scarce on the first bench except in the valleys of Templeton River and Dunbar Creek, and fairly numerous but generally small on the higher parts of the upper bench.

Glaciation has left the area mantled with drift. Crag-and-tail drumlins and striations indicate the last movement of the glaciers was toward the southeast.

Some of the area is semi-open park-like country with well-spaced lodgepole pine or fir trees and little underbrush. Much of it has been burned over, however, and is now covered by a jungle of young pine or a tangle of old windfall.

A good network of gravel roads built and maintained by loggers and fishermen provides easy access to all parts of the map-area.

General Geology

The exposed rocks are all sedimentary. They consist of Proterozoic dolomite, quartzite, conglomerate, and argillite, folded into a large anticline which is thrust up against a syncline of Palæozoic dolomite, quartzite, and limestone. Many minor folds and numerous faults are associated with the major fold. The magnesite occurs in the Proterozoic dolomite. The main barite showings are in Palæozoic dolomite, although small veins of it also are found in Proterozoic rocks.

Proterozoic Rocks

The Proterozoic rocks include the top part of the Upper Purcell Mount Nelson Formation and the Windermere Toby Formation and Horsethief Creek Group.

Rocks thought to belong to the Mount Nelson Formation are shown on the accompanying map divided into five members. The oldest member, No. 1, consists of flesh to light-grey or cream-coloured, very fine-grained dolomite that typically has a sandy medium- to dark-brown weathered surface. The rock is thin bedded and breaks into sharp angled fragments. A distinctive feature of many, but not all, outcrops is the presence of circular " bull's-eyes " up to 10 inches in diameter that consist of concentric layerings 1 to 3 millimetres thick. These may be some form of stromatolite. Scattered quartz grains are present in all beds, and in a few places cherty zones have developed. One layer near the bottom is mainly chert and contains numerous 1- to 3-millimetre oval shapes that closely resemble certain foraminifera. Near faults this member becomes light cream in colour, coarse grained, and frequently altered to magnesite in irregular masses. No lower contact was seen, and all nearby rocks in the direction of the base belong to much younger formations.

Member No. 2 consists of very fine-grained dark reddish-brown argillaceous dolomite that weathers lighter reddish-brown. Normally it contains irregularly scattered ellipsoidal cream-coloured spots that range from one thirty-second of an inch to 2 inches in diameter. The ellipsoids tend to be slightly flattened parallel to the bedding and have their long axes parallel to the strike of the rocks. A strong foliation, probably a regional cleavage, is well developed in most outcrops. This causes the rock to break into thin platy pieces. The foliation is usually nearly parallel to the bedding but may have a different dip. Microscopically the rock is seen to consist of grains of dolomite, quartz, sericite, iron oxide, and unidentified fine-grained material. The only visible difference between the light spots and the dark groundmass is that iron oxide particles are scarce in the former and abundant in the latter. No explanation was found for the formation of these bleached " eggs." At one location in the south central part of the area, magnesite has developed in the rock. No contact between the dolomite and No. 1 member was seen. It is thought the contacts within the area are probably all faulted ones.

Member No. 3 consists of fine-grained, siliceous, pale-grey to buff, or mottled dolomite that weathers to a rough light-grey or buckskin coloured surface. Silica is conspicuous as criss-crossing veinlets and irregular gobs of white quartz. This member appears to lie conformably on top of member No. 2.

Member No. 4 consists of quartzite. Most of the rock is in thick pale-grey to white beds composed of fairly well-rounded clean quartz grains, one-quarter to one-half millimetre in diameter, with a few flakes of sericite cemented with quartz. Near the bottom of the member the beds are a few inches thick and quite brown, while near the top of the member they are argillaceous, thin and platy, and weather reddish. No good contact between members 3 and 4 was seen, but the beds appear to be conformable.

Member No. 5, the top of the Mount Nelson Formation in this area, is a 250-foot-thick band of very fine-grained, siliceous, dark blue-grey dolomite that weathers to a rough light-grey surface. The rock is thin bedded and finely laminated. The laminæ range from hairline to 1 millimetre thick and consist of layers of different shades of colour. Silica is present as lenses and discontinuous thin layers of dark chert parallel to the bedding, as angular quartz grains scattered through the dolomite, and as curved fine-grained chips and segments as large as an inch in diameter. The chips are restricted to a narrow zone at the top of the member. In this zone the laminæ, when present, are contorted and display minor faulting and slump structures. Where continuous laminæ are absent, the rock has the appearance of a breccia that originally had large spaces between fragments and the spaces became filled with concentric layers of dolomite in sheaf-like radial growths. Nothing similar was seen in any of the other dolomites. The bottom part of this dolomite is very similar to the rock of member No. 3, and in isolated outcrops the two cannot be distinguished with assurance. The most numerous and largest deposits of magnesite are in the No. 5 member. The contact between this member and the underlying quartzite is gradational over a few feet, within which are several interbeds of quartzite and dolomite.

Next oldest after the Mount Nelson Formation is the Toby Formation. This consists mainly of conglomerate with a little argillite. The matrix of the conglomerate is dark-grey sandy argillite in which a strong foliation has developed. The pebbles are most commonly quartzite, but a few are dark-grey dolomite and some are chert. They range in diameter from half an inch to 10 inches. Some are well rounded, but others are angular with rounded corners. The pebbles are not abundant, and in some exposures much searching is required to find any of them. The main contact between the Toby and Mount Nelson rocks is in a brushy east-

west trending gully 20 feet deep and 50 feet wide across the top of Red Mountain. Mount Nelson dolomite forms the steep south wall of the gully. To the north is a covered zone 10 to 20 feet wide and then an exposure of 20 feet of thin-bedded sandy argillite that grades into typical conglomerate. As near as can be seen, the rocks on both sides of the gully have the same attitude, and neither dragfolding nor brecciation was found, but the gully indicates differential erosion along a weak zone, and it is thought that the contact is probably faulted here.

Overlying the Toby Formation with apparent conformity is the Horsethief Creek Group. Included in the group are quartzites, grits, and conglomerates consisting of closely packed ¼- to ½-inch quartz pebbles, shales, and a few thin limestone beds. These rocks are folded into several small anticlines and synclines nearly parallel to the main fold.

Palæozoic Rocks

At the southeast corner of the map-area, in the lower parts of Templeton River and Dunbar Creek, the eastern half of a syncline composed of Palæozoic rocks is exposed. The older rocks must be thrust up and to the northeast against these rocks along a fault, F3, about as indicated on the map.

The oldest Palæozoic rocks are mapped as part of the Cambrian-Ordovician McKay Group. They consist of 1- to 3-inch-thick beds of flesh to dark-grey limestone separated by films and paper-thin layers of black shale. The uppermost 250 feet of beds are dolomitic and contain thin lenses and occasional thin layers of dark chert. Micro- and macro-fossils are abundant in the limestone beds.

Above the McKay rocks is a 130- to 200-foot-thick bed of white quartzite. It is composed of well-rounded clean quartz grains three- to eight-tenths of a millimetre in diameter cemented by quartz. This corresponds lithologically and stratigraphically with quartzite mapped as Wonah Formation on the east side of the Trench. Although other mappers have stated that no Wonah Formation is found in this area, for the present report the quartzite is considered Wonah Formation.

Overlying the quartzite is light- to dark-grey dolomite that weathers to a light-grey powdery surface. This is considered to be part of the Ordovician-Silurian Beaverfoot-Brisco Formation.

Structure

The Proterozoic rocks have been folded into a large northwest-plunging anticline with its axial plane striking a little north of west and dipping steeply to the southwest. The anticline has been thrust northeastward to override part of its own northeast limb and also the west limb of the adjoining syncline of Palæozoic rocks. Several smaller folds lie southwest of the large fold and parallel to it.

Much faulting accompanied the deformation of the rocks. However, except in the canyons of Templeton River and Dunbar Creek, no fault surfaces are exposed. Where visible, the faults consist of sheared zones several feet wide that do not give much positive indication of the directions of movements. Most of the faults shown on the map and their relative movements are inferred from stratigraphic relationships. At least four of the faults, F1, F2, F3, and F4, must be thrusts and appear to be nearly vertical at the surface. Faults F2 and F3 probably also had right-hand lateral movement. Most of the rest of the faults are best interpreted as normal ones, although some such as F5 also show apparent right-hand lateral movement.

The rocks are badly sheared and disturbed in Dunbar canyon at the point where faults F1 and F3 should intersect. Outcrops are too small and scarce to show clearly what has happened there. It would appear that the Palæozoic block to the northeast has been pushed clockwise around this point, which acted as a

hinge. Fault F2 or a similar one probably extends southeastward across the northeast front of Steamboat Mountain.

A regional cleavage that strikes northwest and is vertical or dips steeply to the southwest is well developed in the argillaceous members of the Horsethief Creek Group, in the matrix of the Toby conglomerate, and in parts of the No. 2 and No. 4 members of the Mount Nelson rocks.

Magnesite

Patches of magnesite occur scattered widely throughout the area underlain by Mount Nelson dolomites. The largest and most numerous deposits are at the top of the uppermost or No. 5 member. No good explanation for the origin of these occurrences was found. The magnesite is coarse grained or occasionally porphyritic. It shows definite replacement characteristics, boundaries being quite distinct but gradational over a narrow zone. Most deposits are adjacent to faults, but usually appear to be older than the faults. Probably the magnesite formed early in the tectonic history of the region by the replacement of dolomite as a result of some reaction associated with movement of the Toby conglomerate over the top of the Mount Nelson Formation during folding.

(A) Red Mt.

At outcrop M1 magnesite forms a 40- to 90-foot-thick zone 1,200 feet long at the top of the Mount Nelson No. 5 member. At each end magnesite grades on strike into cherty light-grey weathering dolomite. At the contact coarse-grained magnesite appears to replace dolomite. Underlying the magnesite is fine-grained dolomite with irregular ½- to 2-inch-thick layers of dark chert. No rock was seen in contact on top of the magnesite. The next stratigraphically higher outcrops consist of lower thin-bedded argillites of Toby Formation; these are separated from the magnesite by a 10- to 20-foot covered area in the bottom of a narrow ravine. Most of the magnesite is in 1-centimetre-long crystals that are pearl grey when fresh but buff when weathered. In some places, crystals 1 centimetre long are scattered through a groundmass of grains one-half millimetre long and the rock has a marked porphyritic appearance. Considerable silica is present in the form of scattered remnants of partly replaced quartz grains and cherty patches. A sample composed of chips collected at 3-foot intervals across 90 feet of exposed magnesite at the east end of the showing had the chemical composition shown as M1 in the accompanying table.

(C) Topog Lake

The magnesite at M2 forms an apparently thin dip-slope surface layer 200 feet long and 200 feet wide across the end of a low hillock. It overlies fine-grained dolomite of the top Mount Nelson member, in which are abundant curved siliceous chips. The magnesite shows features which indicate it has replaced dolomite. A sample consisting of chips collected at random from the surface of the exposure had the composition shown under M2 in the table.

(B) Whitehorse Claims

Locality M3 is the site of the Whitehorse 1 to 6 mineral claims on the original magnesite discovery in this part of the area. The deposit consists of a central main mass and six smaller ones, two in a downfaulted block to the northeast, and four in a downfaulted block to the southwest. The main mass is exposed in a right-angled triangular shape 1,400 feet long on the hypotenuse and 600 feet wide at the widest spot. If forms the trough of a syncline that plunges northwestward. Diamond drilling has shown it to be 50 to 100 feet thick, and it is underlain by fine-grained cherty dolomite. The magnesite is light- to pearl-grey rock that weathers to a rough rusty-brown surface. Most is coarse grained with crystals ranging from 2 to 12 millimetres long. The chief visible impurities are quartz, in scattered veinlets and grains, and talc in minute shears. A sample consisting of chips picked up at random from the surface of the main exposure had the composition shown as M3A in the

table. A grab sample from the centre outcrop in the gully southwest of the main showing had the analyisis shown as M3B in the table.

At M4 medium- to coarse-grained magensite is exposed as a dip-slope layer 10 to 20 feet thick, 600 feet long, and 100 feet wide on the western side of a low ridge. It overlies fine-grained dolomite typical of the top member of the Mount Nelson Formation. A chip sample cut across a 10-foot stratigraphic thickness of the outcrop had the analysis shown as M4 in the table.

The first recorded magnesite discovery in the area was made on the Jab 1 to 3 claims at site M5. Here the magnesite forms a bare isolated 50-foot-high knoll 400 feet long and 100 to 170 feet wide. Most of the knoll consists of medium- to coarse-grained structureless pale-grey to white rock. However, at the southeast corner thin layers of magnesite separated by slickensided films of talc and serpentine suggest bedding. This layering indicates the outcrop to be on the west limb of a small anticline with its axial plane oriented northwest. Patches of coarse white dolomite, films of talc, discontinuous stringers of quartz and chalcedony, and scattered crystals and small lenses of pyrite make up the megascopically visible impurities. No rock was found in contact with the magnesite. Dolomite outcrops 200 feet to the east and 100 feet to the west. A sample of chips collected at random over the top of the knoll had the composition shown as M5 in the table.

Three other small isolated patches of magnesite believed to be at the top of the No. 5 member are also shown on the accompanying map. All are too small to be of potential economic interest.

At M6 dolomite of the No. 2 member of the Mount Nelson Formation is altered to impure magnesite. This magnesite contains considerable calcite and quartz. It is fine grained and very white. The exposure is 100 feet wide and 400 feet long on strike. In the table, the analysis shown as M6 is for a hand specimen of rock from this showing.

In the bottom member of the Mount Nelson Formation, alteration to magnesite was found in six places, all along or close to known faults. At M7 a near vertical, northwest-striking fault surface forms the cliff face in high dolomite bluffs. For distances of as much as 100 feet northeast of the fault the dolomite has been altered to coarse-grained magnesite. The northeast boundary of the magnesite is very irregular. At M8 the entire hill is at least partially altered, but irregular patches are completely changed to magnesite. Hand specimens from the two localities had the compositions shown in the table as samples M7 and M8. Two small showings of similar alteration are exposed on the west side of the hill three-quarters of a mile west of M7 and two more are on the hillside 1 mile northwest of M7.

A limited amount of exploration work was done on the magnesite deposits at M3 and M5 by the A. P. Green Fire Brick Company Limited in 1961 and 1962. At M3 about 28 diamond-drill holes between 50 and 200 feet long were drilled and several bulk samples were collected for testing. At M5 several holes were diamond drilled, some trenches were dug with a bulldozer, and bulk samples were collected.

Aanalyses of Magnesite Samples from Brisco Area

Sample	MgO	CaO	CO_2	SiO_2	Fe (Total)
M1	39.50	0.76	43.40	14.72	0.88
M2	42.79	1.04	46.72	6.48	0.87
M3A	43.34	0.51	47.60	5.54	1.02
M3B	44.85	0.73	49.20	3.47	0.95
M4	38.20	7.89	47.74	4.51	1.00
M5	44.02	0.47	43.82	8.99	0.99
M6	35.97	8.57	46.02	8.69	0.12
M7	41.41	2.84	47.48	3.97	2.07
M8	42.28	2.67	48.28	3.22	1.03

Barite

Mountain Minerals Limited, of Lethbridge, Alta., has mined barite from a deposit near the mouth of Templeton River since 1945. The deposit is on five Crown-granted mineral claims located by the Hart brothers in 1943 and 1945 and acquired from them by the company in May, 1945.

On the property, barite is found in a north-striking breccia zone in dolomite thought to be part of the Ordovician-Silurian Beaverfoot-Brisco Formation. The deposit is in the east limb of a syncline which is cut by numerous faults of varying magnitude.

The main orebody, shown at B1 on the map, averages 25 feet wide and is 800 feet long. The rock in both walls is brecciated dolomite and the ore itself is brecciated. Much of the barite is white, but the white sections are irregularly shaped and usually edged or cut by zones that have a fine-grained black matrix enclosing angular white barite fragments a fraction of an inch to several inches long. The black coloration is due to finely disseminated carbon. Some pyrite is present and causes yellow and brown staining in parts of the exposure. The barite pinches out to the south and is cut off by a right-hand fault at the north end. A short segment of the offset portion of the ore can be found in Templeton canyon, but it is lost in overburden on the north bank. The deposit has been mined out to the economic limit of surface excavation by a five-bench quarry with a vertical range of 130 feet between the floor of the lowest bench at the north end and the top of the face of the highest bench at the south end. An adit has been driven under the quarry 60 feet below the lowest floor from a portal on the edge of Templeton River. In 1963 barite was mined from stopes between the adit and the quarry floor. There was no production in 1964.

A second quarry at B2 was worked from 1960 to 1962 in a small orebody 1,800 feet south of the main workings. The quarry is about 25 feet deep, nearly 200 feet long, and 100 feet wide at the face. In this deposit the barite is very irregular and badly faulted.

The barite at the other four locations shown on the map in this region is in very small quantities as matrix in dolomite breccia.

A few 1- to 2-inch-thick veins of white barite are exposed in the No. 2 member of the Mount Nelson dolomite in the road cut just south of the V Creek crossing 2 miles southwest of the main quarry. No other barite was noticed in Mount Nelson rocks.

An analysis of a chip sample of barite from the main quarry showed the following precentage composition: BaO=63.90; SO_3=34.35; CaO=0.08; Fe (total) =0.02; CO_2=0.03. The specific gravity was 4.389.

Because of the black colour the barite cannot be used where whiteness is required, but it is satisfactory where only weight is important.

First production from the quarry was made in 1945. To the end of 1964 the total reported production was 108,580 tons.

MARL

Cheam Marl Products†

Popkum (49° 121° S.W.). Office, 13 Fletcher Street South, Chilliwack. P. C. Woodward, general manager. This property consists of a lake deposit of marl ranging up to 10 feet thick. The deposit is post-glacial and accumulated on the

* By J. W. McCammon.
† By A. R.C. James.