

THE PALEOZOIC FORMATIONS IN JASPER PARK, ALBERTA.*

PERCY E. RAYMOND.

During the summer of 1929 a party from Harvard University undertook the study of the stratigraphy and structure of a section across the Rocky Mountains along the line of the Canadian National railway. This expedition was supported by a grant from the Shaler Memorial fund, and the work was carried out, for part of the summer, in connection with a session of the Harvard Summer School of Field Geology. Professor K. F. Mather, Professor L. W. Collet, Dr. Ed. Paréjas and the writer, assisted by twenty-three students, were engaged on this study. My thanks are due to all of them for assistance in working out the succession of formations in the Paleozoic.

Dr. E. M. Kindle¹ has recently published an article on some of the faunas of this same region. Our larger staff allowed us to cover the area more fully than Dr. Kindle could, so that our work supplements that which he has done. The present summary is preliminary to fuller reports on the structure, physiography, and paleontology.

Our thanks are due to Commissioner of Parks J. B. Harkin and Superintendent Knight for permission to carry on our work in the Park.

CAMBRIAN.

The Cambrian is to be seen in three bands in the region studied. The most eastern of these is along the northeastern sides of the Bosche and Miette ranges, where it is thrust over the Cretaceous. A second band appears in Mount Chetamon, crosses the Snaring river and extends for some distance along the base of the Palisade. The third area, a very large one as yet incompletely studied, includes the upper parts of Pyramid and Signal mountains, Mount Edith Cavell, and many mountains in the Tonquin valley. This area extends across the divide at Yellowhead pass and is of the same facies as the Cambrian in the Robson district.

* Shaler Memorial Series.

¹ This Journal, 18, 177, 1929.

ROCHE MIETTE.

The eastern band can best be studied on the northeastern shoulder of the Roche Miette. Because of the vegetation and talus, the actual contact of the Cambrian on the Cretaceous can not be seen, but the position of the fault plane has been located within an interval of 50 feet in at least two localities. In the bed of the most southeastern tributary of the Roche Miette creek it is at an altitude of 5,700 feet. The Cambrian is best exposed in this vicinity. The folding and dislocation in the lower part of the Cambrian, just above the thrust, and the rapid change in dip, make it difficult to obtain the actual thickness of these strata. Measurements on the profile from the fault to the base of the Devonian show that, with the most favorable dips, there is room for only 1,300 feet of strata. No satisfactory measurements of dip could be obtained in the Cambrian rocks; the dip of the top of the lower member of the Devonian is about 70° to the southwest. The following thicknesses are, therefore, estimates:

- | | |
|---|---------|
| 1. Green shale, poorly exposed. | |
| 2. Impure nodular grey limestone with fragments of trilobites.... | 300 ft. |
| 3. Massive dark grey magnesian limestone which forms the cliff
which slopes off northwestward toward the road..... | 200 ft. |
| 4. Shaly blue and gray limestone with abundant trilobites | 150 ft. |
| 5. Yellow cavernous dolomite with interbedded green shale..... | 50 ft. |
| 6. Green and red shale, with a red band containing numerous salt-
hoppers at the base..... | 90 ft. |
| 7. Grey dolomite which weathers a rusty yellow. A coarsely gran-
ular rock with much cross-bedding..... | 150 ft. |

No fossils were found in zones 1, 3, 6 and 7. Zone 2 contains numerous fragments of trilobites and other obscure fossils. The best preserved appeared to be fragments of *Asaphiscus*, suggesting that these strata may be Middle Cambrian in age. Lithologically, and for purposes of mapping, Zone 3 should be united with Zones 1 and 2. The name Bosche formation may be applied, taking the name from across the Athabaska, for lack of a more local designation.

Zone 4 contains great numbers of fossils, the surfaces of thin layers of limestone being completely covered with fragmentary trilobites. All are small, and most of them poorly preserved. No species can be absolutely identified, but the following list will give an idea of the fauna: *Conaspis* cf. *C. anatina* Hall, *Conaspis* cf. *C. patersoni* Hall, *Taenicephalus* cf. *T. shumardi* Hall, *Wilburnia* sp. ind., *Acrocephalites* sp. ind., *Lonchocephalus* sp. ind.

It will readily be seen that this fauna is very similar to that of the Franconia formation of Wisconsin and Minnesota, and is obviously of Upper Cambrian age.

Only a single fossil was found in Zone 5, a large brachiopod which is probably a *Billingsella*.

Zones 4 and 5 may be united in one formation to which the name Chetamon may be applied, this formation being present on the latter mountain, although Roche Miette will be the typical locality.

Zones 6 and 7 contain strata which were deposited under conditions of shallow water, with occasional emergence. The pseudomorphs after salt crystals in the red layer at the base have already been referred to by Kindle. The "hoppers" are attached to the surfaces of thin layers of a yellow dolomite interbedded with red shale, into which the pseudomorphs project. The cubes vary from three-eighths of an inch to one inch along a side. This formation is believed, for reasons detailed below, to be of Upper Cambrian age, and to be a representative of the Snaring formation.

CHETAMON-PALISADE REGION.

The Cambrian strata occupy a considerable area in Mount Chetamon, but exposures are poor where not very difficult of access. No attempt was made to measure a section. Dr. Paréjas found interbedded quartzite and green shale in the saddle between the two peaks of Chetamon. On the basis of the lithology, these beds are supposed to be Lower Cambrian. Above them are shales which furnished what appears to be a Mid-Cambrian trilobite. These are followed by dolomite and limestone, possibly to be correlated with the Bosche formation at Roche Miette. They are succeeded in turn by a "yellow band" like that on Roche Miette. This consists of shaly limestone, shale, and dolomite which sweeps down the southwestern shoulder of Chetamon, crosses the Snaring, and forms the lowest cliff of the Palisade west and northwest of Henry House. Along the Snaring about one mile up the river from the bridge, Dr. Paréjas and Mr. Irving Reimann collected trilobites like those found in the Chetamon on Roche Miette. As at the latter place, yellow-weathering unfossiliferous dolomites overlie the shale with trilobites. For the dolomites, the name Snaring formation is suggested.

CORRELATION BETWEEN THE PALISADE AND
ROCHE MIETTE SECTIONS.

As already indicated, the one fossiliferous portion of the Cambrian in both these localities contains a fauna allied to that of the Franconia formation of the Upper Mississippi valley. In the latter region the St. Lawrence formation with *Dikelocephalus*, *Saukia*, and *Ptychaspis* overlies the Franconia. Walcott has shown that in the district north of Lake Louise the Sabine formation contains, in the upper part, *Briscoia*, *Saukia* and *Ptychaspis*, and in the lower part, a fauna with small trilobites like those in the Franconia.

The *Briscoia* fauna has not yet been seen in Jasper Park. It may eventually be found in the Snaring formation, which seems to be of very shallow water origin. There is a possibility, however, that the upper part of the Snaring, as developed at Roche Miette, is an eastern equivalent of the Mons. In the section on Rearguard at Mt. Robson, the Chushina (Mons) is underlain by the Lynx formation, which has *Dikelocephalus* in the upper part. The Snaring is probably a shallow water, near-shore equivalent of the upper part of the Lynx.

WESTERN PART OF JASPER PARK.

The pre-Cambrian strata brought up along the great thrust which passes between Pyramid mountain and the Palisade are overlain by quartzites which are lithologically very like the Lower Cambrian strata at Lake Louise and in the Robson district. Although no fossils other than *Scolithus* have yet been found in them, there can be little doubt as to their Lower Cambrian age. In Pyramid Mountain the quartzite is mostly of pure quartz sand, in part thinly bedded, with some shaly partings. The orange, red, and pink colors which lend some scenic value to this mountain are apparently due to surficial staining. Here, as elsewhere, the exact contact between the pre-Cambrian and Cambrian has not been determined, but the Lower Cambrian appears to be at least 4,000 feet in thickness.

The cliffs of the eastern face of Mount Edith Cavell afford an excellent although not very accessible display of the Lower Cambrian quartzites. One can come very close to the contact with the pre-Cambrian at an elevation of about 7,600 feet on the pass at the foot of the easternmost shoulder of the mountain. The actual contact is, however, concealed by ice and

snow. The lowest visible strata of the Lower Cambrian are thickly bedded, very hard white quartzites. At some unknown distance above these are equally hard and massive beds which contain large fresh feldspars. The great amount of debris of this sort found on the glacier suggests a considerable thickness of arkosic beds. Fragments with the borings of *Scolithus* are scattered about, although not common. The general lithology and nature of the partings suggest the Fort Mountain and St. Piran formations of the region about Lake Louise.

As stated, the base of the Cambrian is at an elevation of about 7,600 feet at the base of the eastern shoulder of Mount Edith Cavell. The top of the mountain is permanently covered with snow but quartzites can be seen to extend to within a few hundred feet of the summit. The Lower Cambrian is therefore at least 3,000 feet thick at this locality.

Lithologically the Lower Cambrian strata in this part of Jasper Park differs somewhat from those in the Robson district, so that, for the present at least, the quartzites may be designated as the Cavell formation.

No formation younger than the Cavell has been seen in Jasper Park west of the Pyramid fault.

ORDOVICIAN.

Dr. Kindle gives the following section of the strata which, in the eastern face of the Palisade, lie between the Devonian and the Cambrian:

- | | |
|--|---------|
| 1. Hard semilithographic limestone in bands a few feet thick separated by bands of dark shaly limestone..... | 200 ft. |
| 2. Hard laminated limestone interbedded with shaly bands and beds of magnesian limestone..... | 200 ft. |
| 3. Thin-bedded limestone with subcrystalline texture (no lamination)..... | 10 ft. |
| 4. Covered..... | 200 ft. |
| 5. Olive grey shale with magnesian limestone interpolated. Barren. | 140 ft. |

Zone 3 is the only fossiliferous one. It is exposed in the brook near the old mill at Swift's ranch, 7 miles north of Jasper. C. H. Kindle² has described the small fauna which is found here. *Eoorthis ochus* Walcott and the gastropod which Kindle has called *Raphistoma* sp. undet., are the most common fossils. Rarer forms are, according to Kindle, *Eoorthis ochus concentricus* Kindle, *Huenella jasperensis* Kindle, *Syntrophia*

² Canadian Field-Naturalist, 43, p. 145, 1929.

convexa Kindle, *Tostonia* cf. *iole* Walcott, *Hardyia metron* Walcott, and *Symphysurina walcotti* Kindle.

As Kindle says, the presence of *Eoorthis ochus*, *Syntrophia* and *Symphysurina* suggest a correlation with the strata at locality 16 of Dr. Walcott's Sinclair canyon section in the Windermere region. At the latter locality this fauna is the very oldest one in the Mons, occurring in a bed about 200 feet above the strata in the Sabine formation which contain *Briscoia*. The formation can therefore be correlated with the Mons of the Windermere and Glacier Lake areas, and with the Chushina of the Robson district. Although the latter region is the nearer, it is probably better to apply the name Mons to the formation as developed in Jasper Park, since that name will probably ultimately be applied to the strata now called Chushina.

DEVONIAN.

The Devonian is very well exposed on Roche à Perdrix, Boule Roche, Roche Miette and at many other localities as far west as the upper cliffs of the Palisade.

The best section is that in Roche Miette, where seven members are easily recognized.

- | | |
|--|-----------|
| 1. Hard grey limestone and dolomite with fossils in the upper part | 400 ft. |
| 2. Black fissile shale with occasional thin beds of limestone and some concretions..... | 600 ft. |
| 3. Impure shaly and nodular limestone with very numerous fossils. Well exposed below the massive limestone in Roche Miette | 400 ft. |
| 4. Massive, thick bedded limestone showing more or less alteration to dolomite along "fucoidal" streaks. Forms the massive cliffs in Roche Miette..... | 1,200 ft. |
| 5. Black shale with interbedded black, fine-grained limestone. Fossils very rare. Well exposed at top of Roche Miette. Estimated thickness..... | 600 ft. |
| 6. Rather thinly bedded dark gray compact limestone with shaly partings. Plates and nodules of black chert are common. Fossils common..... | 300 ft. |
| 7. Black fissile shale with large concretions. Best exposed at the old lime kilns south of Disaster Point. Also well shown just below the mouth of the gorge where Fiddle creek cuts through Ashlar ridge. Fossils in concretions..... | 200 ft. |

Zone 1 is a sparingly fossiliferous formation which lithologically resembles the Jefferson limestone of Montana. It is well exposed on the northeastern shoulder of Roche Miette, where fossils were found in the upper layers only. These consist of abundant *Stromatopora*, silicified and poorly preserved, with rare specimens of *Atrypa missouriensis* Miller and *Athyris parvula* Whiteaves.

There is an unnamed intermittent stream which flows northwest from behind the cliffs of Roche Miette, entering the Athabaska just north of Disaster Point. A quarter of a mile up from the road, this stream has excavated a narrow flume along the strike of the limestone of Zone 1. From the foot wall at this locality, Mr. Irving Reimann collected numerous fossils, which represent only a few species. These are: *Productella spirigera* Kindle, *P. hillsboroensis* Kindle, *Spirifer engelmanni* Meek, and *Pterinopecten* sp. ind. These strata are somewhat lower in the section than those which bore the fossils listed above.

It is obvious that these fossils indicate a correlation with the Jefferson limestone of Montana and Utah.³ The age of the Jefferson is not absolutely fixed, but it is generally believed to belong to the Middle Devonian. Kindle, who found very few fossils in this zone, was inclined to regard it as Lower Devonian. The presence of abundant Productellas, however, indicates that it can not be older than Middle Devonian. It is probably of the same age as the lower part of the Minnewanka limestone in the Banff area. The formation may be given the name Flume, with the outcrops on Roche Miette regarded as typical.

The black shale of Zone 2 contains very few fossils. Some thin calcareous layers carry abundant specimens of *Styliolina*, and several *Tentaculites* were also found. Kindle has reported these same fossils from this shale at the southeastern corner of Medicine Lake.

Kindle suggested the name Miette for this shale. That name has, however, already been used by Walcott for the pre-Cambrian rocks of the Miette valley. Perdrix, from Roche à Perdrix, is now proposed, the typical section to remain that on Roche Miette.

Zone 3 consists of impure shaly and nodular limestone in which fossils are exceedingly abundant. A small *Atrypa* and a non-plicate *Cyrtina*, somewhat like *Cyrtina biplicata* Hall, are the most common shells. Other relatively common species are *Leiorhynchus glaber* Kindle and *Pugnax minutus* Warren.

Zone 4 is a massive formation which contains a good many fossils, which are not easily collected. *Spirifer whitneyi* is the most abundant; other species collected were *Syringospira prima* Kindle and *Athyris angelica* Hall.

Zones 3 and 4 are not readily separable except on Roche

³ Kindle, Bull. Am. Pal. 4, No. 20, 1908.

Miette. It therefore seems advisable to group them in one formation which may be called the Boule. It is well exposed at the tunnel at the southeastern end of the Boule range, but the northern end of the Miette range should be accepted as the type section.

Zone 5 is a dark shale with interbedded layers of limestone. The latter are very fossiliferous at some outcrops, but totally barren at others. It is well exposed on top of Roche Miette, but is more accessible on the road a mile south of Disaster Point. This may be taken as the typical locality for the formation which will be called the Coronach, from a creek across the Athabaska. Some of the more common fossils are: *Athyris* cf. *A. spiriferoides*, *Posidonia* cf. *P. attica* (Williams), *Ontaria* cf. *O. halli* Clarke, *Conularia* sp. ind., *Spirifer whitneyi* Hall, and *Spirifer* cf. *S. mesastrialis* Hall. The presence of *Ontaria* and *Posidonia* in this fauna is particularly interesting, indicating affinity with the Naples fauna in New York.

Zone 6 is a limestone with a good deal of clay scattered through it, although some layers are pure. Layers of it, standing on end, form a massive gateway in Fiddle Creek, half a mile above the road, hence the name Fiddle formation has been applied to it. The best exposures are along the road south of Disaster Point, near the old lime kilns and along the ridge which faces the valley of Rocky River. Fossils, chiefly corals, are common at some localities.

Zone 7 is the highest in the Devonian. Its best exposure, at the old lime kilns by the road about 3 miles south of Pocahontas, suggests the name Kiln formation. No fossils have yet been found in the fissile black shale, but some of the large concretions have yielded a very interesting fauna, first found by Mr. Harry Burgess. The most important are *Buchiola retrostriata* (von Buch) and a *Tornoceras*. This fauna is somewhat like that of the Naples of New York and of the Three Forks shale in Montana.

SECTION NEAR SNARING JUNCTION.

The Devonian is well exposed and easily accessible along the road for a mile northeast of the bridge over the Athabaska at Snaring junction. At the eastern end of the section the Devonian is thrust over the Triassic shale. The contact with the Carboniferous is very close to the end of the bridge. The

section was measured by members of the Harvard Summer School.

1. Gray magnesian limestone in very irregular beds. Poorly exposed except for the upper part, near the Cold Sulphur spring 1,800 ft.
2. Black shale. Poorly exposed..... 600 ft.
3. Dark gray, thickly bedded argillaceous limestone which weathers to a rusty brown..... 1,300 ft.

It will be noted that this section is very different from that at Roche Miette. Instead of three shales there is only one. It is obvious, since it is not at the top, that this is not the Kiln shale. To determine whether it was the Perdrix or the Coronach it was necessary to study all possible outcrops.

The most eastern outcrop of the Coronach shale is in Fiddle creek below the gorge. At this locality it consists of black shale and dense black limestone, both almost unfossiliferous. Near Disaster Point the shale is more calcareous and there is more of the interstratified limestone. Fossils, although not particularly abundant, can be found, as shown by the list above. A more western outcrop of this shale is along the railroad on the northern shore of Jasper lake, three miles northeast of Snaring station. At this locality the Coronach overlies the Boule. It consists chiefly of thinly bedded limestone, with some calcareous shale, and is highly fossiliferous. The chief species found were: *Spirifer* cf. *S. mesaestrialis* Hall, *S. whitneyi* Hall, *Reticularia* sp. ind., *Atrypa reticularis* (Linnaeus), and *Cryptonella* sp. ind.

From comparison of the strata at these three localities it appears that the Coronach becomes more calcareous and more fossiliferous southwestward. The shale seems to be grading into limestone, hence it would not be surprising if it were lithologically unidentifiable in the section near Snaring junction. That the Coronach becomes entirely limestone is shown by Kindle's section in the Palisade. At his locality 20h, which appears to have been in the "hard, bluish gray limestone" of his Zone 7, Kindle found, among other fossils: *Spirifer whitneyi* Hall, *Ontaria?* sp. ind., *Pterochaenia* cf. *P. fragilis* (Hall), and *Bactrites* cf. *B. aciculum* Hall. This is a Naples fauna, as is that of the Coronach south of Disaster Point.

The shale in the section north of the Bridge at Snaring junction is, therefore, not the Coronach. Is it the Perdrix, or another shale not in the section at Roche Miette? The answer to this question may be obtained on the northern slopes of Mount Cinquefoil at Interlaken. This is in the second fault

block northeast of the one containing the outcrops under discussion, but the distance is only about three miles and the thrusts are steep. Very little of the lower part of the Devonian is exposed here, that formation being thrust over the Jurassic. The lowest Devonian is, however, a limestone; it is followed by a black shale, and that in turn by limestone which extends up to the contact with the Carboniferous, so that the section is the same as that near Snaring junction. The shale in this section is lithologically the same as the Perdrix at Roche Miette, and contains thin calcareous layers which are full of *Styliolina*. At the top, this shale passes over into thinly bedded nodular impure limestone with small *Atrypas*, at the base of the Boule, just as on Roche Miette, so that there can be no doubt but that this is the Perdrix. About two hundred feet below the top of the shale is a band of small concretions, in one of which Mr. Forbes Hutchins found specimens of *Manticoceras* sp. ind., *Gephyroceras* sp. ind., *Styliolina* sp. ind., and *Honeoyea* sp. ind. This information is particularly welcome, as it shows that the Perdrix is of Upper Devonian age.

Since Zone 2 of the section near the Athabaska bridge is the Perdrix, then Zone 1 is the Flume, but very much thicker than at Roche Miette. Zone 3 corresponds to the Boule, Perdrix, Fiddle and Kiln, but is much thinner than the aggregate thickness of those formations of Roche Miette. The Devonian apparently thins westward, for Kindle found only 2,500 feet of strata of this age in the Palisade. For the western wholly calcareous facies of the upper part of the Upper Devonian the name Cinquefoil formation may be used, since these strata are well exposed on that mountain. The typical section, however, is that near the bridge over the Athabaska.

CARBONIFEROUS.

The Carboniferous strata are well developed in Bedson and Ashlar ridges, but neither is a very favorable locality for obtaining a section. In the latter ridge, the total thickness, as estimated from the width of the outcrop and the dip, is about 3,800 feet.

A much more accessible section is that along the railroad at the southern end of the De Smet range, just east of Snaring station. The following section at this locality was measured by some of the members of the Harvard Summer School.

1. Thickly bedded gray limestone.....	1,085 ft.
2. Thinly bedded limestone with shaly partings.....	545 ft.
3. Coarse-grained, rather thinly bedded limestone.....	645 ft.
4. Dolomite, quartzite and chert.....	580 ft.

No fossils were collected from Zone 1 at this locality. In most of the sections where the Carboniferous was present, the lower portion is, as in this section, a distinct lithological unit, consisting of massive, thickly bedded layers. The strata above, on the contrary, are thinly bedded. Since there are two subdivisions it would be natural to apply to them the names Banff and Rundle, as in the section along the Canadian Pacific railway. The lithology in Jasper Park is, however, the reverse of that about Banff, where the upper member is massive and the lower one shaly. It seems advisable, therefore, to use local names for these formations. The name Bedson is therefore suggested for the more massive limestone of Zone 1, from the rather spectacular exposure in the backward folds on the southern end of Bedson ridge. Zones 2 and 3 may be combined as the Moosehorn formation, named from Moosehorn creek southwest of Bedson ridge. The exposures on the end of the De Smet range may be more conveniently used as the typical locality.

The shaly strata of Zone 2 are very fossiliferous. Miss C. R. Chase, who has studied the Carboniferous fossils collected in 1929, finds that *Spirifer centronatus* Winchell, *Reticularia pseudolineata* (Hall), and a small variety of *Spirifer grimesi* Hall are significant species. With them are associated other brachiopods and blastoids.

Zone 4 corresponds lithologically with the Rocky Mountain quartzite. No fossils were found in it here or elsewhere in the Park. The distribution of this formation and its variation in thickness leads one to suppose that it suffered considerable erosion before the deposition of the Triassic.

The contact of the Triassic on the Paleozoic may be seen in the walls of Fiddle creek at a little waterfall about one-half mile below the mouth of Morris creek. At this locality only three or four layers of quartzite and chert-bearing dolomite, a total of about 10 feet, can be assigned to the Rocky Mountain formation. In the next fault-block west of this, a clear contact can be seen at Devona, in the ridge across the Snake Indian river, from the warden's cabin. The strata are overturned at this locality. The Triassic has a basal conglomerate, 2 to 3 feet in thickness, full of rounded pebbles and boulders of chert up to a foot in greater diameter. Only 10 to 15

feet of the underlying strata could be assigned to the Rocky Mountain formation.

The next western exposure is in the fault-block of the De Smet and Jacques ranges. Above the road south of Edna lake at Interlaken about 500 feet of the Rocky Mountain formation is exposed, consisting entirely of quartzite and chert. This is a continuation of Zone 4 of the section above.

In the next block, near the 14-mile post on the road, and only about 2 miles from the outcrop near Edna lake, about 15 feet of cherty dolomite can be assigned to the Rocky Mountain formation. The thickness and lithology are about the same in the two blocks west of this. The most western outcrop seen was on the hillside east of Pyramid creek, the outlet of Pyramid lake.

This formation may or may not be of the same age as the quartzite, dolomite and chert which forms the youngest layers of the Paleozoic in the region about Banff, but it occupies the same position and may well bear the same name.

SUMMARY.

The section of the Paleozoic, so far as now determined, is summarized below. The thicknesses are approximate.

Lower Cambrian	Cavell quartzite.....	4,000 ft.+
Middle Cambrian	Bosche limestone and shale.....	500 ft.+
Upper Cambrian	} Chetamon limestone.....	200 ft.
	} Snaring dolomite and shale.....	240 ft.
Lower Ordovician	Mons dolomite.....	800 ft.
Middle Devonian	Flume dolomite.....	400-1,800 ft.
Upper Devonian	{ Perdrix shale.....	600 ft.
	{ Boule dolomitic limestone.....	1,600 ft.
	{ Coronach shale.....	600 ft.
	{ Fiddle limestone.....	300 ft.
	{ Kiln shale.....	200 ft.
Mississippian	{ Bedson limestone.....	1,085 ft.
	{ Moosehorn limestone.....	1,190 ft.
? Pennsylvanian	Rocky Mountain quartzite.....	5-580 ft.

The Boule, Coronach, Fiddle and Kiln are represented by the Cinquefoil limestone in the ranges from Interlaken to the Palisade.