

Church Lake, where numerous cross veins and a few interbedded veins have developed. West of the river the quartzites are overlain by the upper grey slates on the transverse syncline which is here strongly marked; but, a short distance farther west, the quartzites again appear at the surface on a broad elliptical dome, on the eastern end of which the gold mining district of Pleasant River Barrens has been located.

(5) Cherryfield Anticline occurs at a distance of $9\frac{1}{2}$ miles north of the fourth anticline, where it begins at the granite contact on the main river, directly east of Cherryfield station, and extending eastward, crosses the Sarty Road at the school house and the Sam Moore Road half a mile south of the bridge over North River, and ends at the granite, 3 miles farther east. This anticline brings to the surface lower beds than any other fold in the district, exposing at the surface a thickness of $2\frac{1}{2}$ miles of the Goldenville quartzite, which extends southerly for $3\frac{1}{2}$ miles to the Halifax slate, and northerly beyond the next syncline to the granite along the old Dalhousie Road. The strata dip at angles increasing from 25 deg. to 80 deg. on the south side of the anticline, and from 25 deg. to 65 deg. on the north, and appear to form a very narrow dome near the Sarty school house, where quartz veins have been uncovered.

Some interesting granite contacts are well exposed at a few points along the boundary line, one of which may be observed at Dog Falls on the west side of Lahave River, below the bridge, half a mile north of Cherryfield station. As a general rule the quartzites are altered quartz-mica schists, but the strata show no local disturbances as a result of the granite intrusion.

Evidence of dislocation and faulting has been observed, however, at many places, especially in the vicinity of large projections of the granite into the sedimentaries, but the disturbances are apparently the result of movements that took place subsequent to the irruption of the granite. At Upper New Cornwall—between Otter Lake, the northeast end of Big Mushamush Lake, and the south end of Church Lake—the strata are much disturbed, and there is probably an important fault running northerly in the direction of Union Square, Morton Corner, and Sarty, along which the western block has moved south with reference to the east one. Towards the south, this fault probably runs along the eastern shore of Big Mushamush Lake and passes through Slaughenwhite Island and Farmville towards Blockhouse. Along this course much brecciated country rock and quartz is shown. The cross veins operated at Blockhouse are probably a zone of fractures on the southern extension of this fault.

Economic Geology.

Gold.

Leipsigate Gold District.—Two gold mining districts, Leipsigate, and Pleasant River Barrens, are situated in the area surveyed. A detailed survey of Leipsigate was made in 1904 and a report on that district was included in the Summary Report for that year, pages 321-329, together with a plan on the scale of 500 feet to 1 inch, published separately. After 1904, operations were continued until 1908 on the Miemac fissure vein by the Miemac Gold Mining Company, and a depth of 596 feet has been attained. When in operation the Miemac mine proved a good producer, and there is every reason to believe that under good management it should still continue to yield well. In 1905 and 1906

some work was also done at the Owen mine on the same vein. A little prospecting was done in the northern part of the district by Simeon Erust and others, but no important discovery has been made since the survey of 1904.

Pleasant River Barrens Gold District.—The district is situated in Lunenburg County, on the Pleasant River Road, 15 miles north of Bridgewater, between Rhyno and Shingle Lakes, on the eastern end of a broad elliptical dome of quartzites, which is 4 miles long by 2 miles wide, and is surrounded and overlaid by the slates of the Halifax division. The auriferous quartz veins occur at the outer edge of the dome in slate layers interstratified between thick beds of quartzite (which often stand out prominently and form a succession of parallel ridges with intervening swales) curving gradually around the eastern part of the dome and dipping towards the southeast, east, and northeast at angles of 20 deg. to 40 deg. The district has been idle for the last twelve years, hence only a cursory examination could be made of the old workings. Several veins have been uncovered, a few of which have been developed, but none of them have been exploited, except to a limited extent. The more important veins are the Dunbrack, Mill, Pine Tree, Brignell, Ernst, and Bent leads. A specially rich but narrow pay-streak was worked for a short time on the Dunbrack lead at the intersection of an angular vein dipping north 60 deg. One fissure or cross vein, was also discovered by James Deal, crossing the strata in a southwesterly direction. Most of the work was done in the eighties and nineties, and three stamp-mills are reported to have been erected.

On the east side of the river, gold-bearing veins have been uncovered and prospected at several places, but the results obtained appear to have been unsatisfactory. The most important veins developed are the following:

On the southeast side of North River, 2 miles east of Meisner post-office and three-fourths of a mile east of O. Acker's house, a vein was discovered in 1892 by Thomas Acker, and worked by a Windsor company to a depth of 40 feet; a five-stamp mill was built and 60 tons of ore crushed, but the prospect was finally abandoned. The vein is 1 to 10 inches thick, dips north 78 deg., and is interbedded in altered quartzite, in contact with the granite. In 1909 a few other parallel veins were prospected by David Lawrence.

At Upper New Cornwall, at Rocky Point on the northeast shore of Big Mushamush Lake, two veins were opened in or about 1888 by Freeman Millet, in slate between walls of quartzite. On the north vein there is a pit 21 feet deep, and on the south one, two pits 24 feet deep, but the whole prospect is now flooded by the lake.

Farther north, half a mile south of Indian Lake, on the east side of the road, a vein 12 inches thick cutting across the quartzite was prospected by W. H. Prest with two shafts 25 feet deep, and some ore was crushed at the Blockhouse mill. Numerous other cross veins have been located between this prospect and the foot of Indian Lake along the fault passing in this vicinity. Ore-shoots may possibly occur at the intersection of some of these cross-veins with the interbedded veins which are found along the Pleasant River Barrens anticline at the foot of Indian Lake and the north end of Church Lake.