This quarry is equipped with two mills, a larger one south of the quarry for making structural slate, and a smaller just north of the opening for rough trimming. The chief products are electrical and structural slate. The quarry is one of the oldest openings at Slatedale. The present operating company is the Shenton Slate Company of Slatedale.

The three openings east of the Locke quarry are referred to as the Royal Blue quarries and are also known, beginning at the west, as the Shenton No. 2, Crescent, and Royal Blue quarries respectively. The Shenton No. 2 measures 225 by 210 feet and is 35 feet deep to water level. The Crescent is 240 by 215 feet, with a tunnel in the northwest side. The Royal Blue lies just west of the highway; it is 375 by 225 feet in surface area and is about 220 feet deep; in 1927 the chief operations centered around tunnels driven into the overhanging northwest side of the opening.

Structurally the situations in the three Royal Blue quarries are identical. The beds generally strike N.75°E.; along the southeast sides of all three openings, which are essentially parallel, the dip is 75°N., but it flattens northward and downward and in the eastern tunnel of the east opening it is only 8°N. This flattening of the beds indicates a synclinal axis which outcrops between the Royal Blue openings and the Manhattan quarry to the north. The cleavage is roughly parallel in strike to the beds, but dips 62°S. Grain trends N.25°W.

The beds opened include the two lower big beds of the Locke "run," but the openings are not carried far enough to the north to intersect the uppermost Locke big bed on the north edge of the Locke quarry. The Lower Locke big bed appears on the south edge of the opening.

The synclinal axis here defined pitches east, as bedding and cleavage strikes intersect westward. Another interesting feature is the series of branching and gently dipping joints, which intersect the bedding planes so as to form acute dihedral angles which open upward to the south and downward to the northwest. These have introduced serious difficulties in tunnelling. Near the northwest edge a "loose ribbon," along which some movement has taken place, has also given trouble, particularly because of the associated joints.

The mill is south of the opening. Products include structural and electrical material and some ribboned slate.

These three quarries were opened about 1900 under different management. The eastern pit is now the only one in operation.

**Kern Quarries.** Three quarries lie on the eastward continuation of the strike passing through the Royal Blue quarries, and 200 feet east of the latter. The three openings are about equal in area—approximately 100 by 150 feet or less—but vary in depth; thus the east quarry is said to be 230 feet deep, whereas the west opening when visited in 1927 had attained a depth of only 90 feet. The two easterly holes are abandoned and filled with water, the west one alone being operated.

In the latter opening there are 10 feet of glacial overburden, beneath which the slate beds strike N.73°E., and dip 71°N. at the northwest edge, 81°S. at the southeast edge. At the north edge is the Middle Locke big bed and the Lower Locke big bed is just south of the southeast edge. The cleavage strikes N.75°E., dips 60°S.

An interesting fact in connection with this opening is the method of drainage. Water runs east into the next hole, which is deeper, along cleavage and joints, and the quarry company pumps from the east of these two openings to maintain the eastward drainage gradient.

These quarries are in the hands of the J. P. Kern Slate Company of Slatedale. Equipment includes two mills, one at the quarry for trimming and rough dressing, and one for finishing at Emerald. Products include structural, electrical, and roofing slate, and some school slate; for trimming, the circular saws, 7½ inches in diameter with 12 teeth, are used, instead of the square saws more commonly seen.

The two quarries to the east show a structure like that described above; the eastern one opened the Lower Locke big bed in addition.