ity is capped by more basic volcanics that appear to be quite young and are assumed to be Miocene (?). The upper flows observed are basalts.

Butterfield Marsh, which lies between the Grant and Pancake ranges, contains lake sediments having extensive beds of gaylussite, a combination of sodium and calcium carbonate.

Properties. The Gold Bearing Ledge group, owned by George Bogdanovich of Ely, lies on the west slope of White Pine Mountains about 5 miles northeast of Currant and is easily accessible by one-half mile of dirt road from the Ely highway. The property was examined by Fred L. Humphrey in July 1949. His report, which is the source of the data in this description, is on file in the Bureau office. He states that several cars of "good" ore reportedly have been shipped, however, actual values are not known. Samples taken indicated sorted ore to assay $27 and dump rock from the same excavation to assay $6.30 per ton. The values are in gold which occurs in a brecciated chert bed in and near a prominent fault zone along a quartz latite dike. Limestone and shale overlie the chert. Humphrey believes the faulting to be such that a large segment of the brecciated chert has been faulted down 300–500 feet below the present outcrop. Workings consist of several cuts exploring the outcropping segment of the chert and four adits which, if the hypothesis of a downfaulted segment is correct, are several hundred feet above the ore and of no value. Humphrey concludes that the property is worthy of further exploration in the region of past production and an effort should be made to delimit the possibility of the downfaulted segment.

The Ala-Mar magnesite property, well described by G. H. Holmes, Jr., and E. J. Matson[31], is near the crest of the White Pine Range about 3 miles airline north of the Tonopah-Ely highway. Although commonly referred to as being in Nye County, Holmes' and Matson's report shows nearly all the deposit to be in White Pine County.

The Thor group, recently located by B. F. and Frank Roberts and Don Lani of Duckwater, lies southeast and just outside the fenced property at Currant. A north bearing fault zone in a latite which overlies a rhyolitic tuff has relatively strong radioactivity. The owners have sunk a shallow shaft and have done other surface prospecting in an effort to follow the zone of radioactivity. Ordinarily the best response on the Geiger-Mueller counter is obtained from the very smooth fault faces. No uranium bearing mineral

[31]Investigation of the Magnesite Deposit of the Ala-Mar Magnesium Co., Inc., and Nevada Magnesite Co., White Pine County, Nevada, U. S. Bureau of Mines. Report of Investigation 4608.

was identified. The latite and tuff are believed to be underlain by a Tertiary (?) sandstone and conglomerate found about a mile southeast. A little radioactivity was found in some areas of these sediments and a group of claims was located by the same parties. The beds have a general northerly strike and dip about 50° E.

A deposit, termed both alunite and kaolinite is situated near Currant, one-half mile off the Ely highway. The property consists of 12 claims and is owned by the A. & O. Company of Beverly Hills, California. The owners report that some years ago several carloads of the material were shipped to a pottery manufacturer in St. Louis. Exploration reportedly has been by a short adit and several test holes. The owners have had several chemical analyses made in an effort to determine a possible use for the material. These analyses indicate the material to be an impure kaolinite containing some alunite.

The Silverton Mines group of about 40 claims, owned by the Tognoni family of Eureka, lies in the Pancake Range, 28 miles southwest of Currant. The group is about one-half mile north of the Tonopah-Ely highway. Silver ore was discovered here by J. C. Tognoni in about 1921. A company was immediately organized, a shaft was sunk, high-grade stringers mined, and the ore shipped to Tonopah. This advertised the area, but little production was made.

Hale C. Tognoni, who has the Silverton claims under agreement, states that small shipments of ore carrying 10 to 30 ounces of silver per ton were shipped during 1930–1937. He believes that a large scale geologic exploration program is necessary to gain information for the possible development of important ore bodies. He states that the silver occurs as argentite, cerargyrite, and native silver in small veinlets in Pennsylvanian (?) limestone near rhyolite dikes and sills. The workings consist of a 100-foot vertical shaft, four or five adits up to 200 feet in length, and many shallow shafts. The main shaft has a headframe and hoist house.

Butterfield Marsh is often regarded as a separate mining district; however, it is here included with the Currant district due to its proximity. Lincoln's description of the area summarizes it well. He states, "Railroad Valley is a typical desert basin extending for 100 miles in a north-south direction and having a width of from 10 to 20 miles. Its drainage area is about 6,000 square miles and the flat central portion has an area of 200 square miles. Butterfield Marsh is in the lowest portion of the valley and has an area of 40 square miles. The valley was formerly occupied by a lake whose level was from 50 to 300 feet above that

are in the steepest part of the area just below cliffs that terminate at an altitude of 6,400 feet.

The turquoise here occurs in chert similarly to the Royston deposits to the south. Mining has been done in large cuts and in a glory hole with adit. The workings cover a zone about 150 feet in length and are 500 feet up a steep hillside from the end of the road.

Improvements consist of a building at the mine, housing a sorting table, and a cabin for living quarters on the road. Water must be hauled to the property.

The East Golden mine, comprising 10 unpatented lode claims and owned by Barney Francisco who lives on the property, is situated on the east slope of the Shoshone Range at an estimated 6,500 foot elevation. It is 7 miles north of Cloverdale and one-half mile west of the Cloverdale road. Gold was discovered here by an Indian in about 1902, but it appears that no mining was done until much later. In the twenties, Francisco equipped the property with a homemade tube mill but found that recovery was poor. In 1941, lessees installed a 3½-foot Huntington mill complete with crusher plates and concentrating table. It is reported that this mill, which is still on the property, was also a failure. Milling water was obtained from a well in the wash adjacent to the mill. Aside from the trial milling, a few small ore shipments were made; however, no production is recorded. The gold ore occurs in shear zones in Tertiary rhyolite, and it is reported that one zone 18 to 36 inches wide and 100 feet long assays $20 to $30. O. J. Belleville of Mina did some exploratory work and sampled the property in 1932. He states that the ore must be cyanided; however, his results did not warrant the installation of a cyanide mill at that time. The workings consist of three adits totaling 1,500 feet which the owner claims expose three veins containing ore ranging from $20 to $90 per ton if selectively mined. It appears that future operators will either have to mine ore of shipping grade or change the present milling plan.

The Cloverdale gold placers are on Cloverdale Creek below East Golden. It is reported[30] that gold was discovered here in 1906 and that in 1931 a company prospected the canyon with 26 shafts 20–50 feet deep. It is said that some churn drilling was attempted

[30]Vanderburg, W. O., Placer Mining in Nevada: Univ. of Nev. Bull., Vol. XXX, No. 4, pp. 122-3, May 15, 1936.

in later years. The ground is principally owned by the estate of Lou Miller, administered by C. C. Boak and John Connolly of Tonopah.

The West Golden placer claims are owned by the Peruchietti family of Tonopah who have done some prospecting on the ground but have been hampered by the flow of water on bedrock. They state that they were encouraged by the results obtained in test pits but did not have the equipment to cope with the water and were forced to abandon the work.

Lincoln states that, at the time of his writing, diatomaceous earth was being mined near Black Spring northwest of the Cloverdale ranch and used in the manufacture of tooth paste and powder. No more recent activity has been noted at this deposit, although much exploration by trenching has been done in recent years on deposits of diatomaceous earth in Mineral County a few miles to the west. Lincoln gives an analysis of the material at Black Spring which shows a content of 84.39 percent silica and 10.91 percent loss on ignition.

CURRANT (Butterfield Marsh, Railroad Valley Marsh, Silverton)

The Currant mining district lies in the vicinity of Currant on the Ely-Tonopah highway, 52 miles southwest of Ely, or 116 miles northeast of Tonopah. Lincoln mentions a little activity in the area in 1914 and 1916, however, it appears that most of the small production from the district came much later. Couch shows a recorded production of $4,278 from 590 tons in 1940. This was made by the Currant Creek Mining Company and it is assumed that the ore came from what is now known as the Gold Bearing Ledge group. In addition to the recorded production, it is known that some ore was shipped without public record being made.

Geology. The principal ranges in the district are the White Pine and Grant which are separated only by low rolling hills of volcanics and young sediments near and south of Currant. Paleozic sediments intruded by granitics and overlain by tertiary volcanics and sediments are found in both ranges. Gold occurrences found in the White Pine Range are in the older sediments. To the south, radioactivity has been noted in tertiary (?) sandstone and conglomerate and in a shear zone in the overlying rhyolitic tuff and latite.

The Silverton area is 28 miles southwest of Currant in the Pancake Range. Here, silver ore is reportedly found in Pennsylvanian (?) limestone intruded by rhyolite dikes and sills. The vicin-

of the playa. Butterfield Marsh is commonly covered with a thin crust of salt and toward its north end are irregular salt pans where the salt incrustation is thicker, and from which the production has come. Potash occurs in these efflorescences but drilling by the Railroad Valley Company failed to disclose any potash salts in depth although soda-bearing beds consisting chiefly of gaylussite, hydrous sodium-calcium carbonate, were encountered." Lincoln's mention of salt production refers to that which was mined in the early days for the mills at Tybo.

The Railroad Valley Company made a comprehensive study of the district and drilled seven holes of 745- to 1,204-foot depth. The work was carried out during 1912–1914 at a reported cost of $150,000. An excellent article by E. E. Free[32], consulting geologist for the company, in addition to other news items[33], gives a fair description of the drilling and results. He states that gaylussite was encountered in three holes with one hole penetrating 194 feet and another, 127 feet of the mineral. As the company was in search of potash minerals, which due to their greater solubility would be expected at a higher horizon, none of the holes were drilled through the gaylussite beds.

The probable huge tonnage of almost pure mineral and the recent demand for sodium carbonate has attracted considerable attention to this deposit. This interest is in spite of the unfavorable location and the problem of rejection of the calcium carbonate. In addition to the good grade gaylussite, there is a large surface area of mixed gaylussite and clay.

DANVILLE

The Danville district is about 95 miles northeast of Tonopah and 55 miles north of the old Five Mile Station on the Tonopah-Ely highway. Although distant from supply centers the roads are in good condition. The district is on and near Danville Creek on the east flank of the Monitor Range, 3 miles west of the Little Fish Lake Valley road. Water enough for any mining use likely in the area is found in Danville Creek which rises from springs on one of the unpatented claims. It is estimated that the elevation ranges from 7,000 to 7,500 feet in the principal mineralized area. Snow conditions are such that some snow removal equipment would be necessary for any contemplated winter operation.

Thompson and West state that the district was discovered in 1866 by P. W. Mansfield and reorganized in 1870. Couch shows a recorded production of $4,747 from 31 tons during 1866–1891.

[32]Mining and Scientific Press, August 2, 1913, 176-178.
[33]Idem., Feb. 14, 1914, 314; April 4, 1914, 591; May 16, 1914, 797.

In the 1944–1945 period $26,465 was produced from 3,846 tons, probably from dumps. The value of the ore is principally in silver with little or no gold. Without doubt, much production has not been recorded as Joe Clifford states that he recalls wagon shipments from Danville stopping at Stone Cabin approximately during 1909–1914.

Geology. The sediments here, believed to be Silurian(?), are principally various limestones underlain by shales and capped by Tertiary rhyolite and latite. The known ore deposits are in shear zones in limestone just west of the volcanics which cover the lower elevations of the range. The known mineralized area is about 1 mile across, although some minor work has been done well outside this area.

All the ore noted occurs in shear zones as veinlets and small irregular replacement bodies. In the southern part of the district the ore contains a highly argentiferous galena, while in the northern part the silver minerals usually occur without the galena. No appreciable quantity of gold is found in the ore.

One very prominent fault zone known as the Vestal Shear bears about S. 30° E. and may be seen for nearly a mile. Minor exploration has been done along the full length of the shear and some ore has been found in drift-adits near Danville Creek. That portion south of Danville Creek is more precipitous and is not accessible by road; therefore, less work has been done here.

No definite district pattern of the shear zones was noted although localized areas usually have a characteristic trend. The workings on the north side of Danville Creek, and several hundred feet from the Vestal Shear, show a general northeast strike. In the next canyon north of Danville Creek the shearing is generally northwest.

Properties. Seven and a fraction claims, all patented, cover the known ore occurrences in the district and are owned by Jack Ekstrom who lives at the old camp of Danville. In 1949 he shipped 70 tons, which averaged about 17 ounces silver per ton, coming from the dump of the Boston claim that reportedly was last worked in 1934 by the Continental Mines Company of Denver. They sank a 125-foot shaft and attempted to find the continuation of ore mined from nearby caved workings, but their objective was not reached.

The principal workings are just north of Danville Creek. An estimated thousand feet of work and much stoping has been done on a highly silicified shear zone. The dump from this work is reported to carry about 14 ounces silver per ton. Some screening

UNIVERSITY OF NEVADA BULLETIN

VOL. XLV JANUARY 1951 No. 3

GEOLOGY AND MINING SERIES No. 50

MINERAL RESOURCES OF NYE COUNTY, NEVADA

By

VICTOR E. KRAL

Mining Engineer

PRICE ONE DOLLAR

PUBLICATION OF THE NEVADA STATE BUREAU OF MINES
AND THE MACKAY SCHOOL OF MINES
JAY A. CARPENTER, *Director*

1[76]