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REPORT ON THE O. L. NEYLAND GYPSUM MINE IN GILLESPIE COUNTY, TEXAS

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The Neyland quarries are located 15 miles northwest of Fredericksburg, on the Doss road. To reach the location from the courthouse in Fredericksburg, proceed northwest on the Mason road a distance of 11 miles to the junction of the Doss road. Turn to the left on the Doss road and go 4.2 miles to a pasture gate; turn to the right and proceed about one-fourth of a mile to the workings. The road is paved to Feidlers store at the road junction of the Doss and Mason road. From Feidlers store the road is a good all-weather road the remaining distance to the mine.

The mine is located on top of a long limestone ridge that fingers out from the western Edwards Plateau. The ridge is flat on top, very rocky, and covered with oak brush. The elevation is around 2000 feet. The ridge divides the water in Gillespie County into north-running streams that reach Colorado River via Llano River and into south-running streams that reach Colorado River via Pedernales River.

The long ridge juts out in an easterly direction from the higher Edwards limestone to the west. The gypsum lies well up in the Edwards limestone. The section as explored in the mine is as follows:

	Thickness	
	Feet	Inches
Massive light-colored limestone	18	
Clear blue gypsum	13	
Soft buff limestone	3	
Hard white flint		6
Soft dusty clay; powdery		6
Hard dark flint		6

The gypsum in these two mines was deposited from supersaturated solutions. A study, briefly, of the deposit as well as of the surrounding material indicates that the gypsum resulted from the evaporation of shallow inland seas. The stratification of the gypsum might indicate that the deposition was caused by some two or three or more causes, such as change in temperature of the sea water, change in the carbon dioxide content of the water, and perhaps some chemical action. It is probable that the deposit was first precipitated as the anhydrite because the overlying beds of limestone are deformed so as to form what appears to be an anticline over the beds. This condition is explained by the calcium sulphate having been deposited from solution as the anhydrite and after deposition changed to the gypsum with an expansion of 30 to 50 per cent.[1] The lifting of the overlying beds might be explained by this expansion. There is also some deformation of the gypsum in the mine.

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[1] Twenhofel, W. H., Treatise on Sedimentation, p. 536, 1926.

At this time, September, 1936, there is being mined an average of ten cars per month. One truck is hauling from the mine to the Frisco and Northwestern Railway at Fredericksburg. By using two drivers it is possible to haul eight or nine truck loads per day. It takes eleven to twelve truckloads of five tons each to fill a car It takes twelve cartloads to fill the truck, which is a Ford V8 with a power dump. The cart used is a home-made one with old auto wheels. The driver gets 60 cents a load. The company owns the ramp. One Ingersol-Rand air compressor, Kohler light plant, crusher with Hercules motor, elevator, hoist sheds, and tools are above ground.

If more of this product is required in the future, the writer suggests that search be made for the gypsum in Edwards limestone exposures. Fragments may be found around the sides of the hills, especially where there have been excavations, such as road ditches. Arching and bending of the limestone into small anticlines and miniature breaks in the strata indicate expansion of the anhydrite upon changing to gypsum. Sink holes in places where water goes into the ground from above indicate good places to prospect, and caves and openings in the Edwards also offer good places. If any systematic exploration is contemplated it is suggested that the Edwards ridge be explored by core drilling.

The writer believes that the gypsum extends over a considerable area. Where the Edwards has held up the ridges and hills in the whole county, there is very likely to be a deposit of gypsum underlying it. The ocean floor at the time of this deposition was shallow and probably nearly level. The concentration of the sea waters by arid conditions deposited calcium sulphate very extensively.

There are likely other deposits of greater thickness and of greater extent in the area.

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