

THE UNIVERSITY OF TEXAS AT AUSTIN
Bureau of Economic Geology
March, 1942
Typeset from original stencil, December 1979

MINERAL RESOURCE SURVEY
Circular No. 44

The information contained in this circular was gathered by a unit of the WPA Geological Investigation Project, sponsored by The University of Texas, Bureau of Economic Geology. The purpose of this survey is to assemble information concerning the mineral resources of Texas and make it available to the public. It is hoped that this information will be a contribution to the industrialization of the State. The following report gives the results of work done in Anderson County by a unit of the Headquarters Project, WP 49036, from October 22, 1941, to November 15, 1941.

REPORT ON FLUXING LIMESTONE AT PALESTINE SALT DOME,
ANDERSON COUNTY, TEXAS*
by John H. McCammon, Supervisor

Limestone outcrops around the Palestine salt dome afford a source of this rock in a part of the State in which large deposits of this material are otherwise lacking. The rock occurs as brecciated blocks of Cretaceous cherts and limestones which have been brought to the surface from a depth of several thousand feet by the Palestine salt dome uplift.

Location. — Palestine salt dome is 6.4 miles by airline slightly south of west of the county courthouse in Palestine, Anderson County. The road log is as follows: Take U.S. Highway No. 79 west from the county courthouse to the loop at the city limits. Turn right on dirt road and continue 0.2 mile; turn left and continue 5 miles to the former salt works on the left of the road and Dugey's Lake to the right. The evaporation plant has been torn down, but the large concrete floor and one small brick building surrounded by piles of waste are evidence of the extensive salt production from this dome in the past.

Quantity and quality of the limestone. — The limestone in question was first mapped by Sidney Powers,¹ to whom it was shown by M. A. Davey, of Palestine. The much discussed problem of whether this limestone is Buda or Georgetown in age is not important in this report, although the writer believes it to be Georgetown because of the lithologic characteristics² and because the Cretaceous series exposed on the top of this salt dome is for the most part lithologically more similar to the updip (Red River counties section, where Georgetown outcrops) than to the nearby section to the west (Navarro and Hill counties).³ The limestone outcrops on the south side of the hill just southeast from the abandoned salt works. It is gray-white, nodular, hard and massive with frequent echinoid spines, but otherwise with minor amounts of detrital material. The bedding planes, 4 to 5 inches apart, have a wavy and irregular surface.

In overall length, the limestone outcrop is 1045 feet. The outcrop, however, is not continuous: two faults divide the limestone into three blocks. From the southwest to the northeast, the first block is 212 feet long, the second 446 feet, and the third 387 feet. The width of outcrop is 75 feet, and the corrected true thickness 35, 43, and 65 feet respectively. The average dip in each block is 44, 40, and 60 degrees. In the three blocks, then, there is 40, 304 square feet. From the limited data obtained by coring with hand augers, it is assumed that the limestone could be quarried down dip 30 to 40 feet; thus, with 12.2 cubic feet per ton, an estimated minimum of 100,000 tons of limestone are available.

Chip samples of this limestone taken from outcropping ledges and test pits of the three blocks were analyzed by Paul Tapp in the laboratory of the Statewide Geological Investigation Project, with results as follows:

	Sample Number		
	1	2	3
Insoluble in HCl	1.85	0.90	0.41
SiO ₂	4.40	1.70	2.24
Fe ₂ O ₃	0.83	0.51	0.25
Al ₂ O ₃	0.27	0.21	0.31
CaO	50.6	53.5	51.8
MgO	0.24	0.42	trace

(Blocks from southwest to northeast.)

The relatively low silica, alumina, and magnesia content of this limestone along with the physical characteristics of extreme hardness and maintenance of angularity in lumps of pieces, when crushed, indicate that it is a good fluxing limestone. It may be used also as a road material.

*Assistance in the preparation of these materials was furnished by the personnel of Work Projects Administration Official Project No. 165-1-66-695.

¹Powers, Sidney, Interior salt domes of Texas: Bull. Amer. Assoc. Petr. Geol., vol. 10, pp. 45-53, 1926.

²Adkins, W. S., Mesozoic systems, in The Geology of Texas, Vol. I: Univ. Texas Bull. 3232, p. 365, 1932 (1933).

³Compare Stenzel, H. B., The Geology of Leon County, Texas: Univ. Texas Bull. 3818, p. 37, 1938.

