

THE UNIVERSITY OF TEXAS

Bureau of Economic Geology

May 11, 1936

MINERAL RESOURCE SURVEY

Circular No. 11

A mineral resource survey of Texas has been started by the Works Progress Administration, the Bureau of Economic Geology of The University of Texas acting as sponsor. The purpose of the survey is to assemble information and make it available to the public. Through a separate project, sponsored by the State Planning Board, the results of the survey, as they are received in Austin, are being assembled for publication. The mineral resource survey is helping in the location of mineral products, from some of which it is reasonable to suppose industries of value to the State may be developed. The following report is based on work in Burnet County.

POST MOUNTAIN ASPHALT

by Virgil E. Barnes

On the eastern slope of Post Mountain, three-fourths of a mile west of Burnet and just south of the Llano road, is a deposit of asphaltic material in shelly limestone. The accompanying pace-compass map of the outcropping asphaltic beds shows trenches made during the present study as well as open cuts and pits made in the past.

The asphalt is in porous limestone. The porosity consists of gastropod shells, spaces among gastropod shells, and porosity among shell fragments. The gastropods are mostly inch long spirals about 0.4 of an inch in diameter at the base.

The following sections were examined at the localities designated on the accompanying map:

Thickness
Feet Inches

Section A—trench

Black soil	1	
Gray porous limestone with asphaltic stains in most of the cavities. The porosity is partly in shell breccia and partly in shell cavities (upper asphaltic bed)	2	
Greenish to bluish somewhat sandy clay, weathering to a grayish yellow14	
Dense yellowish limestone	1	
Highly porous shell breccia, asphalt stained (lower asphaltic bed)		4
Greenish plastic clay with some sand	2	6

Section B—trench

Gray porous limestone with asphalt stains in cavities	2	
Red clay (may be in part residual clay from weathering)	1	
Calcareous gray clay and sand	5	
Dense gray limestone		8
Greenish to yellowish sand clay with some radial concretions near base	6	

Section C—pit

Weathered limestone and soil	1	6
Yellowish non-porous limestone breaking with a hackly surface	1	
Dense gray slightly porous limestone, containing few shells and just a trace of asphalt	1	
Gray hard porous limestone containing numerous shells, with considerable asphalt in the pores (upper asphaltic bed)		8
Calcareous sandy clay	1	

Section D—pit

Light gray limestone with little porosity and a small amount of asphalt. The base of the pit was not exposed, but on the dump some high-grade very porous asphaltic limestone was found, probably from very little deeper in the pit	2	6
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Section E—pit

Hard gray limestone with some high-grade asphalt on dump	2	
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Section F—pit

Gray limestone containing some shell porosity, but not more than a trace of asphalt	3	6
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Section G—open cuts and trenches

Weathered limestone and soil	1	6
Hard dense gray limestone		6
Gray limestone containing shell porosity and asphalt	5	
Hard gray limestone with shell outlines poorly preserved; trace of asphalt	3	
Calcareous yellow clay containing sand grains up to 1/8 inch in diameter. The top portion contains some gastropod casts	1	6

Section H—trench

Brecciated shell limestone, much porosity and considerable asphalt staining		10
Shell limestone with large gastropods, very porous, and highly asphalt stained		6
Limestone with hackly break, low porosity, and little asphalt		8
Hard gray limestone with some shell porosity and with asphalt stains in pores	2	
Greenish and yellowish to gray calcareous sands and clays, becoming more argillaceous toward the top	8	

To summarize the above information, it may be said that two porous limestone members, 15 feet apart stratigraphically, contain asphalt and are enclosed by calcareous sandy clays. These rocks are all in the Trinity division of the Cretaceous.

The lower asphaltic limestone is more persistent than the upper one. At the place of its greatest development, Section G, it is about 5 feet thick. This bed diminishes in thickness in each direction from this point until it lenses out about 1000 feet along the outcrop to the south and about 1700 feet along the outcrop to the northwest.

A tonnage estimate of asphaltic limestone present in the lower bed is as follows:

Thickness of bed (feet)	Tons present	Tons minable
4-5	30,000	30,000
3-4	25,000	25,000
2-3	20,000	10,000
1-2	27,500	4,000
0-1	16,500	0
Total	119,000	69,000

Since the quantity of asphalt contained in the limestone is unknown, an estimate of recoverable asphalt cannot be made. The asphalt content varies considerably along the outcrop, but can be assumed to be higher where the overlying clay protects it from removal by seepage during hot weather.

The upper asphaltic bed is too thin to be of commercial value; consequently, an estimate of tonnage is unnecessary.

The only feasible use for this deposit at present might be as road material. It would be necessary to dig test pits back from the outcrop to obtain representative samples and to determine by suitable tests whether it has sufficient binding and wearing properties to make good roads.

Burnet Asphalt ("Ichthyic Oil") Deposit

Just north of the Burnet city limits is an asphalt deposit shown on the accompanying pace-compass map. Asphalt from the southern part of this deposit is extracted by the National Ichthyic Oil and By-Products Interests in a plant built for the purpose. The resulting product is used as a base for various medicinal preparations.

This deposit is very similar to the Post Mountain asphalt, and, as at that place, the asphalt occupies gastropod shell cavities and space between shells. The shells are mostly spires about an inch in length and vary from 0.2 to 0.4 inch in diameter at the base. This limestone also contains many ovoid shells, probably *Actaeonella*. Pebbles, up to an inch in size mostly of Ellenburger chert, are scattered among the shells. The Ellenburger outcrops at a higher elevation both to the south and to the northwest of this deposit, thus easily accounting for the presence of pebbles in the shell bed.

Several pits were dug on the southern part of the deposit. Four were dug along a ridge on which asphalt was reported to be present; however, all were south of the deposit and consequently did not penetrate asphalt.

Materials encountered in three of the pits are as follows:

	Thickness	
	Feet	Inches
<i>Pit No. 1</i>		
Black soil	4	
Hard brown uniform-textured sandstone		6
<i>Pit No. 2</i>		
Weathered transported pebbles and boulders with some soil near top	2	6
Coarse hard sandstone		4
Coarse soft sandstone		6
Green sandy clay		8
Clay with lumps and seams of caliche	1	
Hard light green sandstone		6
<i>Pit No. 3</i>		
Black soil	1	
Highly weathered porous material with considerable caliche	2	
Compact greenish and yellowish clays containing nodules of caliche and chert	3	6

The portion of the deposit north of the fence (see map) is on property that was unavailable for test pitting, but was available for sight examination.

Test pitting carried on during the present examination, and in the past, outlines the southern part of the asphalt-bearing areas. These areas are lenticular and do not occupy the entire shell bed. The asphalt lens exposed in the bed of the creek is separated by several hundred feet of barren rock from the one exposed by the extraction plant.

The best exposure of the asphaltic limestone and of the underlying formation is in a pit north of the extraction plant. At this point about 2 feet of shelly limestone impregnated by asphalt overlies bluish to greenish-gray shaly bands. The pit is nearly full of water at present, and the entire section could not be examined but, from an examination of the material on the dump, the shaly sand is seen to be rather uniform in character.

The asphaltic layer averages less than 2 feet in thickness. The dimensions of the deposits are not outlined, and the asphalt content of the rock is unknown; therefore, it is impossible to give reliable figures on tonnage of rock or quantity of asphalt. Enough is exposed, however, to take care of the needs of the present plant for several years, even if it were to be operated continuously.

← Lano Burnet ← 7 mi. to Highway 66.



PAGE AND COMPASS MAP OF
POST MOUNTAIN
ASPHALTIC DEPOSIT
BURNET COUNTY
Scale 1" = 200'

