

MINERAL RESOURCE SURVEY
Circular No. 14

REPORT ON VOLCANIC ASH, BUILDING STONE,
AND GRAVEL DEPOSITS OF GRIMES COUNTY AS A PART OF
A MINERAL RESOURCE SURVEY OF GRIMES COUNTY
by George D. Ramsey, Supervisor

Volcanic Ash Deposits

Two miles east of Carlos on the county road toward Kellums Spring is an outcrop of volcanic ash that shows about 4 inches of commercial material. The mineral survey crew dug a hole 300 yards south of this outcrop on the property of the Jones Real Estate Company that showed commercial volcanic ash $4\frac{1}{2}$ feet thick.

About $2\frac{1}{2}$ miles south of Carlos on the west side of the Carlos-Anderson road, volcanic ash outcrops in three places near the west line of the J. J. Felder estate on the Uriah Sanders Headright Survey. West of these outcroppings near the foot of a mound on the south side of the J. J. Felder field is another outcrop of volcanic ash. Each of these outcroppings shows a thickness of $2\frac{1}{2}$ feet.

Three miles southwest of Carlos and 2 miles southeast of Lamb Springs an outcrop of volcanic ash was found on the farm of the Campbell estate. Two shafts were dug in a ravine 200 yards north of the barn that showed volcanic ash $5\frac{1}{2}$ feet thick. North of the Campbell property is an 88-acre tract of land that belongs to Mrs. D. A. Miller. Volcanic ash outcrops in three places on this 80 acres, the beds of which show a thickness of $2\frac{1}{2}$ to 5 feet. No exploration work was done on this property.

East of the Campbell estate, Ebbie Allen owns an 80-acre tract of land on which volcanic ash outcrops. An attempt was made at one time to develop this deposit. A small factory was started and the ash ground and put in boxes and sold locally as polishing powder.

Joining Allen on the east Mrs. Perry, Mr. Ebbie Allen's sister, owns a tract of land that was prospected for fuller's earth by boring with a soil auger. Several of the test holes showed volcanic ash 6 feet thick. Joining Mrs. D. A. Miller's property above referred to on the east is a 100-acre tract of land belonging to David Hannah. A narrow, deep ravine crosses this hundred acres and cuts through a bed of coarse volcanic ash for a distance of 600 feet. On either bank of this ravine volcanic ash is exposed to a depth of 10 feet.

One mile north of Piedmont and 2 miles south of Carlos is a tract of land the mineral rights of which belong to Joel Tarrell. Volcanic ash outcrops in three different ravines crossing this property. These exposures show the bed to be from $1\frac{1}{2}$ to 3 feet thick. The outcrops show this ash to be very badly weathered. Exploration work might prove greater thickness and higher grade than the exposures. East of the Terrell property across the old right-of-way is a 50-acre tract of land the mineral rights of which belong to a man living in Chicago. Two wells were dug on this 50-acre tract in one of which the crew dug through 10 feet of volcanic ash and in the other 16 feet.

One and one-half miles east of Singleton on land managed by Fred McGilbury is an outcrop of volcanic ash that Mr. McGilbury dug into $1\frac{1}{2}$ feet. This outcrop shows in an old road-way about 300 feet long. No exploration work was done by the mineral survey crew on this property. About one-half mile north of this outcrop last spoken of above volcanic ash shows in ravines in the southwest corner of a 136-acre tract of land that belongs to Mrs. Emminera Carroll.

Seven miles southeast of Bedia and 2 miles south of Evergreen school in a ravine on the south side of a 200-acre tract of land that belongs to Ned McCowan is an outcrop of volcanic ash of a very high-grade fine-grained material. About one-half mile north of Singleton on State highway No. 90 and on the west side of the International and Great Northern Railroad, Madisonville branch, W. H. Smith owns 100 acres of land. Volcanic ash outcrops in a ravine near the north line of the property. Six hundred feet south of this outcrop and 400 feet west of the highway the mineral survey crew dug a shaft 10 feet deep. Four feet of this shaft was overburden, the balance volcanic ash. The hole was not dug to the bottom of the bed.

West of the property belonging to W. H. Smith mentioned above is 120 acres of land belonging to Mrs. Rossi of Galveston. Volcanic ash outcrops in two places on this land. The survey crew dug three pits on this property, one of which was 4 feet deep that showed a very high grade of medium-grained volcanic ash without reaching the bottom of the bed. Pit No. 2 was dug 180 yards southwest of No. 1 to a depth of 5½ feet. The first 3 feet was volcanic ash; the last 2½ feet was volcanic sand. One hundred eighty yards southwest of No. 2, pit No. 3 was dug to a depth of 6 feet. The first 2 feet of this six was soil. The next 4 feet was a volcanic ash, but the bottom of the bed was not reached. This volcanic ash is medium fine-grained but slightly discolored with iron oxide. Joining the Rossi property on the west is another tract of land belonging to W. H. Smith on which volcanic ash outcrops in two places. One place is at the head of a ravine, and measured by the slope and the depth this bed shows to be about 6 feet at the outcrop.

About 3 miles north of west from Singleton on Cat Creek are three tracts of land of 77 acres each that belong to Peteete brothers. One of the Peteete brothers lives in Singleton. T. E. and J. H. Peteete each lives on the farm. On these three tracts of land along Cat Creek, volcanic ash outcrops in five places. Near the southwest of the T. E. Peteete land about 400 yards from the creek volcanic ash outcrops showing a bed 6 feet thick. On the J. H. Peteete property about 300 yards south of the creek volcanic ash outcrops in a ravine that shows a thickness of about 4 feet. On the north line of the J. H. Peteete land in the bank of the creek a 5-foot thick bed of volcanic sand was noted. Under this volcanic sand was a bed of volcanic ash that extended into the water. No shaft was sunk on this deposit to determine the thickness of the bed.

More than a dozen outcroppings of volcanic ash were recorded in other places in the Manning and Whitsett formations. These outcroppings varied from very fine to very coarse ash but were badly stained with iron oxide and other minerals. Proper exploration might prove some of these to be more valuable than the ones recorded above.

Should anyone be interested sufficiently to investigate these deposits the location can be ascertained from different members of the mineral survey crew—Wiley Robbins, Jack Matthews, Jimmie Sigsbee, or John Crittenden—or Joel Terrell, a citizen of Navasota who has always been interested in the mineral development of Grimes County. All of these men live in Navasota.

Building Stone

Within 1 to 3 miles north and northeast of Navasota there are several outcrops of calcareous sandstone. In five places within this area quarries have been started out of which stone was taken for the store buildings, the cotton seed oil mill, two churches, and three warehouses. When the stone is first quarried it is rather soft and easily worked. When exposed to weather the stone becomes harder.

One store building erected in Navasota out of this calcareous sandstone has been in use for more than seventy years. During this time two fires have destroyed all the woodwork used for the door, windows, second floor, joists, and rafters. Each time the store has been rebuilt by replacing all of the woodwork and is in use today and looks to be more substantial than the newer buildings, the walls of which have not been subjected to so many years of weathering.

The cotton seed oil mill in Navasota was one of the first erected in the state. The mill proper and the ware rooms were all built of this stone and seem to be in a perfect state of preservation. The same is true of two cotton warehouses and two railroad warehouses.

Several of the old plantation homes erected during the days of the Republic of Texas and between 1845 and 1860 are still in use.

About 300 feet west of State highway No. 90 on an elevation overlooking the town of Navasota and the surrounding country the old Kamp homestead was built of this sandstone. Mr. Kamp was a true southern gentleman and entertained many famous people at this home during his lifetime. General Sam Houston stopped there quite frequently when en route to Austin's colony, Austin, and San Antonio after he built his home at Huntsville. Mrs. General Albert Sidney Johnston made this her home during the Civil War. She is buried in the Kamp family cemetery about one-half mile from the old homestead. About 1910 the interior of this home was destroyed by fire but not being repaired the greater portion of the walls have fallen. About 1½ miles northwest of the old Kamp homestead one of the younger Kamps built a two-story home of this same calcareous sandstone. About eight years ago the woodwork of this two-story home was destroyed by fire. The walls are still standing.

Just west of the old homestead a quarry was opened from which much stone was taken for building purposes. One-half mile north of the two-story building mentioned above, another quarry was opened from which much stone was taken for building purposes. About three-fourths of a mile west of the last named quarry one of the first quarries opened in this area furnished material for the construction of many buildings.

About 1½ miles north of Navasota on the Navasota-Fuqua road 200 yards from where a dairy is now located a quarry was opened out of which much stone was taken for building purposes. Many of the strata in this quarry were thin and disintegration has affected this class of formation to such an extent that it was suitable for road material. Before the age of the concrete and asphalt road building, material was taken from this quarry to hard surface many miles of road in and around Navasota.

The stone used in building the courthouse at Anderson was taken from a quarry about 1½ miles northwest of the town. This stone is calcareous sandstone stained to a cream color with iron oxide. The courthouse was destroyed by fire more than twenty years ago, but when it was rebuilt the same stone was used and appears today to be in a perfect state of preservation.

Southwest of the courthouse about 1¾ miles is another outcrop of this same cream-colored stone. The foundations and first stories of several buildings in Anderson used this stone, none of which seems to be deteriorated.

About 3 miles northwest of Anderson on the farm of J. D. Perry, a quarry has been opened and some stone used for building and some for abutments for bridges crossing the creeks along the highways.

Two miles north of Carlos on the west side of the old Southern Pacific-Navasota-Mexia cut-off railroad is a deposit of calcareous sandstone showing three strata about 24 inches thick. This particular deposit shows quite a percentage of flake mica mixed with the calcareous sand. While the railroad was in operation several thousand carloads of this stone was shipped out for building purposes and for riprap along the sea walls of the Gulf Coast.

Several deposits of calcareous sand outcrops in the Piedmont area. About 1 mile west of the old Piedmont station in the country road leading from Piedmont to Lamb Springs is a deposit of white calcareous sandstone, each stratum of which is about 12 inches in thickness.

A little more than 2 miles northwest of Piedmont is a very large deposit of gray calcareous sandstone from which stone for many buildings was shipped during the life of the Mexia cut-off railroad. A switch was built into this quarry and several thousand carloads of this stone was shipped to Corpus Christi and to Port Arthur for use in building the jetties at the entrance to the harbor from the Gulf of Mexico at these points.

From 2 to 4 miles southwest of Bedias is the most outstanding deposit of building stone recorded in Grimes County. This stone covers an area of about 6 square miles and where tested has a depth varying from 50 feet to 160 feet. The top of the deposit is very easily worked, but from 20 to 40 feet down the lime in this sandstone has been replaced by silica making the stone almost as hard as flint. Several of the farmers and ranchmen in this area have drilled into this bed of stone for water, but at a depth of 20 to 40 feet the strata became so hard that drilling was abandoned. A location was made for an oil well in this area. When drilling reached a depth of 35 feet silicified strata were encountered which made the drilling very difficult. This silicified stone continued to a depth of 160 feet. In the tests for water wells and in the test for oil the various strata showed 6 inches to 2 feet in thickness with a thin layer of clay between each.

Three hundred acres of this deposit has been explored by digging through 3 to 6 feet of soil overburden and 10 feet into the sandstone in one hundred prospect holes.

The edge of this deposit is about 2 miles from State highway No. 90 and $2\frac{1}{4}$ miles from the International-Great Northern shortline railroad between Navasota and Madisonville. Contractors who supply building material needed in the Gulf Coast cities from Sabine River west to the Brazos River should be interested in developing this deposit of building stone. Proximity to these building centers would make freight rates on this class of material negligible.

Along the contact between the Catahoula and Whitsett formations, erosion has exposed many deposits of calcareous sandstone, all of which is stratified. Some of this stratification runs from 1 inch to 6 inches in thickness; some of it is snow-white. In a number of places the lime in this sandstone has been replaced by silica. The movements of the earth's crust have broken this stone into slabs from 6 inches to 2 feet in width and from 1 foot to 6 feet in length. When a slab of this stone is stood on edge and struck with a hammer it rings like a piece of steel. The color of this particular silicified formation ranges from dark gray to blue. To the casual observer small pieces of this formation appear to be flint.

Several outcrops of this silicified stone appear on the upthrow side of the major fault along the bluffs of Gibbons Creek southwest of Carlos. One outstanding deposit of this flinty sandstone is located on land which belongs to the Greer brothers of Carlos, 3 miles southeast of Carlos and about 1 mile north of the Anderson-Carlos road. About 1 mile toward Anderson from the Greer brothers' property is a tract of land owned by Jim Womac in the H. W. Ragland Survey on which is another outcrop of highly silicified sandstone.

A number of other outcrops of this same class of sandstone occur farther to the northeast toward Roads Prairie along this same contact.

Along the contact between the Whitsett and the Manning formations from about $1\frac{1}{2}$ miles northwest of Piedmont northeast to about 2 miles south of Singleton there are several outcrops of silicified calcareous sandstone.

In the Manning formation extending from Navasota River northeast to the Walker County line is a chain of sand hills. This is a very coarse sandstone with a small percentage of lime and small grains and pebbles of what appears to be black flint. In a great number of places sand pits have been opened in these hills out of which material has been taken for building purposes. At one place about 2 miles south of Singleton on the International-Great Northern shortline railroad between Navasota and Madisonville several thousand carloads of this sand have been shipped out for building purposes off of land belonging to Fred McGilbury of Singleton.

The major fault passing through Grimes County follows the Manning exposure. Along the main fault and many of the breaks which parallel the main fault, silicified waters have dissolved the lime in the calcareous sand and replaced it with silica forming what is known by the citizens residing in this territory as flint hills. These flint hills are not stratified parallel to the surface as is the case in the other class of deposits spoken of heretofore but are rough and irregular and in places appear to be standing on edge. This stone when crushed will make an excellent road building material.

In places this calcareous sandstone has broken at various angles. Water containing iron oxides has seeped into these breaks and colored in various shades the edges of the rock. Where such conditions exist and the strata are 4 to 6 inches in thickness the stone has been used for building driveways, walks, yard fences, ice houses, and garages. When the overburden is removed and a layer of this stone is marked in place and taken out to be used for building purposes and each piece placed in the wall just as it was taken relative to the other fragments around it, it gives a very beautiful appearance architecturally.

Gravel Deposits

Road building material in Grimes County is not so abundant in the form of ready to use gravel as can be found in counties farther north and west yet there is sufficient for local use. Supplies for road purposes have been secured for the past twenty-five years from beds that are by no means exhausted.

On the Dick West farm 10 miles south of Navasota and one-half mile east of the Navasota-Hempstead highway is a bed of sand-gravel and clay gravel, ranging in thickness from 2 to 4 feet, that covers an area of about 10 acres. In places sand-gravel is on the top; in other places, clay is on top. The rest of the bed over the whole area shows a clay matrix with quartz, flint, and chert gravel constituting about 30 to 40 percent of the mass. These gravels range in size from sand grains up to 2 inches in diameter.

H. S. West has a farm adjoining Dick West's on the east that has a bed of gravel of the same kind and of about the same area as the bed described above. Prior to the building of concrete highways, many thousands of yards of this gravel were used to hard surface the roads in the southern part of Grimes County. There is sufficient gravel left in these two beds to supply material for mending roads in that area for many years.

One and one-half miles north of Carlos on the east side of the old abandoned Mexia cut-off of the Southern Pacific Railway is a deposit of clean gravel. This gravel is situated between two clay hills. From edge to edge of the outcrop is about 400 feet; the outcrop shows about 300 yards in length. No test holes were dug to show the thickness of the bed of gravel. This record is made to call attention to the fact that gravel exists in this area for those who may need it to build or repair roads.

One-half mile north of the Courtney school on the Clayton-Stoakley land is a bed of gravel from which road metal has been secured for repairing roads in that area for the past twenty-five years. Indications are that more gravel is left in the pit than has ever been taken out, though no test holes were dug to prove its existence.

One mile northeast of Courtney on the Earl Harris farm is a deposit of flint, chert, and quartz gravel. Several hundred yards of this gravel have been removed for road building but the deposit appears to be far from depletion. No test holes were dug to prove the total existent bed.

One and three-fourths miles south of Courtney on Mrs. R. M. Hudson's farm is a gravel bed from which road material was taken in 1914 to build a part of the first hard surface road constructed in the county. This gravel bed is near the southwest corner of Mrs. Hudson's land and is made up of flint, chert, and quartz gravel embedded in clay. This gravel bed is 4 feet thick and has an area of 150 by 150 feet that is probably all covered with this gravel deposit. No trees or brush grow on this area, though the adjoining lands are thickly overgrown with trees and brush. This gravel bed is one-fourth mile west of the Navasota-Hempstead highway.

One-fourth of a mile southwest of Bush's Store on the Navasota-Hempstead highway, 6 miles south of Navasota, is a thin bed of gravel 300 feet wide and 1000 feet long, lying on each side of a ravine.

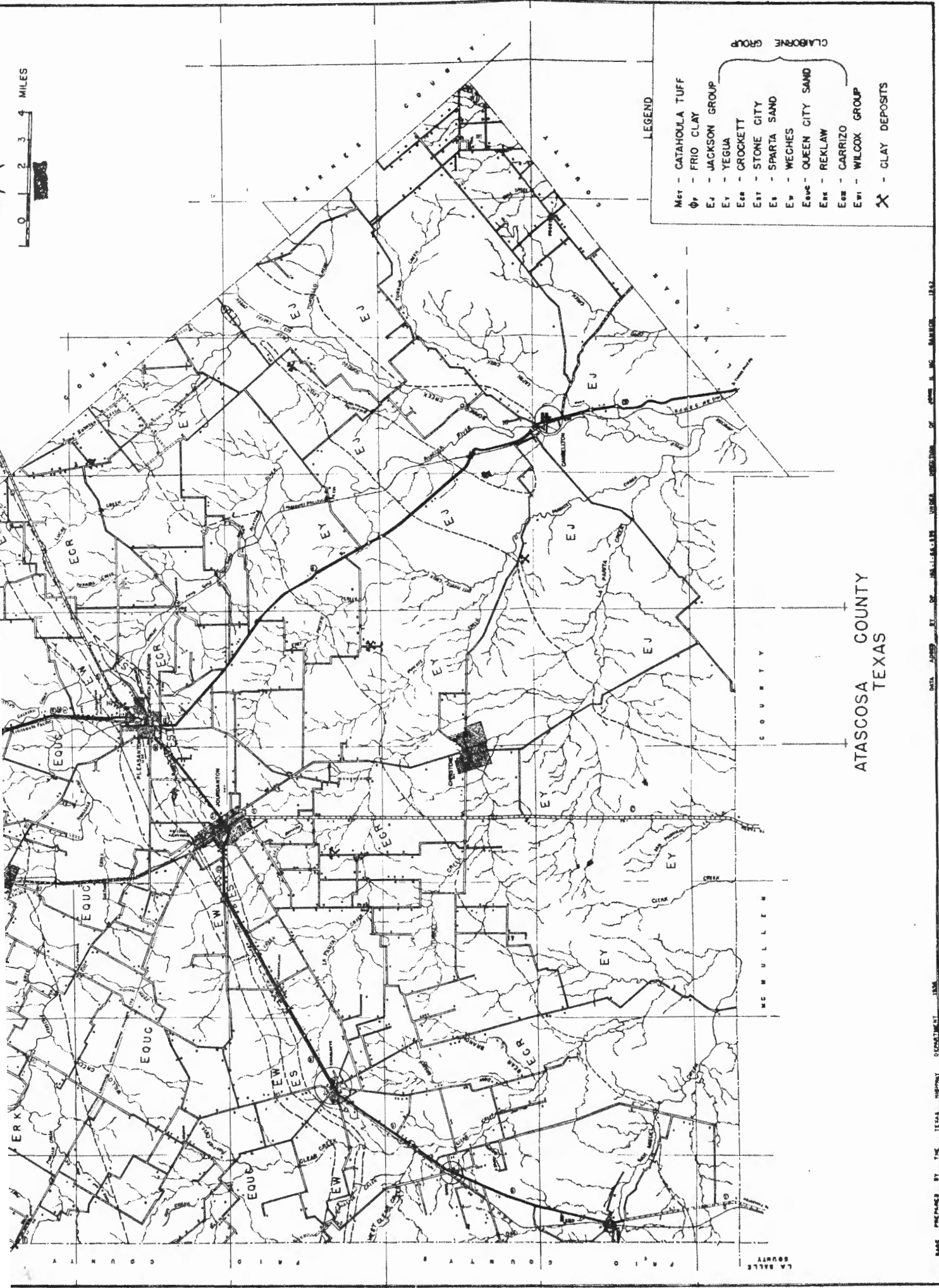
The whole area is covered with a dense growth of trees, brush and vines. Four test holes were dug in this area that showed an average of 2 feet of soil overburden. The gravel is embedded in a clay 1 to 2 feet thick. Shoals along the ravine show several carloads of wash gravel. This bed is not recommended for exploration but is recorded for use in case of necessity for mending the roads in that particular area.

Mr. J. M. Bush of Courtney, Texas, reported to the superintendent of the mineral survey in Grimes County that he had a bed of gravel on his farm in the edge of the Brazos River bottom, 2 miles north of Courtney. He said that the bed would cover about half of his 72 acres and that the center of the bed was about 1200 feet from the Southern Pacific Railroad. This bed of gravel was discovered by him in digging postholes, and there is a soil overburden of 2 to 3 feet only. He said that he had never dug through this bed to determine the thickness, but that he believed it would be worth one's while to do some exploration work on his farm.

From 1 to 2 miles south of Lamb Springs, on the edge of the low bluff overlooking the Navasota River bottom, a number of gravel beds are exposed by erosion. These beds are made up of different kinds of quartz, chert, and flint pebbles ranging in size from sand grains up to 2½ inches in diameter, all embedded in gray clay. No test holes were dug to determine the thickness or the area of any of these outcrops. This record is made to call attention to the fact that gravel exists in that area so that should occasion arise, those interested could do the necessary exploration work. Most of this gravel is on land belonging to the Fuqua estate and to the Churchwell brothers. The Churchwell brothers' land is on the Thomas Williams Survey.

Five and one-half miles south of Plantersville and one and one-fourth miles north of the Waller County line, beginning about 60 feet from the center of the Plantersville-Tomball highway, is a bed of iron gravel 60 feet wide and more than one-half mile long. This gravel bed will average about 4 feet in thickness where exposed, and the iron gravel is embedded in a gray clay which is so perfectly cemented in place that it will probably be necessary to crush it in order to level it out on the highway.

Five pits were dug on this outcrop: two on one side of the ravine and two on the other, 60 feet from the center of the ravine and about 200 yards from the road. One hundred and twenty yards above the head of the ravine, which is 400 yards from the road, a fifth test hole was dug to prove the existence of the gravel above the outcrop. The ground was examined all the way from the highway to the International-Great Northern Railroad right-of-way, which is 900 yards from the highway. In this area the wind had uprooted a number of pine trees and in each case it showed gravel in the gray clay. As to the total width of the bed, the writer cannot say, but the pits dug proved the existence of the gravel in the area as noted.



LEGEND

- Me - CATAHOULA TUFF
 - Φ - FRIO CLAY
 - EJ - JACKSON GROUP
 - EY - YEGUA
 - EGR - CROCKETT
 - ES - STONE CITY
 - ES - SPARTA SAND
 - EY - WECHES
 - EY - QUEEN CITY SAND
 - EY - REKLAW
 - EY - CARRIZO
 - EY - WILCOX GROUP
 - X - CLAY DEPOSITS
- CLABORNE GROUP

ATASCOSA COUNTY
TEXAS

