Brewster County

THE UNIVERSITY OF TEXAS
BUREAU OF ECONOMIC GEOLOGY
AUSTIN, TEXAS
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(Stencils Recut July 1968)
Mimeograph Circular No. 1

Well of Chisos Mining Company

Located 350 feet east of Shaft No. 8, at Terlingua.

Description of samples by J. A. Udden; submitted by Chisos Mining Company, 1917.

From the samples examined the strata penetrated may be summarized as follows:

	Depth in feet
Gray marl	0 - 170
Marl, in part hard or stony	170 - 190
Gray marl	190 - 245
Somewhat hardened, or stony marl	245 - 250
Gray marl	250 - 365
Dark marl	365 - 370
Gray marl	370 - 500
Marl, in part shaly	500 - 545
Indurated marl	545 - 550
Gray marl	550 - 575
Chalky marl or chalk	575 - 635
Gray marl alternating with chalky marl	635 - 675
Chalky marl alternating with shaly marl	675 - 770
Light gray clay of fine texture resembling bentonite	770 - 775
Indurated marl, in part limestone with layers of soft and shaly marl	775 - 985

I infer from this description that the geological section disclosed in the exploration is about as follows:

Terlingua beds (including the Taylor marl, some 500 feet, and Austin chalk, 200 feet about) - 700

Boquillas Flags, representing the Eagle Ford shale - - - - - -285

Gage 1, Marathon Oil Company

Located in Survey 2, certificate 810, Block 308, about 8 miles southwest of Marathon.

Description of samples by J. A. Udden; submitted by J. E. Thomas, San Antonio.

A fragment of black fossiliferous siliceous breccia about two inches in diameter, consisting of a copious very compact black matrix in which are imbedded angular fragments of light gray limestone and organic fragments. One coarsely crystalline dolomitic pebble seen imbedded. In thin section were seen fragments of crinoid joints small foraminifera, one glauconite grain, and cross sections of sponge spicules.

Depth in feet

Evidently Dimple limestone. (Tillite?) - - - - - - - - - - - - - - - - - 160

Hargus 1, Alexander Syndicate

Description of sample by E. B. Stiles; submitted by Gus M. Kerr, Marathon, Texas, 1920.

Black shale and very dark gray hard sandstone which contains some calcareous material. The sandstone is very tightly cemented in a siliceous matrix. The small amount of calcareous material present is mostly in the form of crystalline dolomite. No fossils were seen. In closed tube faint bituminous fumes and strong ammonia fumes were given off-3560

Kokernot 1, Twin City Oil and Gas Company and Arco Development Company

Located on Section 138, Block 10, near Hovey.

Description of samples by J. A. Udden, E. H. Sellards, E. B. Stiles, H. T. Kniker, P. T. Seashore, A. H. Kemp; submitted by M.J. Smith, Alpine, 1921.

Light gray crystalline material and darker brownish laminated coarse textures shale both containing a small amount of sand. The crystalline material consists principally of calcite, but when dissolved in HCl a considerable residue of soft gelatinous material is left. The shale is also somewhat calcareous and is cut by small veins filled with calcite. Both materials in section are seen to contain many Globigerina and occasional Textularia. Inoceramus shell fragments and particles of fish remains, chiefly fish scales are seen in washed material. In closed tube bituminous fumes were given off. Upper Cretaceous, Eagle Ford - - - - - - - - - 1780

Purplish red non-calcareous clay with patches of white calcareous material. Washed material consists of purplish and white fragments of calcareous sandstone. The sand grains are well rounded, and slightly etched, even the finest grains being rounded. In thin section one fragment of limestone is seen to be coarsely granular and to contain clear crystals of various shapes and sizes, the largest one measuring one-eight mm. Many narrow rod-shaped crystals 1/20 mm. and less in length were noted. Two other limestone fragments in section are seen to be rather finely crystalline but are not homogeneous in texture, there being irregularly shaped areas of very finely crystalline material amidst coarser crystalline areas. This sample underlies known Eagle Ford rock, possibly it is Del Rio - - - - - - 1915

Very light gray and white limestone containing pyrite and some sand, mostly fine. In thin section the limestone fragments are seen to be fine grained in texture with crystalline pockets. The fine grained areas, in most cases, have a finely mottled texture. Sand grains and traces of organic fragments were noted in some of the fragments. Comanchean limestone - 2000

Dark gray clay-shale with much white anhydrite. Some obscure and unrecognizable fossil fragments noted. Very weak fumes of ammonia given off when heared in closed tube -2250

Depth in feet

Dark stony clay shale, highly calcareous. It breaks in fragments of subequal diameter and is cut by slickensided joints. In thin section it is seen to consist in large part of minute angular grains, and among these are some amber colored bituminous granular valves of ostracods. Fossils: Fragments of fish bones, many small ostracods, as casts, Globigerina and Textularia, Comanchean - 2930

Mostly gray but in part brownish and pinkish limestone. Considerable calcite and pyrite present. Some crystals of calcite noted. The pyrite is of a bright silver color. In thin section the limestone is seen to be of fine and medium texture. A crystal of quartz showing secondary growth noted. Several varieties of Chara seeds and a pod like body about 1mm. in length and 1/8 mm. in diameter noted. The coering of this pod is fluted. Evidently Comanchean - 3100

Light and dark gray limestone. Considerable calcite, a few quartz sand grains and pyrite present. Much of this limestone is mottled with areas of darker color. In the washed material were noted two pieces of Orbitulina, Echinoid spines and Chara seeds. In thin section some of this limestone is seen to be fine-grained, other pieces are finely crystalline. Many of the pieces are soon to contain areas and veins of calcite. Obscure organic remains present. Among these can be recognized and ostracod carapace and a section of an Orbitulina. Obscure foraminifera also noted. One piece of the limestone shows a compressed colite-like structure - - 3265-3270

About half the sample consists of iron fragments. When these are removed the color of the sample is a deep orange brown. Most of the sample consists of rather angular quartz grains deeply iron-stained. A few pieces of pyrite and long slender flakes of gypsum noted. The coarser material contains a few ostracods and numerous barrel and disc shaped Chara seeds, the former predominating. Pulvinulina noted. Aspect of the Trinity Sands. (Comanchean) - 3375

Clear calcite and pieces of brownish limestone. Pyrite and a few quartz and sand grains noted. Many Chara seeds present. - - - - - - - - - - -3490-3498

Gray and brownish limestone, clear calcite and quartz sand grains. A few crystals of pyrite noted. Chara seeds present. - - - - - - - - - -3400-3485

Gray and brownish limestone, clear calcite and quartz sand grains. A few Chara seeds noted. -3500-3511

Portland Syndicate Well

Located on Section 2, Block 234, about 2 miles from Persimmon Gap.

Description of samples by J. A. Udden; submitted by J. H. Ritchie, Alpine, Texas, 1921.

Pure white limestone containing much crystalline calcite. In thin section about half of the material consists of granular material and the other half consists of crystalline calcite. The limestone is fairly soft and resembles

Depth in feet

in texture the coarse-grained limestones known to occur in the Edwards Limestone, and also occurring in some ledges in the lower part of the Comanchean. In the granular material there are obscure traces of fossils which it is not possible to identify. The rock is believed to come from the middle or lower part of the Comanchean series. Depth reported by J. H. Ritchie as the bottom of the well on Nov. 1st, 1921. In a letter of Nov. 1st, Mr. Ritchie states that the drill is in a flinty limestone at - - - - - - - - - - - - 1105

Skinner 1, Alexander Sydicate

Located on Section 65, Block 2.

Description of sample by H. T. Knikor; submitted by D. D. Coaley, Marathon, Texas, 1920.

Very fine dark bluish gray slightly calcareous shale. Sample consists of a number of larger fragments, the largest one being two inches long. The rock contains considerable sand and is finely laminated. It breaks with an even fracture and the largest fragment shows two slickensided surfaces. - 920

Conglomerate in which there are pebbles of black limestone, white limestone, and white chert. The black limestone is very slightly calcareous and contains much sand, numerous calcareous sponge spicules, and minute crystals of pyrite. In thin section the sand in the limestone fragments show indistinct alternating layers of sand and calcareous material. Strong ammonia fumes and strong bituminous fumes were obtained in closed tube. - - - - - - - - - - - - - 1000

Wilson 1, Presidio Oil Company

Located on the west line of Section 5, Block 212, 38 miles from Jeff Davis County line.

Description of samples by J. A. Udden; submitted by W. T. Thaxton, 1924.

Gray limestone, organic fragmental, hard. Several Orbitulina texana noted. - 1752

Wilson 2, Presidio Oil Company

Located on Section 5, Block 212, 300 feet south of Wilson 1.

Description of samples by E. B. Stiles, P. T. Seashore; submitted by W. B. Harris, Fort Worth, 1921.

Gray organic limestone. In thin section many sections of an unidentified foraminifera and other organic fragments are seen in a fine textured limestone, which has areas of clear crystalline material. An echinoid spine fragment was found in washed material. In closed tube very faint bituminous

Depth in feet

fumes were given off - 1840

Gray limestone. The thin section shows a fine textured ground mass, in which areas of crystalline material are seen. Occasional traces of organic remains are seen but could not be identified. In washed material echinoid spine fragments were seen. Pyrite present. In closed tubes ammonia fumes and faint fumes of sulphur were noted. - - - - - - - - - 1860

Light gray limestone containing organic remains. In thin section several unidentified foraminifera and other organic remains are seen. One fragment appears to be of a healed breccia, the filling being of crystalline calcite. The texture of the rock is slightly coarser than is that from 1840, but is otherwise very similar. In closed tube bituminous fumes and faint ammonia fumes were given off. - - - - - - - - - - - - - - 1875

Gray and light gray organic fragmental limestone. Many large organic fragments some of which are partically replaced and filled with crystalline calcite are seen in section. Several unidentified foraminifera as noted in previous sample were also seen. Several fragments contain many small crystals. In one fragment these crystals compose practically all the mass, only a few small areas of granular texture remaining. No fossils were seen in washed material. In closed tube faint fumes of bitumen and of ammonia were given off. - - - - - - - - - - - - - - - - - - - 1890

Light gray limestone. In thin section organic fragments in a granular matrix are seen. Several sections of Orbituline are seen in section. In closed tube only very faint bituminous fumes are given off. Glen Rose formation. - 1902

Light and gray limestone. In many fragments can be seen minute crystals of calcite. Some fragments are made up almost entirely of these minute crystals cemented together. In thin section the limestone is seen to be partically replaced by separate crystals and clusters of crystals of calcite. - 1930

Gray limestone. A few crystals of pyrite and some calcite noted. Orbitulina present. In thin sections the limestone is seen to be finely textured and to contain many irregular cavities filled with calcite. A few blotches of bituminous material noted. Two indistinct objects which may be foraminifera present. - 1940

Gray limestone. Considerable calcite and pyrite present. Orbitulinas present. These range from 0 to 2.5 mm. in diameter. In thin section the limestone is seen to contain many microscopic crystals of calcite cemented together with some clayey material. - - - - - - - - - - - - - - 1976

Gray limestone. Some calcite and a few small crystals of pyrite. A fragment of an ochinoid spine and small occasionally rounded cavities seemingly filled with impure calcite. An Orbitulina measuring 2mm. in diameter noted. In thin section the limestone is seen to be finely textured and to contain small cavities filled with calcite. Fragments of Orbitulina and a round body of some dark material noted. - - - - - - - - - - - - - - - 1980

Depth in feet

Medium gray limestone of fine texture. A thin section under the microscope shows crystalline structure. Minute crystals of pyrito present. Fossils noted: Ostracod valves; fragments of Orbitulina. When heated in closed tube gave off faint bituminous odor. Probably Glen Rose. Second sample.- 1980

Medium gray limestone of fine texture. Structure crystalline in thin section. Minute crystals of pyrite present. Fossils noted: Fragments of Orbitulina. Sample when heated in closed tube gave off no fumes. Probably Glen Rose.- 1990

Like first preceding sample from 1980 except tbat Orbitulina is more abundant. The limestone contains various obscure organic fragments.- 1986

Medium gray limestone. Like samples from 1980 (second sample) and 1990 feet. Probably Glen Rose.- 2000-2005

Light gray limestone some of which is minutely crystalline. Chalcite and a few scattered fragments of pyrite noted. In thin section the limestone is seen to be partially replaced by calcite and to contain unrecognizable organic forms.- - - - - - - - - - - - - - - - - - - 2080

Ligbt gray limestone wbich contains cavities and small fissures filled with a material which resembles asphalt. A few fragments of calcite present. A fragment of an Orbitulina noted. In thin section the limestone is seen to contain in many minute crystals of calcite. In one fragment those form a distinct layer which is about .75 mm. wide. Shell fragments noted also blotches of bituminous material.- - - - - - - 2140

Gray limestone. Several fragments of a black bituminous material and calcite noted. Pyrite present. No fossils noted. In thin section the limestone is seen to contain many microscopic crystals of calcite. Several irregular shaped bodies filled with calcite also noted.- - - - - - 2160

Light gray finely crystalline limestone. Considerable calcite noted. In thin section the limestone is seen to be replaced in large part by calcite. The calcite is in the form of microscopic crystals. One section is seen to be very finely textured and to contain clusters of calcite crystals.- 2180

Light gray limestone. In thin section one fragment is seen to have a finely crystalline structure while another contains small areas filled with minute crystals of calcite.- 2210

Very light brownish gray finely crystalline limestone and a little bluish gray calcareous shale. Several crystals of calcite noted. A few clusters of minute crystalline pyrite present. No fossils noted. In thin section the limestone is seen to have a finely crystalline texture and to be granular. In one fragment a layer of minute crystals of calcite embedded in limestone of very fine tecture noted.- - - - - - - - - - - - 2220

Depth in feet

Light brownish gray limestone showing a marked minutely crystalline structure. A few fragments of white limestone noted. A few fragments of clear calcite and a few scattered crystals of pyrite present. In thin section the limestone is seen to consist largely of minute crystals of calcite. The limestone appears to have been replaced by the calcite. Two fragments are very finely textured and contain very indistinct traces of organic remains. - - - - - - - - 2225

Gray limestone. The limestone is seen to contain specks of a black material. Considerable clear calcite present. In thin section the limestone is seen to contain many minute crystals of calcite. Indistinct organic forms noted. - 2235

Light gray limestone. In thin section this limestone is soon to be organic fragmental. Shell fragments and foraminifora make up a large part of the rock. - 2240

Gray limestone containing specks and blotches of a darker gray material. In thin section the limestone is of fine texture and contains irregular cavities filled with calcite. Shell fragments (?) and indistinct foraminifera noted. - 2245

Light gray limestone. A few fragments of a gray shale present. Calcite noted. In thin sections the limestone is seen to be partially replaced by calcite. The calcite being in form of minute crystals. Two sections contain indistinct traces of organic remains. One fragment is very finely textured and contains fissures of a brown bituminous material. - 2250

A quartz conglomerate broken up by the drill. Fragments of brownish dolomite, crystals of calcite and considerable pyrite noted. - - 2335

About equal parts of sand and white and gray limestone. Considerable calcite and pyrite present. - 2340

Light gray limestone. A small amount of quartz sand present. - - - 2345

Light gray and white finely textured limestone. A few quartz fragments noted. Several of the limestone fragments appear to contain a bituminous material. Pyrite noted. This appears as large crystals but many microscopic crystals noted imbedded in the limestone. - - - - 2350

Light gray almost white limestone. The limestone fragments are seen to contain in small specks of a black material. Calcite and pyrite noted. In thin section the limestone is seen to be finely textured and to contain small cavities filled with calcite. - - - - - - - - - - - - - - - - 2360

Like preceding sample. In thin section the limestone is seen to be finely granular and to contain lentils of darker colored limestone. - - 2365

	Depth in feet
White limestone and sand or flint. Cuboidal crystals of dolomite (?) frequent in the material going through the one-fourth mm. screen. Much crystalline pyrite present.- - - - - - - - - - - - - - - - - - -	2373
A broken up quartz conglomerate. With this is found considerable calcite and some pyrite.- -	2381
Angular fragments of vari-colored chert with brownish, grey and white colors predominating. Several of the fragments of the chert contain some calcite. Pyrite noted.- - - - - - - - - - - - - - - - - -	2385
Angular fragments of chert ranging in color from light to dark gray. A few brownish and one light greenish fragment noted. The absence of rounded surfaces and the general uniformity of texture together with the sharp angular fragments makes it highly probable that the chert is in the form of a ledge layer and not a conglomerate. A little pyrite noted in the sample. In thin sections the chert is seen to contain some of the original limestone.- -	2395
Brownish, white and clear chert, and quartz. A few fragments of light gray limestone present. Considerable pyrite noted.- - - - - - -	2409
Angular fragments of light gray and white chert. Some clear quartz present. Much pyrite and a few fragments of a white limestone noted. -	2414
A broken quartz conglomerate containing a few fragments of calcite and come bluish gray slightly calcareous shale. Small crystals of pyrite noted embedded bdh in the quartz and in the shale.- - - - - - -	2419
Clear, milky and gray impure chert with a very few fragments of a black non-calcareous shale. A few fragments of white calcite present. Crystals of pyrite noted embedded in the chert.- - - - - - - - - - - - - - -	2431
Black slightly indurated non-calcareous shale and impure calcareous chert. Pyrite noted.- -	2436
Gray and brown chert with some black non-calcareous shale.- - - - -	2442
Gray and light gray impure chert containing cavities filled with calcite and pyrite. Considerable gray finely textured shale present. - -	2445
Quartz with a little balck shale and a few fragments of calcite. The quartz is seen to contain mall cavities and fissures filled with calcite-	2446
Brown and gray chert. A few crystals of calcite present. - - - - - -	2451
Like the preceding sample.- -	2457
Broken quartz with a little brown dolomite. Considerable pyrite noted.- -	2460
Clear and milky impure calcareous chert and black indurated non-calcareous shale. A few quartz fragments noted.- - - - - - - - - - - - -	2463

	Depth in feet
Gray and brownish colored chert fragments. A few pieces of black non-calcareous shale also present.- - - - - - - - - - -	2466
Opal colored and brown chert. The fragments are all angular. A few pieces of calcite noted.- - - - - - - - - - - - - - - - - - - -	2472
Like preceding sample.- - - - - - - - - - - - - - - - - - - -	2480
Slightly reddish brown calcareous chert. Fragments of a black indurated shale present. Pyrite noted.- - - - - - - - - - - - - -	2491
Black non-calcareous shale, a few fragments of brown dolomite and some brownish chert.- -	2507
Brownish gray limestone with considerable bluish gray shale. Calcite and pyrite present.- -	2525
Brownish finely granular limestone with some black bituminous non-calcareous shale. Calcite and pyrite noted. Considerable quartz present.- -	2545
Black and gray shale and gray and brown dolomite. Pyrite and a few quartz sand grains noted.- - - - - - - - - - - - - - - - - - - -	2553
Gray and brownish gray chert containing small cavities filled with calcite. Some black indurated shale present.- - - - - - - - - - - - -	2589
Black dolomitic limestone. In the washed material were found vari-colored chert fragments, quartz sand grains and crystals of pyrite-	2600
Dark gray almost black indurated calcareous shale and brownish gray dolomite. A few fragments of chert noted.- - - - - - - - - - - - - -	2610
Black indurated shale and gray dolomite. The dolomite is partially replaced by chert. Several fragments of chert and a few fragments of calcite noted. Pyrite present.- -	2622
Gray limestone and black shale. A few crystals of pyrite and quartz. Sand grains noted.- -	2630
Brown and gray limestone with a few quartz sand grains. In thin section one piece was seen to be finely crystalline while another was finely textured and contained microscopic crystals of calcite.- - - - -	2642
Gray limestone with a small amount of gray shale.- - - - - - - - -	2650
Brownish and yellowish impure chert and a little black indurated shale. Some calcite and pyrite present.- - - - - - - - - - - - - - - - -	3210-3385
Grayish impure calcareous chert and black indurated shale. Some quartz fragments present.- -	3403-3408

Depth in feet

Black indurated, slightly calcareous shale and yellowish brown calcareous chert. A few fragments of white calcite and a few fragments of pyrite noted.- 3409-3420

Black indurated slightly calcareous shale, brownish dolomite and brownish impure calcareous chert. Some clear quartz fragments noted. A few fragments of white and yellowish limestone noted. A few scattered fragments of pyrite present.- - - - - - - - - - - - 2486-2493

Dark gray, almost black, dolomitic shale with some fragments of brownish dolomite and considerable fine sand. A few fragments of pyrite noted.- 2493-2497

Black non-calcareous slightly micaceous shale. In the washed material were found a few crystals of pyrite and some quartz sand grains.- 3497-3505

Black dolomitic shale with some fragments of brownish dolomite. In washed material rounded sand grains, fragments of calcite and pyrite noted.- 3505 3562

Black and dark gray indurated slightly calcareous shale, and some yellowish impure calcareous chert.- - - - - - - - - - - - - - -3562-3582

Black shale and dark gray sandstone. In thin section the sand grains are seen to be sub-angular. Some of the sandstone fragments have a calcareous matrix. Balck indurated non-calcarous shale with some impure calcareous chert.- -3580-3627

Black indurated shale with some gray and brownish chert.- - 3627-3700

Black indurated slightly calcareous shale and brownish calcareous chert. A few fragments of white calcite present. - -3700-3714

Light gray limestone, a few scattered fragments of dark gray limestone and a little calcite present.- - - - - - - - - - - - - - - - - 3712

Black slightly indurated shale, brownish limestone and gray chert fragments. A few of the shale fragments show slickensides-3714-3716

Black dolomite shale. In washed material some brownish dolomite and clear calcite noted. In thin section the shale is seen to contain shreds of a bituminous material and many angular sand grains. In closed tube gives off fumes of bitumen.- - - - - - - - -3717-3730

Like the preceding sample except that in thin section the shale is seen to contain more bituminous material.- - - - - - - - -3730-3745

Yarbro 1, Alexander Syndicate

Located on Section 128, Block 22, 12 miles from Marathon.

Description of samples by H. T. Kniker; submitted by D. D. Coaley, Marathon, 1920.

Depth in feet

Dark gray fine almost balck non-calcareous shale, and a small amount of slightly calcareous sandstone and a few grains of pyrite. The shale shows considerable slickensiding in various directions, most of the slickensided surfaces being curved. A few minute scattered mica scales were also noted in the shale which apparently is unfossiliferous. When heated in closed tube, bituminous fumes were liberated.- 1915

Like sample from 1915 feet.- 1950

Dark gray non-calcareous shale and grayish brown sandstone. In thin section the shale is seen to contain varying amounts of fine angular sand.- 1285

Black shale and dark gray shaly and slightly calcareous sandstone. Some of the shale fragments show slickensiding. In thin section the sandstone is seen to contain a few obscure sponge spicules (?) and the shale shows sand grains. Bituminous fumes and ammonia fumes were obtained in closed tube.- 1985

Black magnetic iron. Soft, earthy with occasional flakes having metallic luster. Smutty. When burned in open flame sustains a flame giving a pronounced odor resembling more closely that of animal fat than that of bitumen. Further heating gives a very strong sulphur odor. Condensation in closed tube showed some water and a relatively large deposit of oil. Chloroform test also shows oil deposit. Material remains magnetic after thorough heating and assumes a reddish tinge like iron oxide. After dissolving inhydrochloric acid and adding ammonia, a precipitate of iron oxide appears.- - - - - - - - - - - - 1990