

Kansas Geological Survey
Open-file Report

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KGS
OF
66-8

**Supplemental Measured Sections
Miami County, Kansas**

**By
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**For Open File
(not published in KGS Bull. 181)**

**in
State Geological Survey of Kansas
and
U. S. Geological Survey, Ground-Water Office
at
Lawrence, Kansas
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Locality 1, SE NW NW sec. 35, T 15 S, R 21 E, quarry exposure.

	<u>Thickness,</u> <u>feet</u>
Stanton Limestone	
Rock Lake Shale Member	
Shale, clayey and sandy, poorly bedded, dark yellowish-brown (10YR4/2); some medium, rounded chert gravel .	4.0
Stoner Limestone Member	
Limestone, fine-grained, sandy, light-gray (N7); more sandy at top, contains small clams, sponges, and brachiopods . . . . .	.5
Shale, silty, banded, dusky-yellow (5Y6/2) . . . . .	.3
Limestone, coarse-grained, thin- and wavy-bedded, yellowish-gray (5Y7/2); abundant gastropods and <u>Myalina</u> , some brachiopods	1.1
Limestone, "sugary" textured, medium and unevenly bedded, shale partings; grayish-orange (10YR7/4); abundant crinoid remains	2.4
Shale, clayey to sandy, banded; overall color moderate yellowish-brown (10YR5/4) . . . . .	.5
Limestone, medium-grained, unevenly bedded, mostly thin to medium, shale parting, grayish-orange (10YR7/4) to yellowish-gray (5Y8/1); fusulinids, crinoids, and algal remains.	<u>13.3</u>
Total Stanton Limestone measured	22.1

Locality 5, NW SW SE sec. 31, T 15 S, R 22 E.

	<u>Thickness,</u> <u>feet</u>
Covered	5.7
Wyandotte Limestone	
Farley and Argentine Limestone members, undifferentiated	
Limestone, fine- to coarse-grained, thin- to medium-bedded, wavy, light olive-gray (5Y4/1); calcite and limonite inclusions, vuggy with shale partings, very fossiliferous	14.2
Covered	3.0
Limestone, medium- to coarse-grained, wavy bedded, yellowish-gray (5Y8/1); <u>Echinaria</u> , bryozoans, and crinoid remains	2.4
Limestone, thick-bedded, dense, medium olive-gray (5Y5/1), weathers reddish-brown (10R4/4); wavy bottom; algal, with brachiopods and bryozoans	2.7
Limestone, oölitic, light-brown (5YR7/4). . . . .	.7
Frisbie Limestone Member	
Limestone, fine-grained, thick-bedded and massive, light tannish-gray (5YR7/1), weathers reddish-tan (10R6/4); unfossiliferous	<u>1.2</u>
Total Wyandotte Limestone measured	24.2
Lane Shale	
Shale, clayey, light-gray (N7); streaks of limonite with carbonaceous specks, lower part covered.	5.9

Locality 6, SE SE SE sec. 14, T 15 S, R 23 E, railroad cut.

	<u>Thickness,</u> <u>feet</u>
Vilas Shale	
Shale, silty, blocky-bedded, grayish-olive (10Y4/2);	
plant remains	+4.2
Plattsburg Limestone	
Spring Hill Limestone Member	
Limestone, coarse-grained, thick-bedded and massive,	
light olive-gray (5Y6/1); brachiopods	2.0
Shale, clayey, light olive-gray (5Y6/1) to light brownish-	
gray (5YR6/1). . . . .	.1
Limestone, medium- to coarse-grained, medium- to thick-	
bedded, yellowish-gray (5Y8/1) to light-gray (N7);	
streaks of carbonaceous material in middle; very	
fossiliferous, <u>Composita</u> zone in upper part	7.1
Shale, limy, flaky, light olive-gray (5Y6/1) . . . . .	.3
Limestone, fine- to medium-grained, medium- to thick-	
bedded, pale olive (10Y6/2); wavy streaks of carbona-	
ceous material, brachiopods, including <u>Enteleles</u> and	
<u>Marginifera</u>	<u>3.8</u>
Total Spring Hill Limestone Member measured	13.3

Locality 7, SW NW SE sec. 27, T 15 S, R 23 E.

Thickness,
feet

Stanton Limestone

Eudora Shale Member

Shale, blocky to thinly laminated, brownish-black
(5YR2/1) to light yellowish-brown (10YR6/4);
phosphatic nodules at top; poorly exposed 2.3+

Captain Creek Limestone Member

Limestone, fine- to medium-grained, thick-bedded, pale
yellowish-brown (10YR6/2) in upper third, yellowish-
gray (5Y6/2) in middle third, and medium light-gray (N6)
in lower third; finely disseminated pale red (10R6/2)
chert in upper third; oölitic, with worm borings,
brachiopods, and algal material. 7.1

Limestone, thin-bedded, medium light-gray (N6); wood
fragments, plant impressions, bryozoans, brachiopods,
including Hustedia 0.2

Total Stanton Limestone measured 9.6+

Vilas Shale

Shale, silty, thinly-laminated to blocky, medium light-
gray (N6) to pale yellowish-orange (10YR8/6); changes
to siltstone in lower part; some plant impressions,
partly covered 5.8+

Locality 8, NE NW sec. 29, T 15 S, R 23 E.

	<u>Thickness,</u> <u>feet</u>
Plattsburg Limestone	
Spring Hill Limestone Member	
Limestone, coarse-grained, medium-bedded, light olive-gray (5Y6/1); algal	5.3
Bonner Springs Shale	
Siltstone, thinly laminated, dark yellowish-brown (10YR4/2); plant remains	2.0
Limestone, argillaceous, thin- to medium-bedded, pale olive (10Y6/2); pelecypods, algae, bryozoans, <u>Chonetes</u> , and gastropods.	1.1
Shale, silty, blocky, grayish-olive (10Y4/2).	4.7
Shale, clayey, blocky, grayish-red (10R4/2).	4.0
Shale, silty, blocky, light-gray (N7); grades from silty shale to shaly siltstone; abundant plant remains	<u>11.0</u>
Total Bonner Springs Shale measured.	22.8
Wyandotte Limestone	
Argentine Limestone Member	
Limestone, fine-grained, medium- to thick-bedded, dense, yellowish-gray (5Y7/2) to light-gray (N7); <u>Enteleles</u> , crinoid fragments, and bryozoans	14.3
Lane Shale	
Shale, clayey, blocky, olive-gray (5Y4/1) to light-gray (N7); plant remains, vertical bedding in fracture filling	15.0+

Locality 11, NW NW NW sec. 2, T 16 S, R 23 E.

Thickness,
feet

Plattsburg Limestone

Merriam Limestone Member

Limestone, coarse-grained, medium-bedded, light olive-gray (5Y6/1); slightly oölitic, crinoid remains . . .	2.6
Limestone, coarse-grained, thick-bedded and massive, light brownish-gray (5YR6/1) to medium-gray (N5); very fossiliferous band near base	<u>2.4</u>
Total Merriam Limestone measured	5.0

Bonner Springs Shale

Shale, blocky, light olive-gray (5Y6/1)	5.3
Shale, blocky, medium light-gray (N6)	<u>6.0</u>
Total Bonner Springs Shale measured	11.3

Wyandotte Limestone

Argentine Limestone Member

Limestone, coarse-grained, pale red (5R6/2) and pale yellowish-brown (10YR6/2); abundant limonite; lower part covered	3.0+
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Locality 14, SW SW SW sec. 1, T 16 S, R 24 E.

	<u>Thickness,</u> <u>feet</u>
Wyandotte Limestone	
Farley Limestone Member	
Limestone, coarse to "sugary," thick-bedded, pinkish-gray (5YR8/1) to light olive-gray (5Y6/1); algal;	
brachiopods, <u>Aviculopecten</u>	2.2+
Island Creek Shale Member	
Shale, silty, flaky, grayish-orange (10YR7/4)	1.6
Argentine Limestone Member	
Limestone, fine- to medium-grained, thin- to medium-bedded, light brownish-gray (5YR6/1) to yellowish-gray (5Y8/1)	
	17.4
Limestone, fine-grained, thin-bedded, very pale yellowish-brown (10YR7/2); shale partings, very fossiliferous, partly covered	
	13.0
Limestone, fine-grained, medium- and wavy-bedded, very pale yellowish-brown (10YR7/2) to pale yellowish-brown (10YR6/2); fossiliferous, some algae, lower part covered	
	<u>7.0+</u>
Total Wyandotte Limestone measured	41.2

Locality 15, NE NW NW sec. 14, T 16 S, R 24 E, quarry exposure.

Thickness,
feet

Wyandotte Limestone

Farley and Argentine Limestone members, undifferentiated

Limestone, fine-grained, medium- and wavy-bedded, olive-gray (5Y4/1) in upper third, light brownish-gray (5YR6/1) in middle third and dark yellowish-gray (5Y7/1) in lower third; cherty, shale parting, crinoid stems, bryozoans, <u>Marginifera</u> and <u>Phricodothyris</u>	21.4
Limestone, fine- to medium-grained, thin- to medium- bedded, light-gray (N7) to medium olive-gray (5Y5/1); cherty; bryozoans, productids, <u>Echinaria</u> , <u>Phricodothyris</u> , and <u>Linoproductus</u>	<u>12.2</u>
Total Wyandotte Limestone measured	33.6

Locality 16, NE NE NW sec. 16, T 16 S, R 24 E.

Thickness,
feet

Plattsburg Limestone

Spring Hill Limestone Member

Limestone, fine-grained, medium-bedded, medium olive-gray (5Y5/1); cherty; abundant crinoid stems (upper part covered)	4.0+
Shale, silty, flaky, dusky-yellow (5Y6/4) . . . . .	.3
Limestone, nodular, grayish-yellow (5Y8/4) . . . . .	.3
Shale, silty, flaky, dusky-yellow (5Y6/4) . . . . .	.4
Limestone, nodular, grayish-yellow (5Y8/4) . . . . .	.2

Hickory Creek Shale Member

Shale, clayey, blocky-bedded, light olive-gray (5Y5/2)	1.0
Shale, silty, flaky, medium yellowish-orange (10YR7/6)	2.0

Merriam Limestone Member

Limestone, fine-grained, dense, medium-bedded, light-gray (N7), weathers yellowish-gray (5Y8/1); cherty; bryozoans and crinoid stems	2.0
Shale, clayey, blocky-bedded, dusky-yellow (5Y6/4)	1.2
Limestone, medium-grained, medium-bedded, light-gray (N7) to medium-gray (N5), soft; very fossiliferous.	2.4
Shale, silty, dark yellowish-orange (10YR6/6) . . . . .	.2
Limestone, medium-grained, thin-bedded, medium light-gray (N6); very fossiliferous, <u>Enteleles</u> , crinoid stems	<u>.6</u>

Total Plattsburg Limestone measured 14.6

Locality 16--continued

Thickness,
feet

Bonner Springs Shale

Shale, silty, blocky-bedded, light yellowish-brown (10YR6/2)	5.2
Shale, clayey, medium-gray (N5) to grayish-brown (5YR3/2); carbonaceous streaks, plant rootlets and leaf impres- sions . . . . .	.7
Shale, clayey, blocky-bedded, pale olive (10Y6/2); plant remains.	<u>5.8</u>
Total Bonner Springs Shale measured	11.7

Wyandotte Limestone

Farley and Argentine Limestone members, undifferentiated

Limestone, medium-grained, thin-bedded, pale yellowish- brown (10YR6/2); large crinoid stems	2.2
Covered	5.7
Limestone, medium-grained, medium-bedded, yellowish- gray (5Y7/2); calcite vein fillings, algal; brachiopods (lower part covered)	<u>-2.4+</u>
Total Wyandotte Limestone measured	10.3+

Locality 18, SW SW SE sec. 27, T 17 S, R 21 E. (Franklin County)

Thickness,
feet

Iola Limestone

Raytown Limestone Member

Limestone, coarse-grained, medium-bedded, very light
olive-gray (5Y7/1); abundant crinoid remains, poorly
exposed at top 3.5

Muncie Creek Shale Member

Shale, silty, flaky, light olive-gray (5Y6/1); phosphatic
nodules at base5

Paola Limestone Member

Limestone, fine-grained, thick-bedded and massive,
light-gray (N7); worm borings at top, much secondary
calcite 2.6

Total Iola Limestone measured 6.6

Chanute Shale

Shale, clayey, blocky-bedded, medium gray (N5) to
grayish-yellow-green (5GY7/2) and moderate brown
(5YR3/4); coal streaks and plant remains, mostly
covered. 12.6

Locality 19, SW SE NW sec. 7, T 17 S, R 22 E, quarry exposure.

	<u>Thickness,</u> <u>feet</u>
Vilas Shale	
Siltstone, very thin to blocky-bedded, grayish-orange (10YR7/4) and moderate yellowish-brown (10YR5/4)	3.5
Sandstone, medium-grained, blocky, cross-bedded, pale yellowish-brown (10YR6/2); very limy, almost a limestone	4.3
Shale, clayey, blocky-bedded, olive-gray (5Y4/1), weathers medium light-gray (N6)	<u>3.7</u>
Total Vilas Shale measured	11.5
Plattsburg Limestone	
Spring Hill Limestone Member	
Limestone, coarse-grained, thin- to medium-bedded, moderate light olive-gray (5Y5/1); <u>Linoproductus</u> and bryozoans	2.7
Limestone, medium- to coarse-grained, massive, light- olive-gray (5Y6/1); abundant bryozoans and crinoid remains	5.2
Limestone, medium- to coarse-grained, thin-bedded, light olive-gray (5Y5/1); abundant bryozoans	1.9
Limestone, very coarse-grained, massive, slightly oolitic, light olive-gray (5Y5/1); almost a conglomerate of bryozoans, some fusulinids	7.1

Locality 19--continued

Thickness,
feet.

Plattsburg Limestone--continued

Hickory Creek Shale Member

Shale, flaky, dark olive-gray (5Y3/1) 0.6

Merriam Limestone Member

Limestone, medium- to coarse-grained, thin- to medium-
bedded, yellowish-gray (5Y7/2); abundant crinoid
remains. 1.3

Total Plattsburg Limestone measured . . . 18.8

Bonner Springs Shale

Shale, clayey, blocky-bedded, grayish-olive (10Y4/2) . 8.0

Locality 20, NE NE sec. 8, T 17 S, R 22 E.

Thickness,
feet

Stanton Limestone

Captain Creek Limestone Member

Limestone, medium-grained, sandy, medium-bedded,
yellowish-gray (5Y8/1); some pale red (10YR6/2)
chert 11.5+

Vilas Shale

Shale, sandy, blocky-bedded, light-gray (N7), brachiopod
and bryozoan fragments 11.2

Plattsburg Limestone

Spring Hill Limestone Member

Limestone, medium- to coarse-grained, thin- to thick-
bedded, light olive-gray (5Y6/1); echinoid spines,
Enteleles 11.7

Hickory Creek Shale Member

Shale, calcareous, nodular, very light olive-gray
(5Y7/1); some small brachiopods 2.1

Merriam Limestone Member

Limestone, oölitic, cross-bedded, thick-bedded, light
olive-gray (5Y6/1); Osagia(?) 5.5

Total Plattsburg Limestone measured . . . 19.3

Bonner Springs Shale

Shale, sandy, calcareous, blocky-bedded, greenish-
gray (5GY6/1). 17.9+

Locality 21, NW NE NE sec. 13, T 17 S, R 22 E.

Thickness,
feet

Wyandotte Limestone

Argentine Limestone Member

Limestone, coarse-grained, sandy, thin- to thick-bedded, pale yellowish-brown (10YR6/2) in upper third, medium bluish-gray (5B5/1) in middle third, and light olive-gray (5Y6/1) in the lower third; cherty, algal with protuctid brachiopods and Derbyia. 14.4

Lane Shale

Shale, clayey, blocky-bedded to flaky, medium light-gray (N6); carbonaceous specks. 22.3

Sandstone, fine-grained, thin- to thick-bedded, grayish-orange (10YR7/4); micaceous. 7.6+

Total Lane Shale measured 29.9+

Locality 22, SW SW sec. 17, T 17 S, R 22 E.

	<u>Thickness,</u> <u>feet</u>
Wyandotte Limestone	
Limestone, fine-grained, medium-bedded, light olive-gray (5Y6/1); brachiopods and crinoid remains	3.0+
Lane Shale	
Shale, silty, flaky, grayish-orange (10YR7/4)	1.0
Sandstone, fine, thin-bedded to laminated, yellowish-gray (5Y8/1) to black, white, and gray-banded clay shale at base with laminae of red-brown calcareous silt; fish scales and plant remains	2.0
Shale, clayey, medium dark-gray (N4) with reddish-brown (10R4/4) stains; some plant remains and carbonaceous specks	4.9
Limestone, fine-grained, sandy, light-gray (N7), micaceous with specks of carbonaceous material	1.0
Covered	1.2
Siltstone, thin-bedded, dark grayish-orange-pink (5YR6/2) to light-brown (5YR6/4); micaceous, some plant remains	44.0
Covered	<u>28.0</u>
Total Lane Shale measured	82.1

Locality 26, SW SE NW sec. 9, T 17 S, R 23 E, railroad cut.

Thickness,
feet

Iola Limestone

Raytown Limestone Member

Limestone, medium- to coarse-grained, medium-bedded,
light olive-gray (5Y6/1); vuggy, very algal with
brachiopods and crinoid remains. 9.3

Muncie Creek Shale Member

Shale, flaky, yellowish-gray (5Y8/1); small phosphatic
pellets5

Paola Limestone Member

Limestone, fine-grained to sub-lithographic, medium-
bluish-gray (5B5/1) to medium olive-gray (5Y5/1);
top surface hummocky, algal with brachiopods and
crinoid fragments 1.5

Total Iola Limestone measured 11.3

Chanute Shale

Shale, blocky-bedded, yellowish-brown (10YR4/2), has
grayish-black (N2) streaks; few phosphatic nodules,
"punky" fragmental limestone at upper contact, lower
part covered 28.2

Locality 27, SE NE sec. 18, T 17 S, R 23 E.

Thickness.
feet

Iola Limestone

Raytown Limestone Member

Limestone, medium- to coarse-grained, medium-bedded,
light olive-gray (5Y6/1); algal with many
Antiquatonia and Derbyia, partly covered 11.4

Muncie Creek Shale Member

Shale, flaky, dusky-yellow (5Y6/4); no phosphatic
nodules, but streaks of small brachiopods4

Paola Limestone Member

Limestone, fine-grained, hard, dense, medium-brownish-
gray (5YR5/1); breaks with a conchoidal and hacky
fracture. 1.2

Total Iola Limestone measured 13.0

Chanute Shale

Shale, silty, pale yellowish-brown (10YR6/2) in the
upper third to medium bluish-gray (5B5/1) for 1.0
foot and then pale yellowish-brown in the lower
two-thirds; 0.5-foot coal bed 0.3 foot from upper
contact. 15.9

Drum Limestone

Limestone, fine-grained, medium-bedded, moderate
yellowish-brown (10YR5/4); algal with many crinoid
stems 2.9

Locality 27--continued

Thickness,
feet

Cherryvale Shale

Wea and Quivira Shale members

Shale, silty, blocky-bedded, soft, dusky-yellow

(5Y6/4); partly covered. 5.7

Locality 29, NW NW sec. 24, T 17 S, R 23 E, along east-west road.

	<u>Thickness,</u> <u>feet</u>
Iola Limestone	
Limestone, medium- to coarse-grained, thin-bedded, very pale yellowish-brown (10YR6/2); limonite specks, crinoid remains	1.4
Chanute Shale	
Sandstone, fine-grained, medium-bedded, grayish-orange (10YR7/4) to dark yellowish-orange (10YR6/6); micaceous,	14.3
Shale, sandy, blocky-bedded, pale-olive (10YR6/2); coal streak	7.4
Covered	<u>60.0</u>
Total Chanute Shale measured	81.7
Cherryvale Shale	
Block Limestone Member	
Limestone, fine-grained, medium-bedded, light olive-gray (5Y6/1) lower part covered	3.4

Locality 37, NE SE NE sec. 27, T 17 S, R 25 E.

Thickness,
feet

Wyandotte Limestone

Argentine Limestone Member

Limestone, coarse-grained, medium- to thick-bedded,
dark grayish-orange (10YR6/4) to light brownish-gray
(5YR6/1); fractures filled with large calcite crystals,
spirifers and other small brachiopods, crinoid stems . 6.1

~~Quindaro Shale Member~~

Shale, silty, blocky-bedded, light olive-gray (5Y5/2);
streaks of very fossiliferous material, mostly
fragmental 2.4

Frisbie Limestone Member

Limestone and shale, coarse-grained and silty, limestone
1/2 light brownish-gray (5Y6/1) to pale brown (5YR5/2),
shale is light olive-gray (5Y5/2); from top:
0.4 foot of limestone, 0.6 foot of calcareous shale,
0.2 foot of limestone, 0.2 foot of calcareous shale, and
0.4 foot of limestone 1.8

Total Wyandotte Limestone measured . . . 10.3

Lane Shale

Shale, silty to clayey, medium olive-gray (5Y4/2) to
medium dark-gray (N4); at top 0.7 foot of hard calcareous
shale, then 1.7 feet of clayey shale, then 0.2 foot of
finely crystalline limestone, mostly covered. . . . 22.8

Locality 37--continued

Thickness,
feet

Iola Limestone

Raytown Limestone Member

Limestone, fine- to coarse-grained, medium-bedded,
light olive-gray (5Y6/1) in upper part to yellowish-
gray (5Y7/2) in lower part; Enteleles, Antiquatonia,
some bryozoans, and crinoid stems, base covered . 12.4

Locality 38, NW NW NW sec. 32, T 17 S, R 25 E.

	<u>Thickness,</u> <u>feet</u>
Wyandotte Limestone	
Farley-Argentine Limestone Member	
Covered	8.1
Limestone, coarse-grained, thin-bedded, grayish-orange (10YR7/4) to light olive-gray (5Y6/1); shale partings, cherty, crinoid remains and bryozoans.	14.3
Quindaro Shale Member	
Shale, flaky, dusky-yellow (5Y6/4) . . . . .	.3
Frisbie Limestone Member	
Limestone, coarse, thick-bedded and massive, grayish- orange (10YR7/4).	<u>2.1</u>
Total Wyandotte Limestone measured	24.8

Locality 39, NW NE SE sec. 11, T 18 S, R 21 E.

Thickness,
feet

Plattsburg Limestone

Merriam Limestone Member

Limestone, medium-grained, medium- to thick-bedded,
yellowish-gray (5Y7/2); shale partings, cherty,
brachiopods and bryozoans, top covered 9.7

Bonner Springs Shale

Shale, clayey, blocky-bedded, pale olive (10Y6/2);
scattered limestone nodules, partly covered. 20.7

Wyandotte Limestone

Farley-Argentine Limestone Member

Limestone, coarse-grained, thin- to medium-bedded and
wavy, yellowish-gray (5Y8/1) to dark yellowish-gray
(5Y7/1); cherty, algal with Enteleles and other
brachiopods 18.2

Frisbie Limestone Member

Limestone, medium-grained, massive, light olive-gray
(5Y5/1) 3.6

Total Wyandotte Limestone measured 21.8

Lane Shale

Shale, clayey to sandy, medium dark-gray (N4); mostly
covered. 20.0

Locality 41, SW NW SW sec. 25, T 18 S, R 22 E.

	<u>Thickness,</u> <u>feet</u>
Iola Limestone	
Paola Limestone Member	
Limestone, mostly covered	1.0
Chanute Shale	
Shale, sandy, blocky-bedded, yellowish-gray (5Y7/2);	
small brachiopods	5.2
Coal, black (N1). . . . .	.1
Shale, sandy, almost fissile, yellowish-gray (5Y7/2).	
with some light olive-gray (5Y6/1)	14.9
Coal, black (N1). . . . .	.5
Shale, clayey, medium-gray (N5), some plant remains .	6.0
Shale, calcareous, blocky-bedded to nodular, light	
olive-gray (5Y5/1); iron-stained	<u>5.0</u>
Total Chanute Shale measured	31.7
Drum Limestone	
Limestone, coarse-grained, thin-bedded, greenish-gray	
(5GY6/1); shale interbedded	2.1
Limestone, medium-grained, thick-bedded and massive,	
olive-gray (5Y4/1) to greenish-gray (5GY6/1); crinoid	
stems and <u>Chaetetes(?)</u>	<u>2.0</u>
Total Drum Limestone measured	4.1

Locality 41--continued

Thickness,
feet.

Cherryvale Shale

Wea-Quivira Shale Member

Shale, upper 1.0 foot is fissile, dark-gray (N3),

lower part is greenish gray (5GY6/1) with some

yellowish-gray (5Y8/1) streaks, mostly covered . . . 23.6

Locality 42, NE SW NE sec. 27, T 18 S, R 22 E.

	<u>Thickness,</u> <u>feet</u>
Wyandotte Limestone	
Argentine Limestone Member	
Limestone, coarse-grained, thin- to medium-bedded and wavy, dark yellowish-gray (5Y7/1); <u>Echinaria</u> , bryozoans and crinoid fragments.	15.2
Frisbie Limestone Member	
Limestone, fine-grained, thick-bedded and massive, light olive-gray (5Y6/1); <u>Marginifera</u> , productids . . .	<u>2.4</u>
Total Wyandotte Limestone measured	17.6
Lane Shale	
Siltstone, blocky-bedded, light-gray (N7); plant remains.	2.6
Limestone, sandy, thin-bedded, light-gray (N7); micaceous . . . . .	.4
Siltstone, blocky-bedded, light-gray (N7); lower part covered.	<u>3.0</u>
Total Lane Shale measured	6.0

Locality 43, SW SW NW sec. 35, T 18 S, R 22 E.

	<u>Thickness,</u> <u>feet</u>
Iola Limestone	
Raytown Limestone Member	
Limestone, fine- to medium-grained, medium-bedded, light olive-gray (5Y6/1); large productid brachiopods and <u>Marginifera</u>	7.2
Muncie Creek Shale Member	
Shale, silty, light-gray (N7); phosphatic nodules . . . . .	.3
Paola Limestone Member	
Limestone, fine-grained, massive, medium light-gray (N6); worm borings at top, <u>Heterocoelia</u>	3.5
Total Iola Limestone measured	11.0
Chanute Shale	
Shale, sandy, blocky-bedded, light olive-gray (5Y6/1); thin coal streak 1.5 feet from top, some plant remains, base covered	7.1

Locality 45, SW NW SE sec. 27, T 18 S, R 23 E, quarry exposure and stream bank exposure.

	<u>Thickness,</u> <u>feet</u>
Dennis Limestone	
Winterset Limestone Member	
Limestone, fine-grained, dense, medium-bedded, light olive-gray (5Y6/1), weathers yellowish gray (5Y8/1);	
<u>Echinaria</u>	5.0
Limestone, fine-grained, dense, light olive-gray (5Y6/1); weathers pale yellowish brown (10YR6/2); oolitic . .	
	1.2
Shale, yellowish-gray (5Y7/2) . . . . .	.2
Limestone, fine-grained, soft, thick-bedded, light olive-gray (5Y6/1); <u>Composita</u>	
	4.0
Shale, yellowish-gray (5Y7/2) . . . . .	.4
Limestone, medium-grained, soft, light olive-gray (5Y6/1); algal, hummocky at top	
	1.5
Shale, fissile, hard and brittle, medium olive-gray (5Y5/1)	
	.8
Limestone, medium-grained, soft, thick-bedded, light-gray (N7); small shale partings, dark chert scattered throughout with a band 11.7 feet from the base, bryozoans, crinoid stems <u>Pulcratia(?)</u>	
	<u>14.7</u>
Total Winterset Limestone Member measured	
	27.8
Stark Shale Member	
Shale, flaky, yellowish-gray (5Y8/1); mostly covered, with large slabs of fissile, dark gray (N3) showing on slope below	
	1.0

Locality 45--continued

	<u>Thickness, feet</u>
Galesburg Shale	
Covered	6.2
Swope Limestone	
Bethany Falls Limestone Member	
Limestone, medium- to coarse-grained, dense, medium- bedded, light gray (N7), weathers light brownish gray (5YR6/1); limonite specks, crinoid remains and <u>Meekella(?)</u> , partly covered	29.7
Hushpuckney Shale Member	
Shale, upper 4.9 feet is clayey, blocky-bedded, dusky- yellow (5Y6/4); limonite streaks; lower 0.8 foot is fissile, grayish black (N2)	5.7
Middle Creek Limestone Member	
Limestone, fine-grained, dense, hard and brittle, thin- to medium-bedded, medium-gray (N5); shale parting 0.9 foot from top, algal marklets with <u>Chonetes</u>	2.2
Total Swope Limestone measured	37.6
Ladore Shale	
Shale, clayey, calcareous, dark yellowish-gray (5Y7/1), weathers yellowish gray (5Y8/1); mostly covered	5.0
Hertha Limestone	
Limestone, medium-grained, light olive-gray (5Y6/1); base covered	2.0

Locality 46, NE SW NE sec. 36, T 18 S R 23 E.

Thickness
feet

Swope Limestone

Bethany Falls Limestone Member

Limestone, fine- to coarse-grained, thin- to thick-bedded, medium light-gray (N6) to light olive-gray (5Y6/1); cross-bedded and oolitic in upper 7.0 feet, limonitic with shale partings, Antiquatonia, Echinaria, fusulinids, and crinoid stems 21.6

Hushpuckney Shale Member

Shale, upper half is soft, blocky-bedded, light olive-gray (5Y6/1), lower half hard, fissile, grayish black (N2). 4.6

Middle Creek Limestone Member

Limestone, fine-grained, thick-bedded and massive, medium olive-gray (5Y5/1) 2.1

Total Swope Limestone measured 28.3

Ladore Shale

Shale, sandy, blocky-bedded, light olive-gray (5Y6/1); lower part covered 5.8

Locality 49, NW NW SW sec. 33, T 18 S, R 24 E.

	<u>Thickness,</u> <u>feet</u>
Swope Limestone	
Bethany Falls Limestone Member	
Limestone, medium- to coarse-grained, medium-bedded, pale olive-gray (5Y7/1); crinoid remains and algae.	2.1
Shale, silty, dusky-yellow (5Y6/4) . . . . .	.9
Limestone, coarse-grained, light olive-gray (5Y6/1); crinoid remains . . . . .	.5
Shale, silty, moderate yellowish-brown (10YR5/4); <u>Chonetes</u> . . . . .	.6
Limestone, coarse-grained, medium-bedded, light olive- gray (5Y6/1); algal and crinoid remains	1.5
Hushpuckney Shale Member	
Shale, clayey, blocky-bedded, light olive-gray (5Y5/2)	1.9
Shale, hard, fissile, black (N1).	2.0
Middle Creek Limestone Member	
Limestone, fine-grained, massive, medium olive-gray (5Y5/1)	<u>1.7</u>
Total Swope Limestone measured	11.2
Ladore Shale	
Shale, clayey, dusky-yellow (10YR5/4) and light olive- gray (5Y6/1) mottled	1.2
Hertha Limestone	
Limestone, medium-grained, dense, thick-bedded, light brownish-gray (5YR6/1); bellerophonid gastropods.	5.2

Locality 49--continued

Thickness,
feet

Hertha Limestone--continued

Limestone, conglomeratic, light olive-gray (5Y6/1) and light brownish-gray (5YR6/1); fragments are sharp edged	2.0
Limestone, medium- to coarse-grained, medium-bedded and uneven, light olive-gray (5Y6/1); crinoid stems, productid brachiopods, and bellerophontid gastropods.	<u>3.9</u>
Total Hertha Limestone measured	11.1

Locality 51, SW SW NW sec. 7, T 18 S, R 25 E.

	<u>Thickness,</u> <u>feet</u>
Iola Limestone	
Paola Limestone Member	
Limestone, medium-grained, flaggy (very weathered), light olive-gray (5Y5/2); <u>Antiquatonia</u> , mostly covered	2.0
Chanute Shale	
Shale, silty, blocky-bedded, pale-olive (10Y6/2) to dusky-yellow (5Y6/4); nodular limestone 8.0 feet from base, plant remains	28.2
Drum Limestone	
Limestone, medium-grained, thick-bedded and massive, grayish-orange (10YR6/4); abundant crinoid stems	2.0
Cherryvale Shale	
Quivira Shale Member	
Shale, blocky-bedded to fissile, olive-gray (5Y4/1) in upper 2.5 feet, dark-gray (N3) in lower 0.7 foot	3.2
Westerville Limestone Member	
Limestone, coarse-grained (conglomeratic), soft, thick- bedded, medium olive-gray (5Y5/1); abundant crinoids	2.4
Wea Shale Member	
Shale, thinly laminated, grayish-olive (10Y4/2); carbonaceous specks, lower part covered	<u>5.5</u>
Total Cherryvale Shale measured	11.1

Locality 52, NW NW NE sec. 16, T 18 S, R 25 E.

	<u>Thickness,</u> <u>feet</u>
Chanute Shale	
Covered	8.0
Sandstone, fine-grained, thin- to medium-bedded, dark- yellowish-orange (10YR6/6); micaceous with some plant impressions	6.1
Shale, sandy, blocky-bedded, olive-gray (5Y4/1); partly covered	<u>11.2</u>
Total Chanute Shale measured	25.3
Drum Limestone	
Limestone, medium-grained, massive, dark yellowish- gray (5Y6/2); crinoid stems.	1.7
Cherryvale Shale	
Wea-Quivira Shale Member	
Shale, silty, blocky-bedded, medium olive-brown (5Y4/4); lower part covered.	32.5

Locality 53, SE SE SW sec. 28, T 18 S, R 25 E, quarry exposure.

	<u>Thickness,</u> <u>feet</u>
Dennis Limestone	
Winterset Limestone Member	
Limestone, fine-grained, medium-bedded, light-brownish-gray (5YR6/1); fossiliferous shale partings. . . .	6.7
Limestone, medium-grained, massive, very light brownish-gray (5YR7/1); oölitic and cherty, productid brachiopods including <u>Antiquatonia</u>	1.0
Shale, flaky, medium-gray (N5); very fossiliferous . . . .	.8
Limestone, fine-grained, medium-bedded, light-gray (N7); oölitic and cherty, bryozoans and a few <u>Neospirifer</u>	2.9
Shale, calcareous, soft, mottled light-gray (N7), yellowish-gray (5Y8/1), and moderate pink (5R7/4); limonite in lower part has stained the limestone below; top part of shale is fossiliferous, lower part is not . . . .	.9
Limestone, medium-grained, soft medium-bedded, light-gray (N7); sparse fossils, reported to be 20.0 feet of limestone below quarry floor	<u>14.9</u>
Total Winterset Limestone Member measured	27.2

Locality 54, NW NW NW sec. 13, T 19 S, R 21 E.

Thickness,
feet

Wyandotte Limestone

Farley-Argentine Limestone Member

Limestone, coarse-grained, thin-bedded and uneven,
light-gray (N7) and pinkish-gray (5YR8/1) near top,
light brownish-gray (5YR6/1) in lower part;

Lophophyllum?, Enteleles, and Phricodothyris,

upper part partly covered 20.0

Lane Shale

Shale, sandy, blocky-bedded, greenish-gray (5GY6/1)

and light-gray (N7), lower part not exposed . . . 15.0

Locality 55, NW NW NW sec. 16, T 19 S, R 22 E.

	<u>Thickness,</u> <u>feet</u>
Iola Limestone	
Raytown Limestone Member	
Covered	6.0
Limestone, medium-grained, medium-bedded, light- gray (N7); algal	2.5
Muncie Creek Shale Member	
Shale, flaky, yellowish-gray (5Y8/1); phosphatic nodules . . . . .	.3
Paola Limestone Member	
Limestone, fine-grained, dense, massive, medium- dark-gray (N4); worm borings, top is hummocky .	<u>2.5</u>
Total Iola Limestone measured.	11.3
Chanute Shale	
Shale, sandy, blocky-bedded, pale yellowish-brown (10YR6/2); plant remains.	32.4
Coal . . . . .	.3
Shale, light olive-gray (5Y6/1); lower part covered .	<u>5.0</u>
Total Chanute Shale	37.7

Locality 56, SE SE NW sec. 10, T 19 S, R 23 E.

Thickness,
feet

Dennis Limestone

Winterset Limestone Member

Limestone, fine- to medium-grained, thin- to thick-bedded and uneven, medium dark-gray (N4) to light olive-gray (5Y6/1); dark-gray (N3) chert, oölitic zone 16.0 feet from base, fusulinids,

<u>Composita, Derbyia</u>	28.1
Covered	<u>8.1</u>
Total Dennis Limestone measured.	36.2

Swope Limestone

Bethany Falls Limestone Member

Limestone, coarse-grained, thick-bedded, light olive-gray (5Y6/1); crossbedded oörites. 13.7

Limestone, medium-grained, thin-bedded, medium light-gray (N6) to light bluish-gray (5B7/1); slightly cherty 14.0

Hushpuckney Shale Member

Shale, covered. 2.0

Shale, hard, fissile, grayish-black (N2) 2.3

Middle Creek Limestone Member

Limestone, very fine-grained, thin- and thick-bedded, bluish-gray (5B5/1); shale parting 0.3 foot from top, bryozoans 2.4

Total Swope Limestone measured 34.4

Locality 56 -- continued.

	<u>Thickness,</u> <u>feet</u>
Ladore Shale	
Shale, sandy, blocky- to platy-bedded, medium light- gray (N6); very thin limestone stringers.	5.6
Hertha Limestone	
Limestone, coarse-grained, medium-bedded, light olive- gray (5Y6/1); conglomeratic at base	7.4