3315-3317 Green shale; rare dolomite, white, fine, brown, medium. 67% (1 gram sample).

Plus ½ mm.

Chert---- Quartzose, drusy clusters, clear.
Highly cloudy translucent to slightly cloudy translucent, rare. } 1%.

Dominant Shale---- Green, purple, yellow. Decorah.

Sand----- Plus ½ mm. Rare.

Pyrite.

Minus ½ mm.

Chert---- As above.

Dominant Shale---- " "

Sand----- 1/2 - 1/4 mm. Rare.

3317-3324 As above. 65% (3 gram sample).

Plus ½ mm.

Chert---- Highly cloudy translucent, milky & rare dead white opaque, sponge spicules. Brecciated, some fragments porous.
Quartzose, drusy clusters, Rare. } 2%.

Dominant Shale---- As above.

Sand----- " "

Minus ½ mm.

Chert---- As above. Also dolocasts, quartzose, lacy.

Dominant Shale---- As above.

Sand----- 1/2 - 1/4 mm.

3324-3327 Dolomite, white to light brown, fine. 50% (2 gram sample).

Plus ½ mm.

Dominant Chert---- Opalescent, clear to pale amber, oolitic.
Milky, irregular, chalcedony bands.
Quartzose, drusy, oolite molds.
Dolocasts, quartzose, lacy. } 30%.

Oolite--- Bodies in opalescent chert, concentric, radial, large, complex centers. Rare white rings.
Bodies in quartzose chert, lacy surface.

Shale---- As above.

Minus ½ mm.

Dominant — Chert---- As above.

Oolite--- " " Also loose translucent, rough, lacy, may be coated sand grains.

Shale---- As above.

Sand----- 1/2 - 1/16 mm.

3327-3330 Decorah cavings. Rare dolomite as above. 75% (4 gram sample).

Plus ½ mm.

Chert---- Highly cloudy translucent to opalescent, oolitic.
Milky, irregular to dead white opaque, chalcedony bands.

Oolite--- Medium bodies, concentric, hazy.
Loose, white, also in relief in milky chert.

Dominant — Shale---- Decorah types.

Sand----- 1 - ½ mm. Rare.

Minus ½ mm.

Chert---- As above.

Oolite--- " "

Dominant — Shale---- " "

Sand----- 1/2 - 1/4 mm.

3330-3333 Penn. Shale & limestone. Rare dolomite, brown, medium. 60% (2 gram sample).

Plus ½ mm.

Chert---- Milky, irregular. May be weathered.
Opalescent to milky, oolitic.
Dolocasts, dead white opaque, fine.
Quartzose, drusy clusters. } 2%.

Oolite--- Spherical bodies, non-concentric, medium size. Common.

Dominant — Shale---- Gray & pale green.

Sand----- Very rare.

Minus ½ mm.

As above except for sand--- 1/2 - 1/4 mm. Common.

3333-3336 Dolomite, brown, medium crystalline. 52% (3 gram sample).

Plus ½ mm.

Chert---- Highly cloudy translucent to opalescent.
Rare milky, porous on edges. Rare chalcedony botryoids. } 10%.

Dominant Shale---- Gray, Penn.
Pale green, rare.

Sand----- Plus ½,mm. Rare.

Minus ½ mm.

Chert---- As above. Also rare dead white opaque.
Quartzose, drusy clusters.

Oolite--- Rare, ovoid, white, lacy.

Dominant Shale---- As above.

Sand----- 1/2 - 1/16 mm. Rare.

3336-3338 Dolomite, brown, medium crystalline. 40% (2 gram sample).

Minus ½ mm.

Chert---- Cloudy translucent to opalescent, chalcedony rings?
Quartzose, drusy clusters.
Milky, rare. } 10%.

Dominant Shale---- As above.

Sand----- 1/4 - 1/16 mm. Common.

3338-3344 Dolomite, brown, medium crystalline. 60% (3 gram sample).

Minus ½ mm.

Chert---- Cloudy translucent to opalescent, rare amber, whorls.
Quartzose, massive to drusy, deep brown. Common. } 10%

Dominant Shale---- As above.

Sand----- 1/2 - 1/16 mm. Rare.

3344-3350 Dolomite, brown, medium to coarse. 45% (1 gram sample).

Minus ½ mm.

Chert---- Quartzose, massive to drusy, deep brown.
Milky, cloudy translucent & opalescent. Rare. 10%.

Dominant- Shale---- Pale green. Rare Penn.(The green is shale layer.)

Sand----- 1/2 - 1/8 mm. Very rare.

3350-3355 Dolomite, white to light brown, fine to medium. 35% (1 gram sample).

Plus ½ mm.

Domonant Chert---- Highly cloudy translucent to milky, oolitic. Rare brown mottled.
Dolocasts, translucent, thick-walled.
Quartzose, massive, clear.

Oolite--- Spherical bodies, large, hazy to concentric, brown centers, rare faint radial structure.
Loose, ovoid, white, large, rare.

Quartz--- Crystal aggregates. Very rare.

Shale---- Pale green, gray green, red.

Minus ½ mm.

Chert--- As above. Also quartzose, drusy clusters.
Dead white, opaque, Rare. Probably white chalcedony.
Dolocasts, lacy, quartzose.

Oolite--- Bodies as above.
Loose, spherical to oboid, white, rolling surface, rare questionable lacy surface.

Dominant Shale---- Gray Penn. Pale green.

Sand----- 1/2 - 1/16 mm.

3355-3358 As above. 45% (1 gram sample).

Plus ½ mm.

Dominant Chert---- Highly cloudy translucent to opalescent. Some milky with weathered edgos & slightly irregular. } 15%

Shale---- Cavings.

Sand----- 1 - ½ mm. Rare.

Minus ½ mm.

Chert---- As above.
Also quartzose, drusy clusters.

Dominant Shale---- As above.

Sand----- 1/2 - 1/16 mm.

3358-3364 As above. 35% (1 gram sample).

Plus ½ mm.

Dominant Chert---- Highly cloudy translucent, slightly cloudy translucent to opalescent, dappled, whorls. A few pieces slightly porous. } 20%.

Shale---- Pale green, gray.

Sand----- 1 - ½ mm. Rare.

Minus ½ mm.

Dominant Chert----, As above.

Shale---- " "

Sand----- 1/2 - 1/16 mm. Rare.

3364-3366 Dolomite, white to light brown, fine to dense, medium. 40% (1 gram sample).

Plus $\frac{1}{8}$ mm.

Dominant Chert---- Milky to opalescent, oolitic, rare mottled, rare chalcedony botryoids.
Quartzose, brown, drusy clusters.
" , clear, massive. } 25%.

Oolite--- Bodies, spherical, large, hazy, rare concentric. brown centered.
Loose, white, large, rolling to hint of lacy.

Quartz--- Crystal aggregates.

Shale---- Pale green, gray.

Minus $\frac{1}{8}$ mm.

Dominant Chert---- As above. Also quartzose, brown, massive.

Shale---- As above. Common.

Sand----- 1/2 - 1/16 mm. Rare.

3366-3371 Dolomite, white, fine to dense. 28% (1 gram sample).

Plus $\frac{1}{8}$ mm.

Dominant Chert---- Quartzose, massive, clear.
Highly cloudy translucent to milky, oolitic to dappled. } 18%.
Quartzose, drusy clusters.

Oolite--- Large bodies as above.

Quartz--- Crystal fragments.

Shale---- As above.

Sand----- 1 - $\frac{1}{8}$ mm. Very rare.

Minus $\frac{1}{8}$ mm.

Dominant Chert---- As above. Also milky, irregular.

Oolite---,Quartz--- & Shale--- As above.

Sand----- 1/2 - 1/16 mm. Rare.

3371-3380 Dolomite, white, light brown, fine. 35% (1 gram sample).

Plus $\frac{1}{8}$ mm.

Dominant Chert---- Milky to opalescent, oolitic, whirls, dappled, sponge spicules, clear to amber. Rare chalcedony bands. } 48%.
Quartzose, oolitic.

Oolite--- Medium to large bodies, spherical, hazy to concentric, no center.
Rare loose, white, smooth.

Shale---- Pale green, common.

Minus ½ mm.

Dominant Cherg---- As above. Also quartzose, clear, massive.
Quartzose, drusy clusters.
Dolocasts, quartzose.

Oolite--- As above. Also loose coated sand grains.

Shale---- Pale green clay. Also cavings.

Sand----- 1/2 - 1/16 mm. Rare.

3380-3385 Dolomite, white, fine. Green shale. 40% (1 gram sample).

Plus ½ mm.

Chert---- Quartzose, drusy clusters, oolite casts.
Milky to opalescent, rare irregular. Rare chalcedony bands. } 20%.

Oolite--- Rare large hazy bodies, small irregular bodies. whorls.

Dominant Shale---- Pale green clay.

Sand----- 1 - ½ mm. Very rare.

Minus ½ mm.

Dominant Chert----Milky to opalescent, rare irregular.
Quartzose, drusy clusters.
Dolocasts, quartzose.

Oolite--- Small, white brown, rough, lacy. Common.

Quartz--- Rare crystals.

Shale---- Pale green clay. Common.

Sand----- 1/2 - 1/16 mm. rare. Rough grains.

3385-3393 Dolomite, white to light brown, fine to medium. 35% (1 gram sample).

Plus ½ mm.

Dominant Chert---- Highly cloudy translucent to opalescent, porous.
chalcedony bands. Rare mottled.
Milky to dead white opaque. Rare.
Dolocasts, translucent, thick-walled.
" , dead white opaque, fine soft. } 25%.

Shale---- Cavings of Penn. Pale green.

Minus ½ mm.

As above.

3393-3397 Dolomite, white, fine to medium, granular. 25% (1 gram sample).

Plus ½ mm.

Dominant
Chert---- Dolocasts, dead white opaque.
Highly cloudy translucent to slightly cloudy translucent, rare oolites.
Milky, weathered, porous, rare.
} 15%.

Oolite--- Spherical bodies, hazy. rare.

Shale---- Pale green. Penn. cavings.

Minus ½ mm.

As above.

3397-3404 Dolomite, white, fine to medium. 30% (1 gram sample).

Plus ½ mm.

Dominant
Chert---- Quartzose, clear, massive to granular.
Milky to dead white opaque, granular. Rare, chalcedony botryoids.
Dolocasts, quartzose to dead white opaque.
} 20%.

Oolite--- One large, white, rolling surface.
" " , lacy surface.

Shale---- Pale green, common.

Minus ½ mm.

As above.

3404-3415 Dolomite, white, fine to medium. 50% (1 gram sample).

Plus ½ mm.

Dominant
Chert---- Milky, granular, weathered, rare porous. Whorls.
Quartzose, massive, granular. clear.

Oolite--- Whorls, questionable sponge spicules.

Shale---- Pale green.

3415-3427 Dolomite, white to light brown, fine to dense. 25% (1 gram sample).

Plus ½ mm.

Dominant
Chert---- Highly cloudy translucent to slightly cloudy translucent.
Milky to dead white opaque.
Milky, irregular.
Dolocasts, dead white opaque, fine. Rare.
} 20%.

Oolite--- Whorls.

Shale---- Pale green.

Sand----- Plus ½ mm. Very rare.

3-14s-11w Palmer #1 Pasek

Minus ½ mm.

Dominant Chert---- Milky to dead white opaque.
Highly cloudy translucent to slightly cloudy translucent.
Dolocasts, fine, thin-walled, dead white opaque.
Milky, irregular.
Quartzose, clear, massive.

Shale---- As above.

Sand----- 1/2 - 1/16 mm. Very rare.

"Palmer et al, Pasek #1, center SE 3-14s-11w, Russell County, Kansas, had the base of the Kansas City lime at 3250, top of the Pennsylvanian basal conglomerate at 3302, top of the Siliceous lime at about 3366, and is in to 3427. The top of the Siliceous lime can not be determined with much satisfaction because the overlying conglomerate is made up principly of reworked Siliceous lime. The top of the reworked dolomite, is 3315; below 3335 all the samples contain a large percentage of dolomite. The top of the Siliceous lime is placed at 3366 because a decrease in the percentage of Pennsylvanian material occurs at this depth. The 6 5/8" pipe is set at 3329, and a hole full of water was encountered at 3340."

Price, weekly letter #10, 1932.