Measured sections Mt Jade

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

LOOSE-LEAF FIELD NOTEBOOK

9-137

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December 9, 1953

South Horn Mountain Section
SE¼ sec 36, T 15N, R 19W

Measured and sampled by
Frezin & Glick

Section starts in Hurricane Hollow in North central part of Sec 1 T14N R19W where Pitkin top goes under at about 13.9c. The top of the Pitkin limestone is not clearly exposed, but Pitkin? limestone float is present 52 feet (HH) below the base of first outcrop of siltstone which is the first sample SH-1

	Pitkin? Limestone float	
	Covered interval	52' 0"
	This interval contains float blocks of "Hale type" sandstone interbedded with siltstone. The sandstone very fine to fine grained. Contains oxidized columnals Spirifer brachiopods -- gives no Lime reaction	
SH-1	siltstone medium gray to olive gray very finely sandy thin bedded. No lime reaction	5' 3
SH-2	Siltstone as above	2' 0

South Horn Mountain Continued

	Covered interval. Most of this unit seems to be shale. However, float blocks 1 ft thick of fine grained fossiliferous shale type sand that appears to come from a zone not more than 20' above the siltstone in SH-2.	130' 0"
SH-3	Shale, dark gray, fissile, makes slightly irregular contact with overlying sandstone	1'6"
SH-4	Sandstone, massive, medium to coarse grained, conglomeratic, with pebbles of wh quartzite and shale. Quartzite pebbles upto 3/4" in length near middle of unit. Some brachiopod molds & possible crinoid columnal molds. Coarsely cross bedded	3' 0"
SH-5	Sandstone, brownish gray, medium to coarse grained, leached. Contains few scattered white quartzite pebbles as in underlying bed. Coarsely cross bedded	5'0"
SH-6	Sandstone, brownish gray, iron stained medium to coarsely grained, leached. Contains quartzite pebbles as in underlying beds. Coarsely cross bedded. Contains bryozoa(?) as part of debris from other formations	3' 0"

South Horn Mountain (continued) December 19, 1953

SH-7	Sandstone, brownish gray iron stained, medium to very coarsely grained. Few scattered white quartz pebbles but fewer and smaller than in underlying beds. This unit is the top of a sand sequence which forms a pronounced bench around the mountain. The top layer of sand is studded with many white quartz pebbles up to ½" in length.	2'3"
	Covered Interval. May be shale because of flat slope and bench.	20'0"
SH-8	Siltstone, kahki, medium to thin bedded, hard, limy, with mica; base not exposed. Contains f-medium sand grains up to almost a sandstone. Some woody plant material.	1'8"
SH-9	Sandstone dark brown stained, kahki, thin bedded, limy, f-medium grained. A single bed	2'11"
SH-10	Sandstone and siltstone, thin fissile kahki colored siltstone, v sl limy, f to c grained, kahki, sl limy sandstone in beds about 2" thick. Interbedded irregularly with plant fragments on bedding planes.	1'5'

Dec 9, 1953

South Horn Mountain (Continued)

SH-11	Sandstone, kahki, f to medium grained, limy, contains clay pebbles upto 3/4". A single bed.	1'7"
SH-12	Sandstone, medium bedded, f to medium grained, slightly limy. Contains some faint impressions of brachiapods. Upper 1" contains many quartz pebbles	5'5"
SH-13	Sandstone, khaki colored, f-medium grained, medium bedded, very limy; weathers to a soft sandstone. Badly weathered and decalcified on outcrop. Upper 4" has vc sd grs & wh. quartzite pebbles	3'5"
SH-14	Limestone, massive bedded, med. gray clastic, extremely sandy with coarse to medium sand grains. Lower 6" has v coarse sd to pebble of quartzite and clay. Pebble material occurs irregularly through the bed. Weathers to rounded smooth, slope which tends to exfoliate. Sand appears to be both quartzite and quartz. Contains many fossil fragments.	5'0"
SH-15	Limestone as below (SH-14)	5'8"

South Horn Mountain Section (Contd) Dec 9, 1953

SH-16	Limestone, massive, medium gray v. sandy, f-medium grained & scattered quart. pebbles. Weathers rounded & smooth with exfoliated surface. This unit is so sandy may be a very limy sandstone. Pebbles grade out in upper part of unit.	6'5"
SH-17	Sandstone, thin bedded, medium gray, very limy, medium to coarse grained with sdmg v. coarse sand; slightly glauconitic	3'6"
SA-18	Sandstone, thin bedded to fissile, silty, limy; with scattered quartzite pebbles. Some paper thin, kahki shale as partings	3'0"
SA-19	Sandstone, thin to medium bedded, kahki to brownish gray, f-med. grained very limy. Fucoidal markings on upper surface	4'0"
SA-20	Sandstone, massive, cross-bedded medium to coarse grained, very limy, containing ¼" quartzite pebbles medium gray in color; fossil fragments, some nearly ½-½ sd and lime	5'0"
SA-21	Sandstone, massive, very limy, cross bedded, light gray, contains fossil frags; f to coarse sd. grains with scattered white quartz pebbles	5'0"

South Horn Mountain Section (Cont'd) Dec 9, 1953

SH-22	Sandstone as below (SH-21)	5'0"
SH-23	Sandstone (same as SH-21) few scattered qtz. pebbles	5'0"
SH-24	Sandstone (same as SH-21) has some scattered qtz. pebbles	3'0"
SH-25	Sandstone (same as SH-21) Contains shale and quartzite pebbles	5'0"
SH-26	Sandstone (same as SH-21)	5'0"
SH-27	Sandstone (same as SH-21)	5'0"
SH-28	Sandstone (same as SH-21) Cross bedding in this unit is truncated by overlying unit SH-29 Quartzite pebbles and shale pebbles increase in quantity. More limy than underlying units(?) Very glauconitic & limy in upper 8 inches	6'0"

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SH-29	Sandstone, massive X-bedded, brownish gray, very limy, f to medium grained glauconitic; very hard; containing few scattered shale pebbles. Locally the lower few inches of this unit is a conglomerate containing white quartz and clay pebbles with	6'0"

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South Horn Mountain Section (Cont'd)

SH 29 (Cont'd)	fine to medium grained sand.	
SH-30	Sandstone brown to gray, fine to medium grained, very limy, glauconitic, containing many fossil fragments. Cross bedded	1'3"
	Covered interval	2'9"
SH-31	Sandstone, thin to medium bedded, khaki colored, badly weathered with fossil fragments (bivalves & gastropods) very porous, leached(?). In upper 1' the unit is very conglomeratic with clay pebbles and very limy (probably almost a limestone)	3'2'
SH-32	Sandstone, Medium to thick bedded, somewhat cross bedded, dark brownish gray limy finely to medium grained, glauconitic	5'2"
SH-33	Sandstone as SH-32 except more massive and only bedded	6'10"
SH-34	Sandstone as SH-32 except weathers soft, f-medium grained decalcified sandstone	6'6"

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South Horn Mountain Section (Cont'd)

SH-35	Sandstone, platy to thin bedded khaki colored, slightly limy, fine grained; form overhang. Conglomerate at base with sub pebbles ½ to ¾". One 3" long. Congl. has v coarse sd grs. Appears to be more limy. This congl is lower 1' of unit	6'0"
	Covered interval	5'0"
SH-36	Limestone, brownish gray, platy to medium bedded, very sandy with f-v coarse sd grays, fossil fragments and white quartzite and shale pebbles. Glauconitic	1'5"
SH-37	Sandstone, khaki, very fine grained to siltstone, thin to platy. A siltstone with 6" of sandstone in middle of unit (coarser grained and thicker bedded	4'0"
	Covered interval	6'4"
SH-38	Shale, paper thin, fissil khaki colored, lower 4" is khaki colored, medium grained decalcified sandstone.	2'8"

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South Horn Mountain Section (Cont'd)

	Covered interval	4'0"
SH-39	Sandstone brownish gray medium to thick bedded, very fine grained slightly limy, jointed and soft	5'2"
SH-40	Sandstone, thick bedded, fine grained, very soft & decalcified	4'10"
	Note: SH-39 & SH-40 form a ridge around hill with covered slope above and below the ridge	
	Covered interval Probably sandstone	3'0"
SH-41	Sandstone khaki colored, decalcified soft, medium to thick bedded fine grained forms rounded outcrop	5'0"
SH-42	Sandstone as SH-41	5'8"
SH-43	Sandstone as SH-41	4'8"
SH-44	Sandstone as SH-41	5'0"
SH-45	Sandstone as SH-41	5'0"
SH-46	Sandstone as SH-41	5'6"
SH-47	Sandstone as SH-41	3'8"

South Horn

Covered interval 10'0"

SH-48 Sandstone brownish gray fine 1'3"
grained very limy

Covered interval - top khaki sh sample 60'0"
in SH-49

SH-49 Sandstone, fine to medium grained 7'0
massive, reddish brown "rust"

Covered interval; probably underlain to Alaska base 34'0"
siltstone as SH-50, exposed in
places on slope

SH-50 Siltstone olive gray, fissile to 3'0"
platy, non-limy, very finely
sandy; the top of this exposure
is 6'0" from top of unit

SH-51 Sandstone, massive, cross bedded, thick to
f-c grained with vc grains
and pebbles of white
quartzite. approx 24'

Fini 11:50 AM
12/10/53

APRIL 30, 1954

SYCAMORE HOLLOW SECTION
T. 15N R. 19W.

SE¼ SW¼ SECTION 24 in stream bottom along the Eastern main tributary of Sycamore Hollow. Upstream Toward the NORTH end of HORN Mountain.
NO base exposed OF St. Clair LS.

SH-1 5'3" — LS - med. pinkish gy to lt. pinkish gy thin to med bedded f grain to med x'lln. containing brachs trilobites, gastropods. contains Flesh colored xls contains scarcely x'lln calcite in this zone

SH-2 5'-3" — LS as below. Some vertical seams up to ½" wide containing med dark gy f grain to f x'lln sandy LS contains crinoid, brachs, cephalopods (Orthoceras)

SH-3 4'-6" — LS as below contains cepalopods, trilobites, brachs.

SH-4 4'-8" — LS - as below No Fossils noted.

SH-5 2'-3" — LS as below. NO cracks (Filled) as below (SH-2 thru SH-4) - TOP OF St. Clair LS

SH-6 2" — LS med gy f grain to f x'lln. Sandy to v sandy grading into Limy SS. in some stringers. Contains pebbles and small cobbles of black phosphatic material. Slightly pyritic v. thin bedded.

Sycamore Hollow Section

SH-T-7 7"	LS F gran to F x lln. med. gy., v. thin bedded. Contains numerous pink crinoid columnals V dgy. (small) caused by alteration of pyrite to Limonite, pyrite Limonite.
SH-T-8 3'-1"	LS - v. thin to thin bedded, med. gR. gy. contains numerous crinoid frags F. granular.
SH-T-9 4'-1"	LS - med gray F gran. to v.f. x lln. thin to med bedded contains pyrite & crinoid columnals.
SH-T-10 5'-4"	Chert gy to dk gy thin to med. bedded. Irregularly bedded. containing some irregular beds of med gy F gran to F x lln. Siliceous LS w/ Lenses of dk gy chert.
SH-T-11 5'-3"	Chert w/ LS as below. LS definitely minor in amount overall
SH-T-12 5'-9"	Chert w/ LS as below. - LS occurs only as Lenses in chert - NO beds of LS as such.
5/14/64 SH-T-13 11'-4"	Chert as #12 -- slightly more limestone in upper part.

5/12/54

Sycamore Hollow section (cont.)

SH-14 11' 0"	Chert and limestone, medium bedded chert - medium to medium dark gray slightly limydense w/ bluish-gray stringers limestone -- medium to medium dark gray, finely granular to finely crystalline. Chert and limestone are mixed together in same bed as lenticular masses 1' to 2' across. Probably slightly more limestone than chert.
SH-15 9' 6"	Chert and limestone as #14 - top 4' poorly exposed or covered but appears to be as below and above
SH-16 11' 0"	As #14
SH-17 11' 0"	As #14 - chert slightly lighter colored where weathered in creek bottom
SH-18 11' 0"	As #14 - Chert is in part medium-brownish-gray with brownish-gray streaks. Otherwise it is medium-gray to medium-dark gray. Probably more chert than limestone. Upper 5' almost pure chert.
SH-19 11' 0"	As #14 - upper 4½' covered -- probably as above and below. Still more chert than limestone. Chert is liny as below

5/14/54

Sycamore Hollow Section (cont).

SH-20 11' 0"	As # 19
SH-21 11' 0"	Limestone and chert - bedding irregular - not readily apparent - thin to medium? Chert - light brownish gray with brownish - gray streaks - lying Limestone - medium to medium dark gray finely granular to finely crystalline - no fossils Limestone and chert in irregular lenticular masses from 1" to 2' across. Upper 3' has more limestone than chert - otherwise about 30% limestone.
SH-22 11' 0"	As # 21 - about 30% limestone
SH-23 11' 0"	As # 21 - More limestone than chert in upper 2' very little chert, limestone nearly medium crystalline in part. one brachiopod cast noted. (lowest Grand Falls?)
SH-24 11' 0"	Limestone and chert - bedding irregular and not too apparent - probably medium-bedded More limestone than chert. Limestone is medium - gray, fine-medium - crystalline - very fossiliferous (crinoids and brachiopods) in part. Chert - very light gray to brownish - gray in beds 3" - 4" thick in lower ½ of unit and in lenses 1" to 2' long - very fossiliferous in upper ½ of unit in very small to large lenses.

5/14/54

Sycamore Hollow (cont)

SH-25 11' 0"	Chert & limestone - no bedding apparent. Mostly limy chert with irregular patches of limestone Chert, limy, light gray finely granular some brownish-gray streaks. Very fossiliferous - crinoids and brachiopods - in part. Limestone patches (only a few) medium - dark gray, finely to medium crystalline
SH-26 11' 0'	As #25 - some of the limestone is very fossiliferous. No chert in upper 4'.
SH-27 11' 0"	Limestone, medium-bedded, slightly lenticular medium - dark gray to medium light brownish gray. Mostly medium-crystalline with some finely crystalline beds which contain some medium-crystals. 1'6" ± (poorly exposed) medium-brownish gray dense to very finely granular limy chert in center of unit. Otherwise all limestone
SH-28 11' 0" (snake)	Limestone - medium to thick bedded, light brownish-gray, finely granular to medium gray finely crystalline

5/14/34

Sycamore Hollow Section (cont)

SH-29 11' 0"	As in #28
SH-30 11' 0" (226'4")	Limestone, massive? (bedding not apparent) light (mostly) to medium-gray finely granular to finely crystalline. No Chert apparent Limestone is siliceous in part.
SH-31 11' 0"	Limestone, medium? to thick? bedded light gray to light brownish-gray finely granular. Weathers to white porous siliceous residue.
SH-32 5' 0"	Limestone, medium to thick-bedded light gray to light brownish-gray finely granular and medium-gray, medium crystalline (upper part only)
Cor: 11' 0"	
SH-33 11' 0"	Limestone, medium to thick-bedded medium to light gray finely granular to medium-crystalline, siliceous?, very fossiliferous brachiopods up to 2" across, crinoids)
SH-34 11' 0"	Limestone - medium-bedded very light gray finely granular. Part is siliceous grading into limy chert. Some medium-gray fine to medium crystalline limestone

Continued 21 pages back

may 1, 1954

Lower Iceledo Section.

On small tributary of East Fork of cave creek. Section starts at Junction of Tributary and E. Fork of Cave creek. This tributary has its head below the Iceledo School.

NE¼ NE¼, SE¼ Sec. 15, T14N, R.19W.

LI-1 7' 0"	LS- Lt gy to Lt. olive gy. med. bedded. ~~Fine~~ F to med. Xlln. No chert beds or lenses noted.
3'+	Covered interval - best estimate - may be slightly great.
LI-2 4'-4"	LS - massive - Lt to med gy very oolitic. slightly cross laminated. oolites have a Light gy coating w/ darker central part.
	LI-2 Not connected w/ remainder of oolite section but apparently the top two Feet tie in w/ the overlying continuous exposure.
LI-3 5'-6"	LS as below w/ Faint oil odor.
LI-4 5'-6"	LS as below w/ Fossiferous Lens Upper half of zone- consist Colonnals bryozoas oolite otherwise Non-Fossiliferous as Far was observed below this zone.

may 1

Lower Iceland section

LI-5 6'-6"	LS - Lt gy v. oolitic massive bedded - Fossil Frags ?? Cross - Laminated - bryzoa Small Lens near middle of unit only sl. oolitic.
LI-6 2'-6"	LS - Lt to med gy. F to med xln. sl. Oolitic to oolitic in Lower $\frac{1}{3}$ rd. and grades upward into non oolitic LS upper 8" are Siliceous F gran Foss. LS or Limy chert. - med bedded
LI-7 2' 0"	Chert med gy med bed. F gran. v. Limy Top of Boone Form.
	trace of boone pebbles in shale at base.
LI-8 2' 0"	Shale blue gy weath. to yellow Silty - in middle of zone 5" LS med to dk gy F gran. Foss. thin bedded - some pyrite
LI-9 1'3"	LS - med. bedded med to dk gy F gran. Foss sl. oolitic in part Silty. Petroliferous odor.
LI-10 2' 0"	Siltstone khaki to gy platy to v. thin bedded abundant Fossiliferous Pyritic F. gran to ds LS. beds and Lenses - unit probably 50% LS.

May 1

LI-11	
1'-4"	LS to dk gy F to med xlln. thick bedded v. ool. frc at base grading up to sl. oolitic at top.
1'-8"	LS. med gy, F grain to ds. – silty? – thick bedded.
5"	LS med to dk gy med xlln. Foss. thin to med bedded.
LI-12	LS med to thick bedded med to dk gy yellowish where weath.
4' 3"	silty, F grain to ds. fossiliferous w/ brachs etc. Lower 2' more silty upper 2' dove colored ds. LS. w/ calcite blebs.
LI-13	LS. med to dk gy thin to
3' 0"	platy bedded v. silty some beds type of siltstone or marl interbedded w/ lime. 1' above base is 2" bed. of dk. gy v. limy chert or maybe type of siliceous marl. upper 2' are mostly siliceous dk gy ds. LS either weathering to interbedded w/ platty marl. = Med bedded or siliceous LS.

[redacted]

med. middel

LS - [illegible] dk [illegible]

silty [illegible]

[illegible]

[illegible]

[illegible]

MAY 1, 1954

ATOKA SECTION.

SE-SW

Location: Along the LURTON - BASS Road in (SW 1/4), NW 1/4, sec. 22, T 14 N, R 19 W. The section started in a small Gully bellow the Road being measured up this Gully to the Road, then along the Road To the end of the section.

—

SS underlain by 6" Kakki shale - sampled.

A-1 22'-6" SS yellowish gy weath. med to course grained, scattered quartzite pebbles. massive

26' Covered - w/ one small sandstone out crop in middle of covered zone probably SS as above and below or SS and siltstone interbedded.

A-2 24' SS massive weath soft micaceous. brown weath. color massive. F to med. gr.

16' covered

A-3 71 base not exposed SS - brown gy badly weath. massive very much cross laminated F to C grained abundant shale chips along cross laminae.

Atoka Section

A-4 15'	Shale Khaki colored when wea. bluesy when not so weath. platy bedded. 2' badly Leached SS base 7' above base of unit. F to C grained w/ shale pebbles & crinoid columnals quartzite pebbles. whole unit cross-Laminated.
A-5 4'	SS- br. gy, v. F gr. silty thick bedded.
A-6 14'	Siltstone Khaki colored, platy to thin bedded poorly exposed badly weathed Above First 5' grades into Platy Khaki colored shale.
A-7 4'6"	Siltstone Khaki colored- thin to med bedded.
13'	Lower 5' not sampled kahki colored Fissile shale slumpy not sampled. covered above- may be in part shale
A-8 5'	SS C gr. v. Lt gy. grades to F gr. quartzite pebbles. Somewhat slumpy but probably essentially in place Some shale chips and stringers near middle of unit. Med. bedded.

May 1, 1954

Atoka Section

12' covered zone.

A-9 SS- white to v. lt gy. to lt yellow-
9' ish gy v.f to f. gr.
med to thick bedded.

SS makes flat top of Hill
end of section.

Limestone Section 5-8-54
Glick & Frezon

Location: SW¼, NW¼, sec 8, R 21W, T 13 N This section starts at the bridge across the East Large southword flowing stream on the west edge of Mt. Judea quad, the section was measured north in or near the stream. The section of the main N,NE FORK. was measured to near the header.

25'0"	Approx B-RM thickness - Not sampled
165'0"	Approx Fayetteville shale thickness Not sampled. Approximately 40' between base of Fayetteville lime and B thin base
LP-1 4'10"	Limestone medium to thick bedded dark gray finely granular to dense; has thin shale and silty limestone partings up to 2" thick
LP-2 4'9"	Limestone, thin to medium bedded Lithology as underlying is with 3/4" shale partings. Basal bed [illegible] probably [illegible] siliceous or are chert
LP-3 6'0"	Limestone, medium bedded, dark gray finely granular to dense with thin shale parting up to 1" in thickness Secondary lime (caliche) on outcrop.
LP-4 4'8"	Limestone, medium bedded, finely granular to dense, dark gray with shale partings probable. Brittle siliceous (?) in lower part. Upper 6" bed fossiliferous; brachs.
LP-5 6'0"	Shale, black fissile, badly weathered, not more than 50% exposed.

Limestone Section (cont'd) 5-8-54

LP-6 7'0" Limestone and shale interbedded Limestone beds (6" thick) are 6 in number, spaced approx equal distance apart. Limestone, dk gray to black, finely granular, sl. silty softer than underlying ls. bracks and gastropods. Shale is black fissile

LP-7 9'1" Limestone and shale 10 limestone beds 4"-10" thick 2s thicker toward top with thinner sh breaks; ls dk gray to black silty with bracks; dark gray to black fissile shale. Ls also has small crin cols

LP-8 5'6" Limestone, medium bedded, thin sh partings up to 2". Upper 18" is set of 4" thick ls beds which are "knobby" with shale beds up to 2" thick. Appears to be top of Fayetteville. Limestone dark gray to black, finely granular to dense; 1 12" bed in middle is medium x/line. Top is fine granular and hard

45 (47")

LP-9 5'8" Limestone, massive bedded, dark gray, finely granular to finely x/l'n, abundant fossils in whole. Upper 8" is dark gray, fissile shale not easily sampled