Field Notes of P. T. Stafford in Mt. Judea quadrangle, Ark. Loc. Nos. 5-56-1 through 5-56-58 and 5-57-1 through 5-57-12.

NOTE:
(1) Lowest unit is described first.
(2) These deal primarily with geologic phenomena, such as contact along erosional unconf (Britkin-Cane Hill). However, lithology is certainly not disregarded.
(3) Samples of many localities were taken for further study.
(4) All locations are marked on field work map and most on photographs.

P.T. Stafford

S-56-1

Oct 16, 1956.

Mt. Judea Quad. Ark.
Sec 2, R 21 W, T 15 N, see field map.

0.8' basal unit, Pitkin ls, m. gry., v. fine-med. grnd., mea. to mo bed, upper surface uneven and appears to be old weathered surface; lower surface pitted ~~water~~, composed of ~~ent.~~ 50-60% oolites, crinoid & columnals & macerated debris rare; mea. to rough irreg. surface

elev. 1640 ~~~~~~~~~~ unconf.

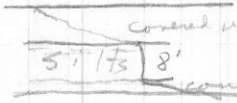
1.7' upper unit, Boone Chert member, silty ls, brownish gray, medium dark gray, mea. as a lower 1' and upper part platy, actual ledg. appears to be 0.5' or less, mea. to rough irregular surface, brachs and crinoids plentiful in ls layers to v. rare in limy silts. ls & silts gradational.

DTStafford

DTS-56-2 pit Indianola Ark Oct 23, 1956

Secs. 27+11, R21W, T15N,
see field map.

8.0' upper part Cane Hill member; silts, lt. olive gy (5Y 6/1 to 5Y 5/2), outcrop not fresh, as is natural exposure weathered, bdg platy to 3", evenly bedded, part of coloration due to limonite staining, non-fossiliferous, non-lithy, definitely Cane Hill as observed elsewhere in Cane Hill nearby. Outcrop forms top of prominence as follows:



500' South around hillside exposed Prairie Grove ss ca 15' lower than top of 8' Cane Hill silts. Base of Prairie Grove may be louder as contact w/Cane Hill not exposed. Prairie Grove forms cliff estimated at about 100' here (vert + overhanging). Basal 5' exposed here is ss, averaging m. grd (some fine + coarse), moderately sorted, subrounded

MB-56-2 (page 2

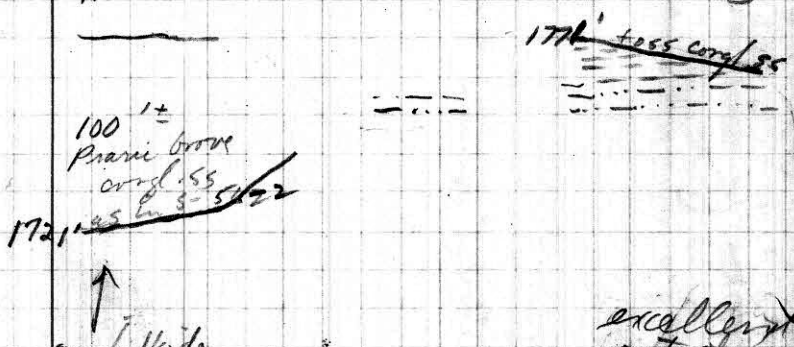
to coarse, color limonite-stnd
brown / mod yellowish brown /
light brown 5YR 5/6 grayish
brown 5YR 3/2, clear as
one massive clift ~100'±, actually
appears to be from 0 to 10'
pl. x-bd, non-living, non-fossil.

S-56-3

R. T. Stafford
Oct 23, 1956

Mt. Judea quad, Ark.
Sec. 11, R 21W, T 15N, see field map

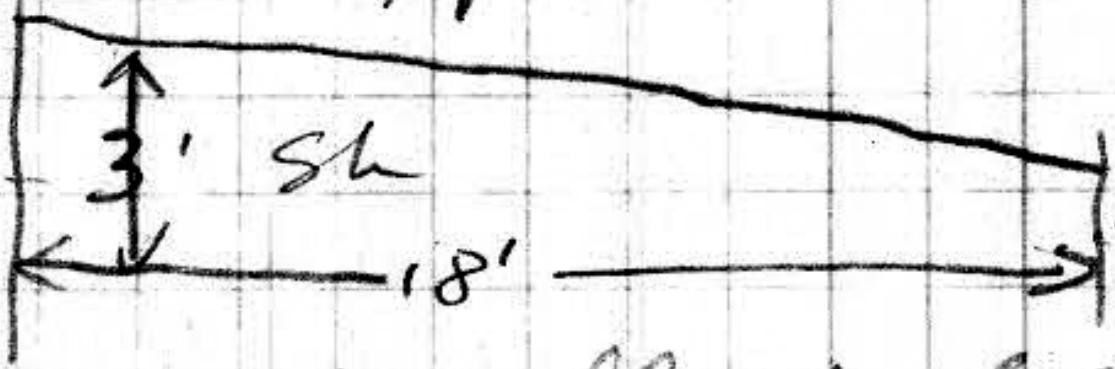
In distance of about 250' around hill, following was observed with base of Prairie Grove 50' lower to north.



excellent contact, most approx good.

At S contact in ~~Prairie~~ fossiferous conglomerate 55 cuts down in shale 2' in 18' laterally as shown:

S-56-3, p. 2



excellent exposure which cuts fissile beds of shale and coal around unconformity.

(See addl notes)

continued next page

p. 3.

5-56-3 (Continued)

In ravine sect is as follows:

Cave Hill covered downward to Pitkin & that contact also covered but approx contact by altimeter is ____ ft. (or 87' ft below highest Prairie Grove - Cave Hill contact).

12.5' coarse Sltst, lt. greenish gy. (5 GY 8/1) to lt gy (N 7), ~~contains~~ v. finely sandy, base concealed, forms excellent cliff and is same one at 5-56-4 + 5-56-4A to east. (west?) Wea platy in irregular pieces, ~~[illegible]~~, worm tubes along bdg planes, bdg ½ inch or less. non-lsing

10.5' lower 1.5' + upper 2.5' exposed, middle 6.5' covered, prob ~~same~~ forms bench. Exposures at top + base are sh, med dk. to dk. gy, very fissile, non-lsing, non-fossil. Contains many

S-56-B p. 4

limonite iron-ox layers ½" or less thick. Sharp base & upper contact.

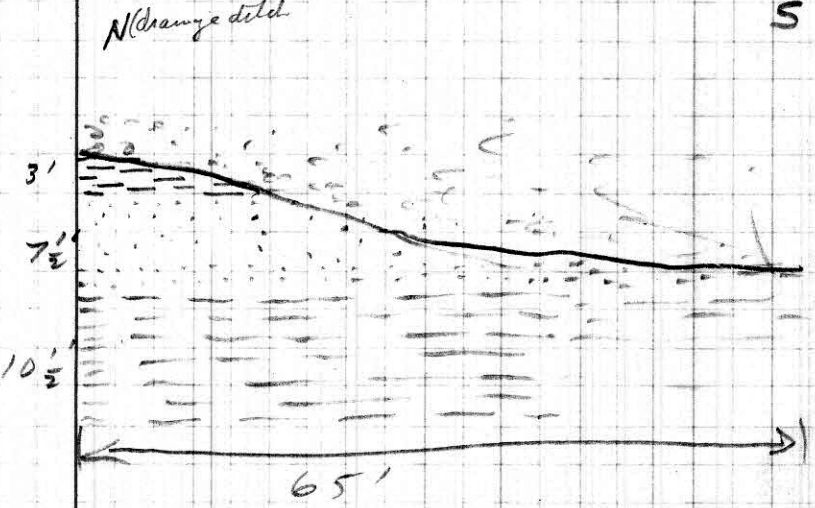
7.6' ss, lt. olive gry (5Y 6/1) to lt. gry (N 7), v. fi. gr. (5% fldsp + some f. gr.), platy (½") to 1" in wea, a few beds ½" or less, evenly bd, sharp base & upper contact, forms resistant cliff, non-limy, non-fossil

3.0' sh, max thick, is cut out within 25' to south by basal channel scour. Sh is med. gry to med. dk. gry, v. finely non-fossil, non-calc, & 20% composed of nodular layers of limonite (limonite) up to 3" thick, sharp base & upper contacts.

3.0' ss, min-max thick, brownish gry (5YR 4/1), average med to coarse grained, much finer & to granule size mat., coarse & granule + rare pebble size detrital qtz, well rnd, finer qtz is subrounded, abund to plent

5-56-3, p. 5

beach + unioid frags, X-bd, local as subsidiary unit, cuts downward into underlying Cane Hill:



Cuts down to within 2' of base of 7½' ss in 65'. At least 2' more are cut out in next 12' to south but base of Prairie base not seen

5-56-3, p.6

Pitkin - Cane Hill contact.

7' covered between highest Pitkin + lowest Cane Hill ph. in + near ravine.

Top Pitkin forms bench

S-56-4

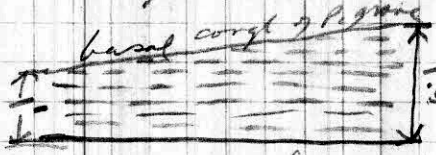
P. Safford
Oct 24, 1956

Pt. Underground Ark
Sec 10 R2W T5N, see
field worksheet map.

140' coarse-grained ss, Cane Hill, v. finely sandy in part, clayey & finely silty in part, lt. olive to med. gry, platy, as follows ~~~~~, bdg. surfaces micaceous w/ worm tube (?) imprints, no other fossils, ~~fine~~ carbonaceous material along bdg. planes. This is exposed as 14'± cliff along entire west ~~part~~ of this mountain

19.0' covered, Cane Hill

1.0-1.5' shale, med dk. gry to dk. gry, fissile, non-fossil, non-micy, slightly limonite stained along bdg planes. Overlying unit cuts down across bdg. of this 5" in 36" as follows:



V. definitely the shale does not grade

5-56-4, p. 2

into the ~~overlying~~ congl.

25.0' Prairie Grove as follows:

0.5–0.8', fine-medium grained, subrounded qtz grains w/ granules & pebbles & smaller well rounded vein qtz up to 5 mm diameter. ~~Shel~~ lt. grey as a whole but much limonite staining. A very small amt (est. 3-5 % shale slivers & pieces similar to underlying Cane Hill, but definitely does not grade into Cane Hill (Prob. reworked Cane Hill). Several other clayey brown & other limonite colored pebbles;

24.2'–24.5' sandstone lies as one massive cliff vertical or nearly so or overhanging. Natural ~~exposure~~ area, Color of broken rock is various limonite-stained (brownish grey (5YR 4/1), light brown 5YR 5/6, ~~mod~~ red & related colors.

Basal 5' ~~averages~~ coarse – v. coarse sand, some granules & finer material (esp. matrix), well rounded vein qtz, fragments of crinoid stems parts, no other

5-56-4, p. 3

fossils observed, limy, rough uneven fract, ~~[illegible]~~ pebbles abdt near top sharp uneven contact with overlying ss.

Upper 19.5 is ss, averages v. fine grained (some fine grain), non-fossil, non-limy. Top not exposed

P. Stafford
Oct 24, 1956

S-56-5 Mt Judea quad, Ark, Sec. 10, R21W, T15N,

16.0' silts, (same as 24' of S-56-3 + 8' of S-56-4), sandy + shaly forms excellent cliff.

14' ?

14.0' covered, much slumped shale, fissile similar to that in same interval in S-56-3 + S-56-4

4.0' Cane Hill sh, silts + ss as follows, all gradational one into the other. The top of this unit as a whole is sharp contact.

0.5' at base silt, v. f. sandy, lt. olive gray, wea as one unit, but ~~[illegible]~~ deposition is 0.2" or less,

0.5' silts w/some shale. silts lt. olive gray, shale med. dk. gray - med. gray, fissile to platy wea, 0.2" or less.

1.5' SS, wea as one unit similar to 0.5'

1.5' silt + shale, becoming nearly all shale at top

Cane Hill

5-56-5, p. 2

w/ ~~[illegible]~~ nearly all ~~silts at base. Lithology similar to 2.5' below.~~

unconformity, not cutting out any beds in 15' wide contact laterally.

Prairie Grove ss, med. to fine grained, lt. gray, occ. qtz. granule & pebble, sl. x-bd, weaa 0.3' to 2' in basal 5', rest weas. as one massive cliff, rough irreg. surface & fracture, non-fossil, v. sl. limy in part, mostly non-limy.

NOT 100'± east around hill congl 2-3' thick cuts down 1' into Cane Hill

S-56-6

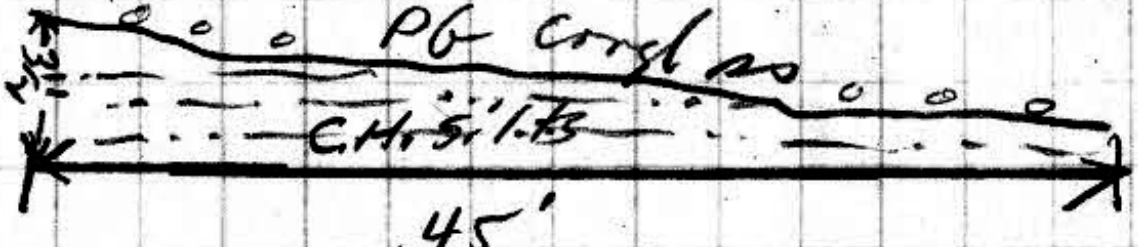
P. T. Stafford
Oct 25, 1956

Sec 11, R 21 W, T 15 N, see field map

Basal Prairie Grove cong. cuts downward from N to S along 45' of step exposed in about two 5' lateral exposures at both ends — cuts down 3.5' in 45', and truncates underlying Cane Hill.

Prairie Grove cong. as, non-clay, non-fossil in part, pebble cong. in lower 1', ex 50% of lower 2' is coarse sandstone pebble. 33 to 36' thick.

Cane Hill is salts similar to that of S-56-45-56-5 with some med dk gy shale. Only 1' of Cane Hill exposed



5-56-6A — Approx. 200' south around hill is spring in upper 1' of Cane Hill. Contact same as upper one of 5-56-6

5-56-7

Oct. 25, 1956
RTStafford

Secs. 11 & 14, R 21W, T 15N

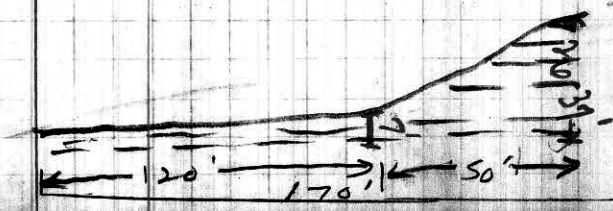
Approx. 400' south of 5-56-6 is 25' lateral sect. as follows:

5.0' s. lts, Cane Hill at base
1.0'-1.3' shale, silty, med. dk. gry.; Cane Hill.
unconformity
25'± Prairie Grove ss with basal 0.7-1.0' congl. & congl. ss.

Note: The uncon/. undulates as much as 0.3'.

From here south picture is:

N S



S-56-7, p. 2

At 120' south of north locality contact is 7' higher, at 170' is between 26 + 37', as is not well-exposed. S. 1ts cliff top is 26' higher, lowest ss. is at 37'! The Cane Hill s. 1ts beds are essentially flat-lying with no observable dip. The Prairie Grove basal beds definitely truncate the Cane Hill s. 1ts.

S-56-7A

At 425' southeast, contact cuts back down to only 7' above lowest contact of S-56-7.

5-56-8

DTS Kyford
Oct. 27, 1956

Sec 23, R21W, T15N

500' upstream from junction of stream. Start at 5' above streambed.

15' silts, Cane Hill, similar to 5-56-9.

75' Prairie Grove ss, lower, 10' I is congl. (coarse sand through pebble) very fossiliferous and borders on congl. ss. - ls. Upper 65', fine ss. Forms massive cliffs.

5-56-8A - (300' upstream from 5-56-8) Contact at about same elevation giving rise to water seep.

5-56-8B - (500' downstream fr. 5-56-8) Prairie Grove w/ granule + pebbles of chert resting on Cane Hill silts 35' lower than at 5-56-8. Walking out the silts bench from 5-56-8, the bench disappears and is obviously erosional downcutting

massive 55 cliff 8± bench base
silts scarp

Forms beautiful overhanging cliff at 80.
Contact is 32' by hand level above where road crosses stream bed.
Lepidodendron imprints present on under side of overhanging cliff.

Approx 100' west contact is 10' higher. Approx 50' further west, bench above silts appears to come back in + contact is est. at 20' higher (or 10' more)

POS

S-56-9 Oct 27, 1956

Sec 14, R 21 W
T 15 N

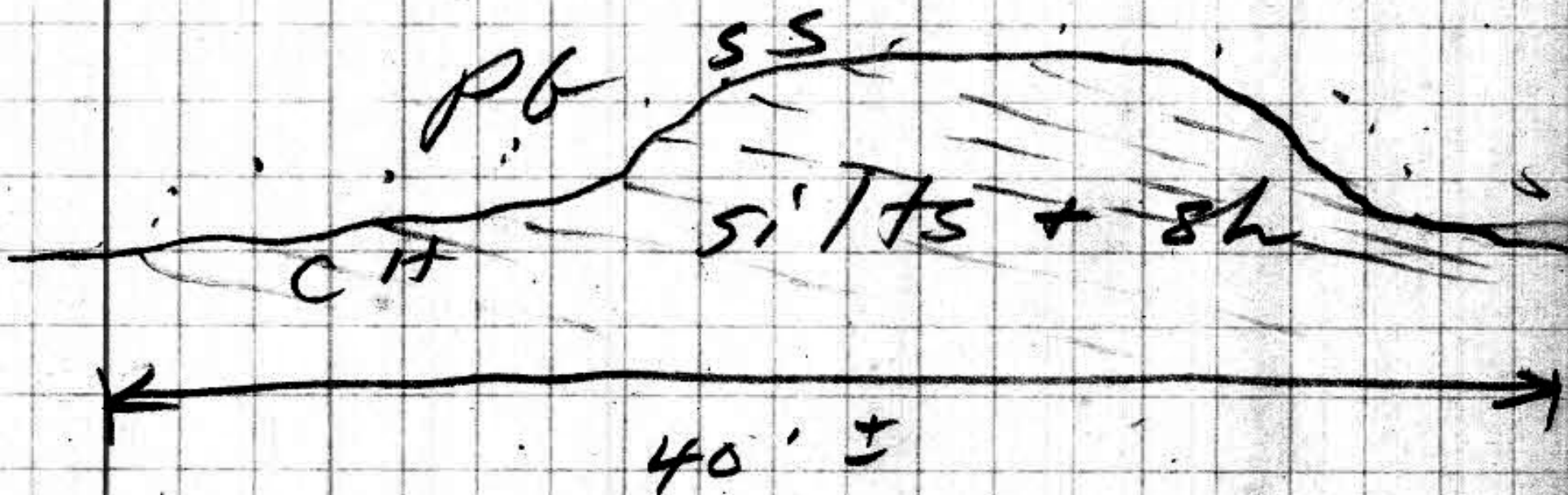
Cone Hill
1'± sh, med. dk. gy. to dk. gry., fissile, base not exposed, non-limy, non fossil.

2'-3' congl, FeO stained limonite brokens, abdt limonite pebble composed of pebble thru coarse sand well frosted qtz, with some subrnd qtz grain filling interstitial spaces. Irreg. upper contact, basal contact cuts as much as 6" in 2' laterally and undulates in 50'± of exposed lateral contact. Underlying shale bed are definitely truncated

20'± ss. v.fi - med gr., average fi, limonite stained, w/ a massive clay. X-laminated lower laminations up to 1'.

S-56-9A

Sketch at 150'± from S-56-9

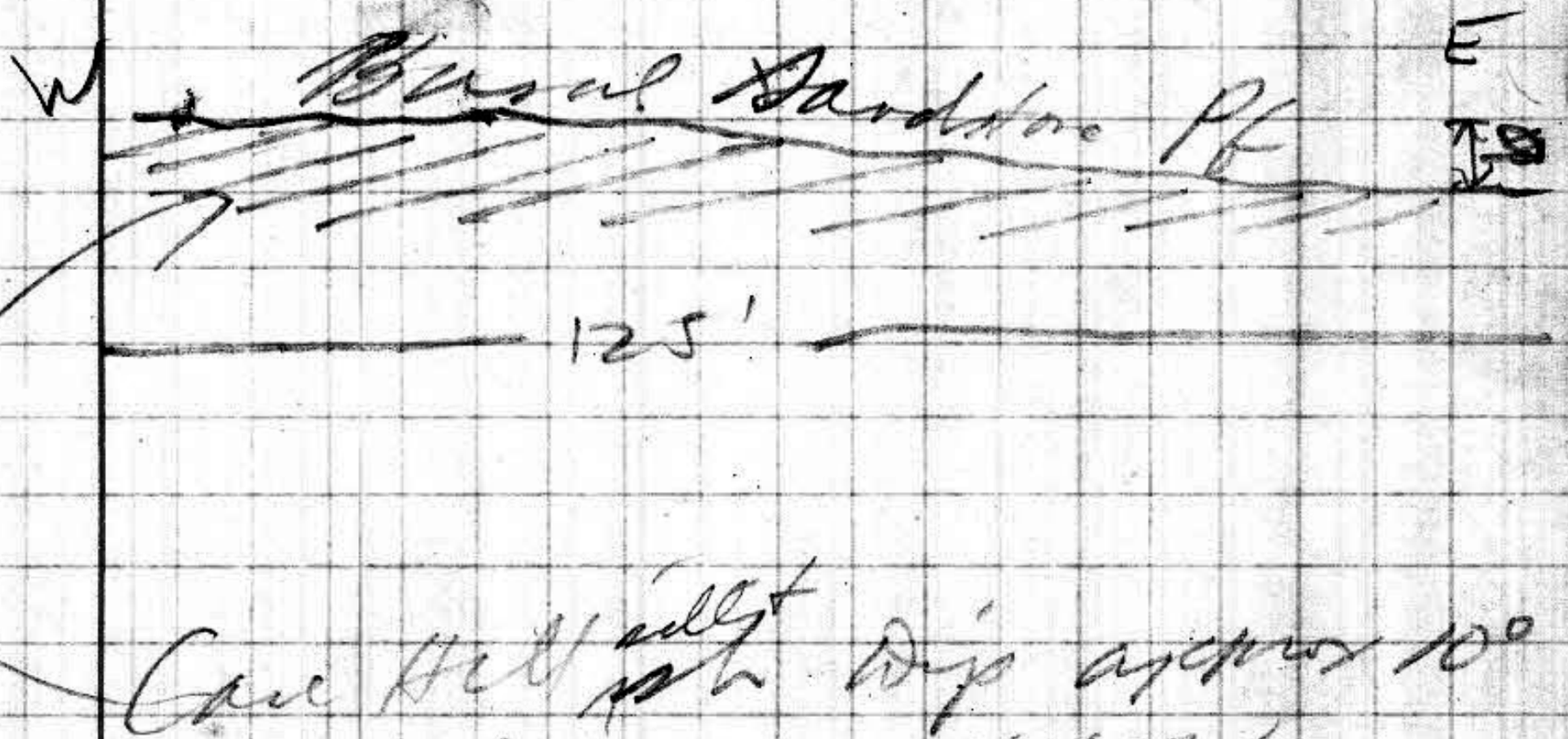


dip. Strike of Cave Hill Si/Ts is S 50E, dip 12°

J. B. Stafford
Oct 27, 1956

S-56-10

Sec 14
R 21 W
T 15 N



Oct 29, 1957
PTS

5-56-N Sec 21 R21W
T15N

(1) 3.0' coarse Cav Hect silts, H. olive gry (5Y 5/2), v. finely sandy, laminations w/ sh. stringers ling 3 mm or less, bdg 1/4" or less (platy), uneq uneven bdg planes, Base concealed. Worm tubes, and organic imprints common along bdg planes. Limonite ironstone layers up to 1/4" thick along bdg planes.

(2) 20'± SS, grayish brown limonite stained browns, ~~[struck]~~ average med. gr. size, include some coarse, granule & pebble which are well rounded vein qtz. Med include well rounded vein qtz & sub rounded qtz grains, lim. cement, ~~some~~ black residue resembling asphalt or bitumen present, forms massive cliff even at beds ~~[struck]~~ 1 to 15'± thick, & laminated, ~~& laminated~~ laminated 1.0' to 10'. ... pebble size instead common at 10' above base.

5-5b-11 p. 2

Base undulates downward 1 to 6 ft. from east & truncates Cane Hill.

From just above rd, unit appears to cut downward approx 25' although lateral contact not exposed to east.

S-56-12 Sec 15, R21W, T75N Oct 29, 1957

In vicinity of 3rd gully to west on north side of Moss Mtn. Outcrops are fair wea & moss covered.

Approx following happens:

5-56-13

675
Nov. 2, 1956

Sec 23, R 21W, T15N

2'–3' Sh, med dk. gry., fissile, non-l'iny, non-foss'l., evenly bd., contains festone layers up to 3 inches thick.

125' SS, limonite stained various browns, wea., basal 10' forms waterfalls, basal 20'± forms cliff, middle 25'± appears to be weak in stream bed but no shale. Granules to med sand size in lower 5', progressively gets to fine grain size in upper 80'±, X-bd in part with laminations up to 40°. Wea. in beds 1' to 50'±. Granules in base are well rounded vein(?) qtz.

Basal contact.

S-56-13A

West approx 1000' around hill fr S-56-13 contact is 22' (by altimeter) higher than in ravine in S-56-13. The ravine trend forms a 35°± cliff. Base appears to rise in sect. to west.

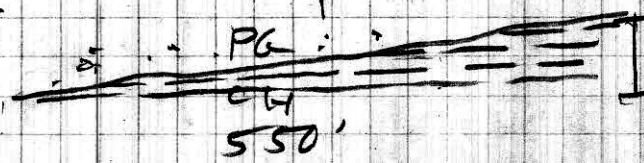
5-56-14

R. T. Stafford
Nov. 2, 1956

Sec 15, R21W, T15N

A 550' lateral sect. of almost continuous Rare Grove - Cane Hill contact.

The PG forms a 35-50 foot cliff, excellent exposures. Limonite-stained, ranging from coarse sand average near base to fine-grained at top. Much X-bdg, plant imprints common (Lepidodendron + Sigillaria), noncalc, nonmarine fossil, laminations ft. or less. PG rests on CH silts + shale as follows.



S-56-14(P.2)

Underlying shale shows some differential compaction but is cut out.

Note: 15ft gully west, contact is 45' higher than at west end of 550'.

Nov 5, 1956

S-56-15 P. T. Stafford

Sec. 26, R 21 W, T 15 N

1.0' Cave Hill sh., med dk gry, fissile, non-lmy, non-fossil. Base concealed, top contact poorly exposed as PG is slumped as much as 1'.

65.0' Prairie Grove ss, bench at top, forms outcropping escarpment of about 45° slope, limy, where weathered stained brown. Lower 5' is fine to pebble size (average coarse sand). Coarse to pebble is vein qtz well rnd, rest is sub-rnd. grains. Pebbles + granules in certain laminations fossil frags. present w/ pebble material (crinoid stems + brach frags). Upper 60'± is fine grained (v. f. - med), ±-bd in part in beds 0-40' thick. Lamination 0-3'. Lower 5' contains common amount of phosphate nodules w/ the fossil layers.

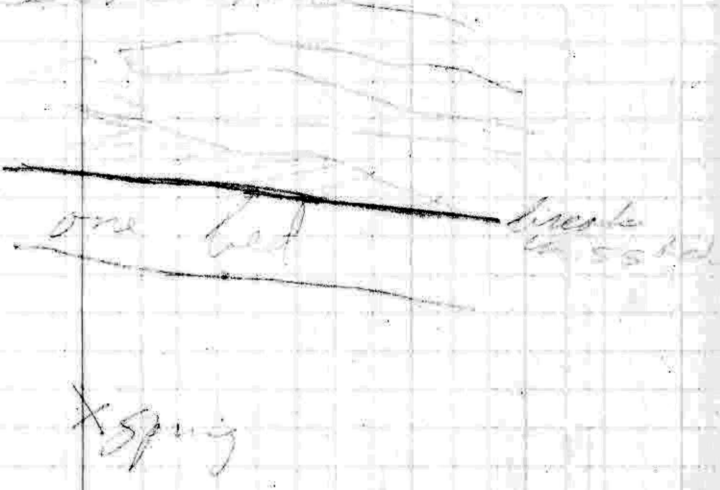
5-56-16

RK
Nov 5, 1956

Sec 22, R21 W, T15 N

Apparent dip of beds including brown X-bd. 10° to east

Contact taken to be opening which is within 5' from olive bed



S-56-17 — Nov 5, 1956

Sec 22, R21W, T15N

4'± Red [illegible] clay [illegible]

50± Cliff [illegible]
[illegible] No [illegible]
[illegible]
[illegible]
20' [illegible]

S [illegible]

No [illegible] tions

S-56-17B.

250' W [illegible]

[illegible] 16' [illegible]
[illegible]

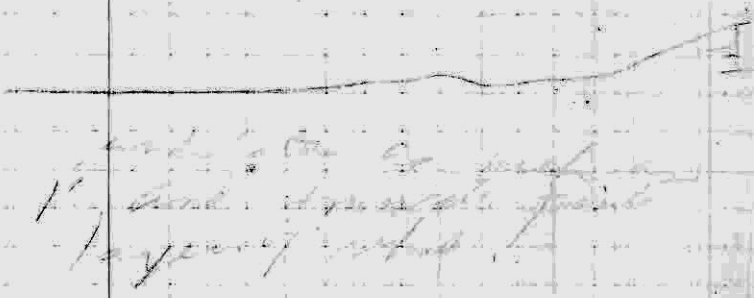
R95
Nov 5/952

Sec 21, R 2W, T 5N

13± CH

7'± CH

35'± PL



Nov 5, 1956

Sec 21, R21W, T5N

Nov 5, 1956
ARS

5-56-20

[redacted] 27, R20W, T15N

1.5 Cane Hill congl, no Cane
+ upper in fact [illegible]
oo [illegible]
[illegible]

collected

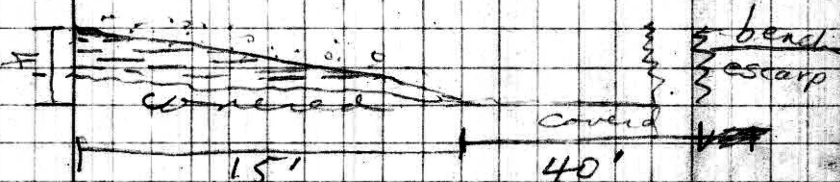
5-56-20A
350' E of 5-56-20
2" Cane Hill [illegible]
Congl as . . 55 1" [illegible]
[illegible]
[illegible] 4" [illegible]
[illegible]
[illegible] collected

Nov 2, 1986

5-56-21

Sec 26, R21W, T15N

Contact as follows



1.5' Cane Hill Sh, med. dk gray, has dip of about 3° to west, but bedding is truncated by Prairie Grove

35.0' Prairie Grove SS, series of [illegible] covers 17', average coarse grained (fine thru granule, some pebble). Coarse thru pebble is well rnd [illegible] qtz w/ phosphatic & quartzite(?) pebbles, [illegible] sub-rnd qtz grains, some congl of pebbles in 1' or less lenses. Make up volume wise of 50% or more pebbles of qtz.
Cross bedding dipping as much as 15° to SW, otherwise beds horizontal.

S 56-21 p.2

Truncate, cuesta, Cave Hill as much as 15' as a dip cove. Color limonite stained red brown, etc. Limy where fresh, part non fossil.

Upper 18' average of fine grained orange fine to med gray silty, limonite stained brown, med. 1 to 4 gray where fresh, limy where fresh. Bdg 1 to 15', laminated 2 or less at X-bd, mostly fairly evenly bd.

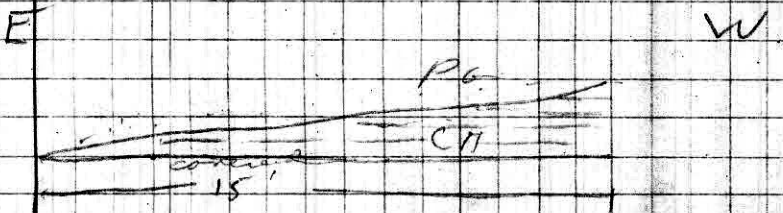
Lower 17' bdg grades to upper 18'. Still weathers ridges front, though, weathers on surface.

Contact remains clear for 500' ± to east, then mid 10' (on map)

S-56-21A

1300' ~~east~~ upstream from S 56-21

In stream on S side
Cave Hill [illegible]
truncated / 2' in 15'



S-56-22

P. T. Stafford
Nov 2, 1956

Sec 26, R 21 W, T 15 N

2.0' ; wea as 3' wide block of Pitkin downstream may be eroded from farther upstream due to dip.

1.7' Cane Hill congl., base concealed, much matrix is med. grey ~~festone~~ filling in and around phosphatic grayish black pebbles up to ¾" diameter but flat. ~~This~~ festone weathers to or near grayish red (10 R 4/2) and makes much of surface of rock in stream bed. Boulders of Pitkin is up to 1.7' wide are common. Mat. ranges downward to coarse sand and some fine sand. Many of the Pitkin blocks are angular.

Top surface exposed for 55' along creek bed and 12' wide. No Cane Hill fossils, only crinoid stems in Pitkin frags. Very rough uneven wea. surface.

Has a 15° dip to S, strike E-W.

1.0' covered, prob sh.

5.0' May be greater due to dip, silty sh., med. to med. lt. gry, extremely finely macerated plant material (carbonaceous), otherwise nonfossil, nonlimy, upper grad-contact.

0.2' sh, mca to lt. gry clay.

1.5' silts, lt. gry (w/ part Fe0 stained mod. yellowish brown), sl. calc., ~~Calamites~~ Common along bdg. planes, mod platy, sharp basal contact.

0.5' sh., dk gry (N3), fissile, nonfossil, nonlimy, sharp basal & upper contacts.

1.0' Weathered lt. gry clay; top covered.

Nov. 7, 1962

5-56-23 PVS

Sec 27, R21W, T15N

Pitkin, upper 10' desc. only; forms 2 cliffs, upper one 20±, lower one rest. Ls, med. lt. gy (N6) to lt olive gy (5Y 6/1), v.f.-med. oolites compose [illegible] all except space between oolite, rough even to subconchoidal fracture. Wea surface rough, uneven + med. lt. gray color. Crinoid stems absent to common. Upper 5' has black bituminous mat. + petroliferous odor in part.

6.0' ss, Cane Hill.
Basal 2' is ls, med. lt. gy. (as fine upper third in Pitkin) Sharp basal contact, Comprised of Crinoid stems + reworked Pitkin oolites (est 90% at base to about 60% at top). Fine grained qtz sand comprise the rest-and. Gradational upper contact in about 2" were similar to Pitkin, roughly flat.

5-56-23 (p. 2)

~~[illegible]~~ X 1.05 ~~as~~
~~average~~ V. fine gr (silty to
fine); ~~[illegible]~~ lt. gry
when fresh, most pieces are
wea dk. yellowish orange
(10 YR 6/6). Non limy, non-
fossil. Well cemented w/
siliceous cement (~~appears~~
limy, but not). Rough irreg. fract.

Entire unit wea. as one
bed, but laminations are
3' ~~[illegible]~~ to 0.

50'± - Wet in gully
Pitkin

6.0' CH The 6' above is present, but
ls is 3½' thick + ss 2½'.

At top of ss is ~~[illegible]~~ 0.1' or
less congl. as in S-56-22.

3.0' Covered, prob. sh.

0.2' silts, med. gry., v. fi. sandy, v. tenacious,
semi-conchoidal fracture, wea as one
bed. Non-fossil, sharp basal & upper

S-56-23 (p. 3)

Contact, sh. lime. May be phosphatic

1.5' badly wea. sh. (clay now) containing 1" diameter limey nodules of wht. gry - lt. gry ls.

1.7' silts, dk. yellowish orange to med. yell. brown (fairly stained) wea. in bed 1" to 6" also laminae same. Non lime, non-fossil, wea as blocks, rough, uneven fracture. Sharp basal contact. Top covered, prob. no more.

S-56-23A

200 ± ft. west.

Contact & lithology similar.

10' ± Pitkin ls

12' Cane Hill: basal 6' ls
upper 6' ss, lower calc.

ABS

5-56-24 Nov 7, 1956

Sec 27, R21W, T10N

Formsby

7" Pitkin

8.5' Cane Hill, similar to 5-56-23
basal 3'± lys. sandy
grading into 2.5' lime,
then non-lenty 3' ss.

Cane Hill
Pitkin

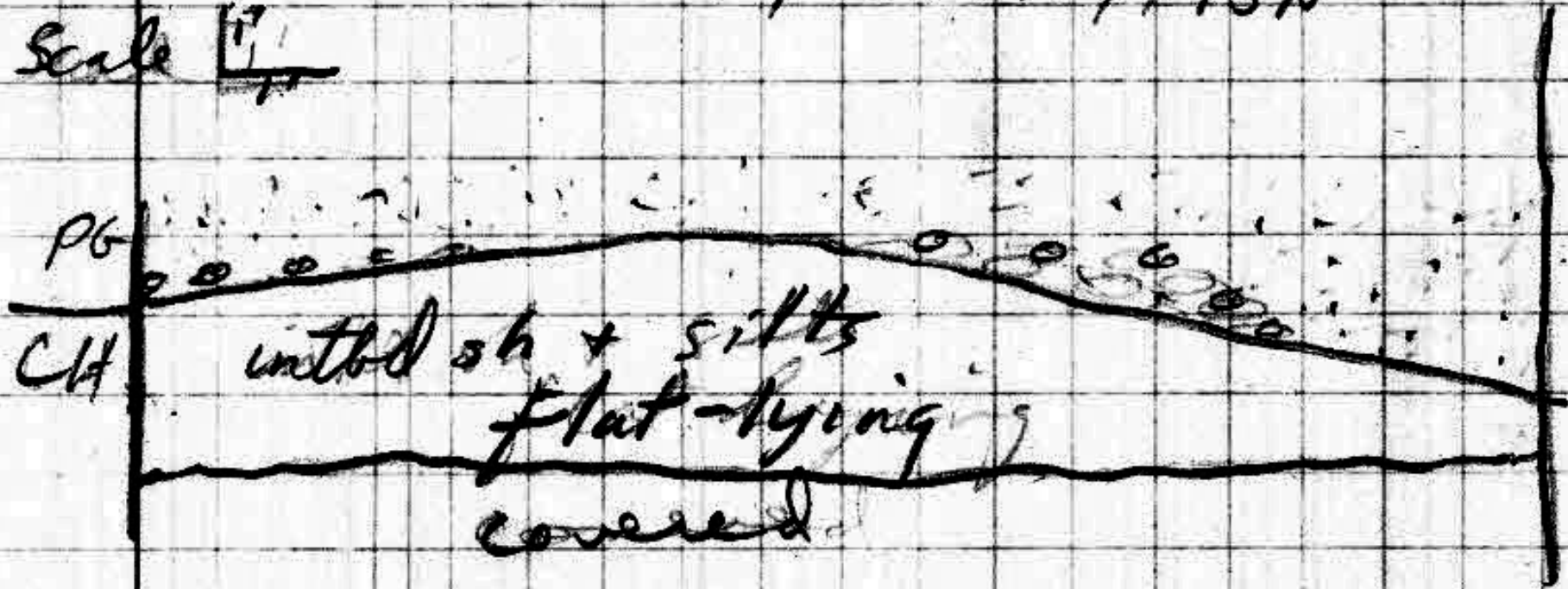
No undulations!
Appears flat-lying

5-13-25

DTS
Nov 8, 1956

Sec 26, R 21W, T 15N

Scale 1" = 1'

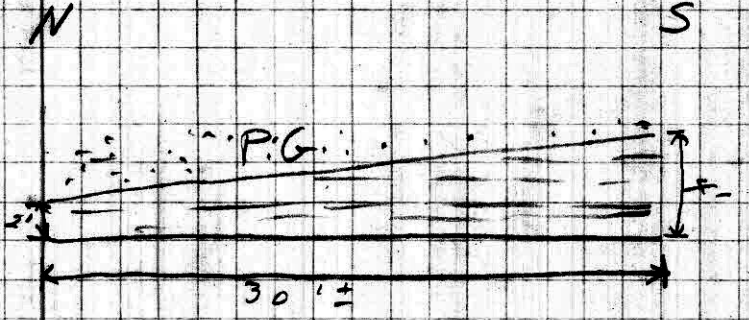


S-56-26

RTS
Nov. 8, 1957

Sec 34, R21 W, T 15 N

Good area to measure CH + PG in streambed.



PG truncates Cane Hill sh 2' in 30' from South

50' west lower 10' of PG cong contains channel (some large) of Cane Hill sh.

[redacted]

Describe in detail on bad day

Nov 11, 1956

S-56-27

Sec 35, R21W, T15N

Photo PMA 1942 series DBI-1C-150

7.0' Cap hill coarse silts, base concealed (some poor outcrop in cut, 45° [illegible] down road), lt. olive gray (5Y 5/2), platy wea, non [illegible], non fossil.
Contain two concentrations of resistant nature w/silica cement 2 x 0.8' and 1.3 x 0.6 ft. From 1 to 2' below top

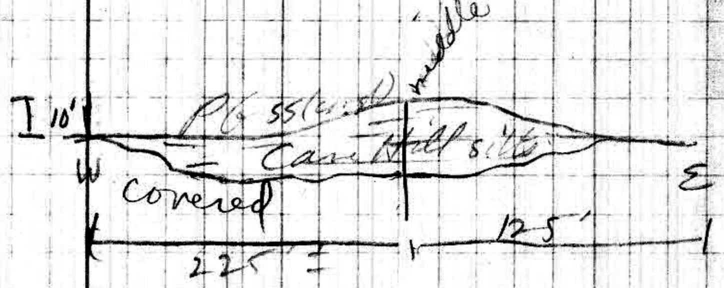
30'± Previous above as basal 5' conglomerate. On a bad day sometime describe this section in detail).

5: 56-29

P.T. Stafford
Nov 11, 1956

Sec 25, R 21W, T13N
1942 PMA photo DBE-1C-142

Contact not well exposed,
but noted here by means of
appearance & undulation



S-56-30

W. Stafford
Nov. 11, 1956

Sec. 30, R 20 W, T 15 N,
PMA 1442 photo DBI-1C-142

2.5' Pitkin ls., lt. olive gry (5Y 6/1), wea. as total thick., smooth, irreg semipitted surface. Covered at base.

8.0' Cane Hill ss-ls. Strings & lenses of thin ss and on larger ones of ls, sandy (est 80% ls. sandy); contains reworked Pitkin frags. ls. is oolitic. Lt + / 1st looks like Pitkin w/ss plastered on it.
Very resistant, wea. as beds 4-8' thick, X-laminated up to 15° dip in beds up to 1' thick. Wea rough, fract. rough, irreg.

3.0' Wea. mat., most appears to be claystone, med. gry.

1 2b. 91

RPS
Nov 11, 1957

Sec 25, R 21 W, T 15 N
PMA 1942 series photo BBE-1K-142

3' Atkin ls, [illegible]

3' Sumo Hill l [illegible] sandy [illegible] to 5-8-30

8' [illegible] non [illegible] v.f. [illegible] blocks from 2 to 8 [illegible]

Nov 12, 1956

B-P PTS

Sec 24 R 21W, T15N
1942 PMA photo DBE-1C-142

PG
PG SS
CH Covered bench
SH BS

Prairie Grove
Coarse SS
No bench
SH BS/CH

E 150 W

At 400' east of E end elevation is 2' higher at contact - still no bench.

100' E of that bench is located and elevation is 9' higher.

Nov 12, 1956

S-56-33

10' ~~Pitkin~~

12' ~~Sandy~~ ls — Lucy as (Cane Hill

Describe sometime if needed

Sec 19, R 20 W, T 15 N

1942 ~~[illegible]~~ photo

DBI-1C-142

Nov 13, 1956
PTS

S-56-34

Sec 29, R 21W, T15N
1942 PMA photo DBI-1C-183

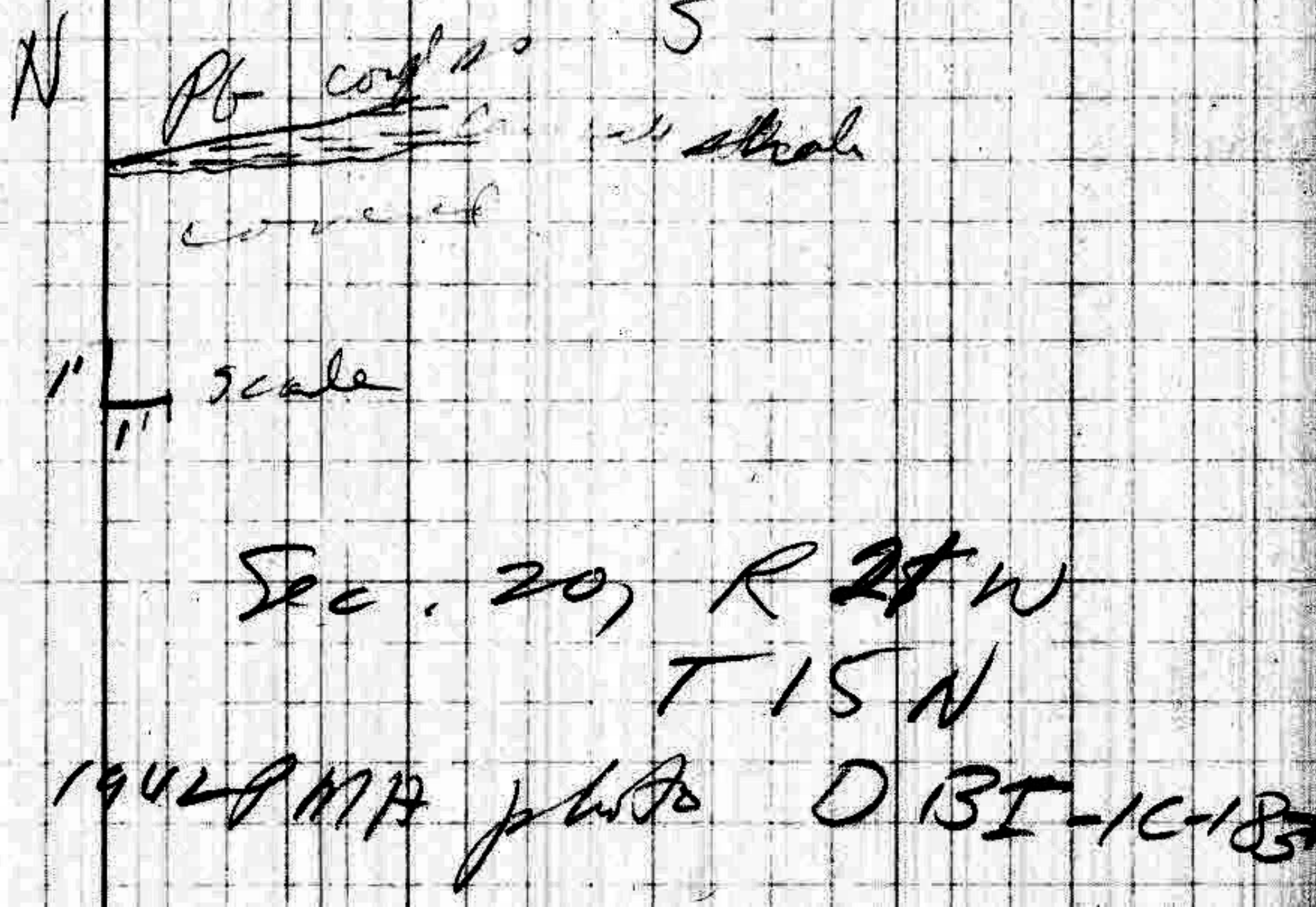
(1) 2.0' (pifferin) ls, lower bed 0.4', upper bed 1.6', base concealed, med. dk. gry (coloration due largely to oil stain), wea. surface med. lt. to lt. gry, average grain size coarse sand (ranges from silt, and prob clay size, to pebble size of 10 mm. Wea. surface & fract rough irreg, comprised largely of crinoid stem frags and oolites. No other organic frags recognized. Has vugular & other porosity and is dead oil-stained & has petroliferous odor.

(2) 6.0' Cane Hill ss, ranges from dark gray (N3) in basal 1' to [illegible] lt. gry (N7) in upper 3'±; middle 2' is between these (coloration due to oil stain). v.f.–f. gr., porous, non lim., non fossil, contains abundant dead oil in basal 1' & less so upward. Wea. as one massive bed. Lenticular 0.8' to 3.0'. Covered at top.

Nov 13, 1956

DS

S-56-35



Sec. 20, R 2W
T 15 N
Humboldt Co. Calif.

5-56-38

JT Stafford
Nov. 16, 1956

Sec 17, R 20 W, T 15 N

1942 PMA photo DBI-1C-112

(1) 10.5' Pitkin ls, flinty w/ spheroidal concretions, forms cliff, prob. v. argl.

(2) 10.5' Covered, part of cliff, prob. ls.

(3) 21.0' bench, covered, prob ls

(4) 32.0' covered, seamy, prob ls

(5) 5.5' Pitkin ls, oolitic, wea as one bed.

(6) 1.0' Cane Hill, congl., appears to be approx. in place (Contains ~~[illegible]~~ oolites & argl sh.)

See samples (1) + (6) if better desc. is needed

P. Stafford
S-56-39 Nov. 16, 1956

Sec. 9, R 20 W, T 15 N

1942 PMA photo BBE-1K-112

① 10'± Pitkin ls., oolites common in upper 5'±, lt. olive gray (5 Y 6/1), fragmented fossil debris plentiful, v. tightly cemented w/ lime mud.

② 5' covered

③ 18' limy ss., Cane Hill, altimeter reading at base of this. Some thin limestone beds up to 8' thick. med. dk. gray (N 4), v. f. grained abdt. silt-sized grains, oolites abdt.

300' E is spheroidal balls in flinty ls. at 15' below base of 18' unit. Doesn't give w/ S-56-38 unless erosional surface.

RTS

S-56-40 Nov 17, 1956

Sec 9, R20W, T15N

1956 PMB photo DBI-1C-112

(1) 10' ± ls, oolitic, Pitkin
Formation

(2) 15' ss, Camerhill

See detailed description
from samples if needed.

5-56-41 JS
Nov. 17, 1956

Sec. 7, R20W, T75N
1942 PMA photo DBI-1C-139

(1) 6' Pitkin ls, friable argl with spheroidal concretions, base concealed.

(2) 1' Covered

(3) 1' Pitkin ls, crinoids & unidentified fossil frags.

(4) 15' sh, friable, all appears to be Cave Hill, although much weathered.

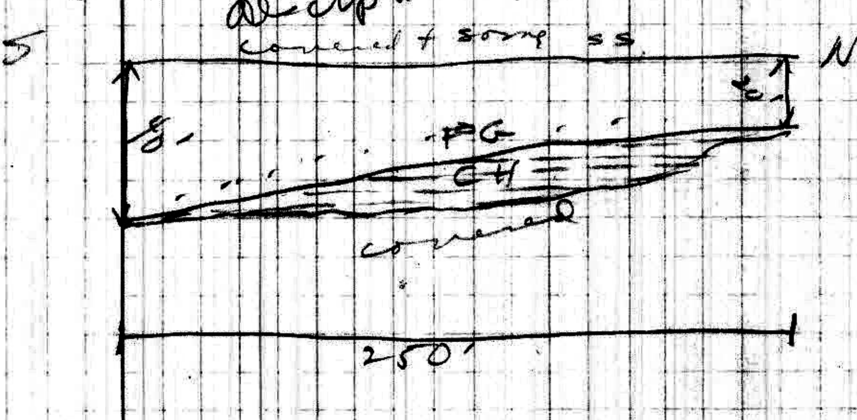
S-58-42 Nov 18, 1958
PTB

Sec 10, R21W, T14N
1942 PMA photo DBI-1C-148

(1) 0-20' Cane Hill, sh., fissile, med. lt. gray w/ ironstone layers up to 3/4" thick, silty layers in part.

(2) 20-40' SS, in basal 2½' ironstone pebbles mean well as one massive cliff with much x-lamination in 0-20'.

(1) + (2) sampled for better lith.



Prairie Grove cuts out Cane Hill with 20' lower at base to south than to north 250' horizontal distance. Hence

5-26-42 (2)

Cane Hill dips 2° in direction S30E and 7° at right angles (e.g. S60W) — so figure out strike & dip of Cane Hill.

Note: At (3) + (4) just N at drain, Cane Hill pitts [illegible] Ch. is flat-lying

P T Stafford

5-56-43 Nov 22, 1956

Sec 12, R21W, T14N

1942 RMA photo DBI-1C-45
(describe samples in detail graded)

(1) 3.0' Pitkin ls, wea, as one bed, rough uneven wea surface, covered below,

(2) 4.8' covered, (Pitkin ls)

(3) 0.3' Pitkin ls, crinoidal, ~~one~~ bed with base concealed, v. small amt of dead oil

(4) 3.5' ss, Cane Hill, limy, reworked oolites, wea surface - rough sandy appearing, wea as lower 1.8', middle 1.1' and upper 0.6' beds (may be ls in part)

(5) 3.0' covered

(6) 15.0' ls, ~~Cane Hill (looks like~~ [illegible] looks like oolitic Pitkin, wea. as one massive cliff, laminations slight cross-laminated 0-3'

(7) 0.9' covered, prob Prairie Grove

(8) 160.0' Pbss, by altimeter, all exposed as series of cliffs up ~~to~~ to 15' thick, wea in beds 0-15' thick and X-bed laminations 0-5', lower 55

5-56-E 3/25

Conglomeratic, middle 65'
med-coarse, upper 40'
med gr. (See Samples) Do
formed base of Leach

S-56-44 Nov 22, 1956

Sec 12, R21W, T14N

1942 PMA photo DBE-1C-145

3.0' Pitkin ls

23.0' Cane Hill, ss-ls, Basal 5' ± exposed, and upper 3' ± with about 15% in between.

——— contact, flat, fairly even, Cane Hill undulates just in a 5' wide exp.

5-56-45

PTS
Nov 23, 1956

Sec 14, R 21 W, T 14 N

1942 PMA photo DBI-1C-145

2.0' sh, finite, base concealed

40'± Prairie brown ss, basal 4'± conglomerate

$\frac{ss}{sh}$

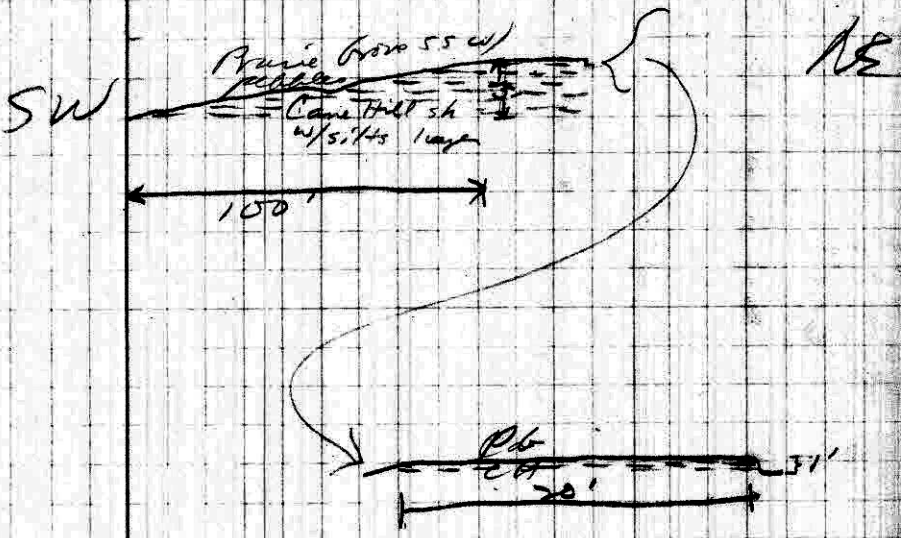
In five foot laterally contact smooth, but sharp and even. No undulations.

5-58-46

2001 23, 1986

Sec 23, R 21 W, T 14 N

1936 Forest Service photo GD-8-97



Cane Hill truncated w/undulating Pb 15' in 100' then, 20' is level contact, then Pb cuts down sharply & vertical for 1'.

JB

5-56-47 Sec 4 R 20 W T 14 N PMP Nov 27, 1956
1942 photo DBI-16-107

100' Narrowed bill is 5' of mission as below

(The Cave Hill bench is approx 20' below. The base of this exact spot, within 20' of base of 1?)

① 1.5' Sltst, wea. friable to platy, lower 1' has apparent dip to north along direction of outcrop of 10° representing foreset beds, upper 0.5' flat, representing topset beds. At first thought was Cave Hill but contains two qtz. pebbles.

Cave Hill

② 6.5' with sst sills, contains rare qtz pebbles in lower 2.5' but very conglomeratic in upper 4.0'. Wea in beds of 0.5' or less, irregularly lumpy uneven bedded as if mud flow in part, ... has many pieces of shale + siltstone lumps in it. Sharp basal + top contact.

Cave Hill

③ 50' SS, wea massive no pebble. 15' lower) vertical cliff, last 45° slope. Prob more above, but too covered, but is same steep slope for 50'+ above

Pb

Samples of ①, ② + ③ if needed.

Nov 27, 1956

S-56-48 Sec 4, R 20W T 14 N 2942 PMD Photo DBI-1C-107

Good sect. fr measure in detail

At overhanging cliff,

(1) 4.0' sh, Cane Hill, fossil, rare flat ironstone concretions

(2) 105.0' ss, P.b., conglomeratic w/ qtz. pebbles only; in band 10' some chunks of Cane Hill inclusions, weathers as [illegible], lower 10' gives rise to much dripping water. Forms total outcrop in draw. More sect. above in draw

Samples of (1) + (2)

In 50' laterally contact undulates no more than 1". Contact is sharp.

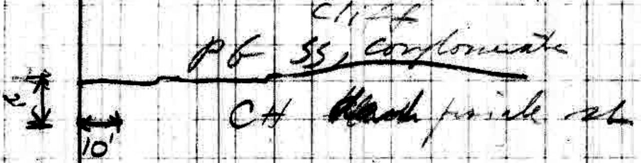
Pb

CH

PB
Nov 27, 1956

S 56-49

Sec 4, R 20 W, T 14 N
1942 PMA photo
DBI - 1C-107



Pℓ undulate as much as 1' along on top of Cave Hill

cutting out (truncating) shale bed

5-56-50 Nov 28, 1956

Sec 7, R 20, T 14W

1942 PMA photo DBI-1C-107

① 18.0' silts, CH with ext 10% cmtd silty sh + sh, wea platy except shale is friable

② 6.0' sh, CH friable

③ 45.0' ss, PE massive, vert to 70° slope cliffs, x-laminated 0-4"± non-congl. may be thicker but not more than 10' more. Upper 20' of 45' is poorly exposed.

Samples of ①, ② + ③ for better descr.

Contact on SE side is

sharp even, undulates as much as 0.1' in 25' laterally

PE

CH

S-86-51 DK
Nov 28, 1956

Sec 8, R 20 W, T 14 N
1942 PMA photo DBI-1K-107

08.0' top + base concealed, Castle Hill ss-ls just with 5' of top of pt. thin

v.f.g., med dk gray in base where dead oil stain (?) is plentiful to yellowish gray (5 Y 8/1) in upper part

Oolitites abdt in basal part + in lensing beds makes up as much as 50% of rock. This unit varies laterally + vertically from ls to ss.

(see sample

S-5852 PM

Nov 28, 1952

Sec 5, R 20 W, T 14 N

1942 AMS photo DBS-1c-107

(1) 40.0' Pitkin Ls.

(2) 10.0' covered

(3) 16.5' (sample) Ls-55, Cano Hill, wea in ledges 0.3 to 3.0, but most 2 to 3 ft.

Ls, calcarenite to ss, very fine - fine grained, varies laterally & vertically in lenses & beds of ss & ls.

Best Ls resembles Pitkin, medgy oolite, rare to common, unident fid fossil frags & crinoid stems common, has a subconchoidal fracture & appears very pure. Best as is

Mod gray, fine - fine grained, very calc, non-fossil

Both dead oil stain

PTS

5-56-53 Nov 29, 1956

Sec 6, R 20 W, T11N

DBI-1C1Y5

32.0' ls-ss, lumpy, silty, calcareous to v.f. ss., base concealed, prob. no more than 2' more. Top prob represents top a ~~soil~~ above, very ferruginous, tree in beds 1.5 to 6", laminated up to 1". ~~Brush~~ Cave Hill, base of bench + top of ?? 7'+ below.

See sample for better desc.

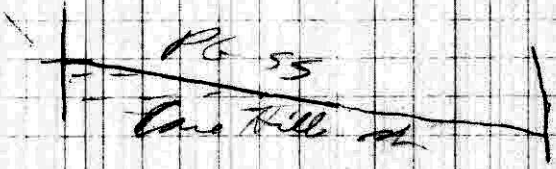
5 56-57 Dec 1, 1952 AWS

Sec 6, R 20 W, T 14 N
DOI-IC-145

(1) 20' Cane Hill sh, fissile

(2) 20.0'+ Prairie Grove ss, one massive cliff, 0.1' sh. x-laminated, ±2± other pebbles abundant to absent in bed 3', none above

Samples



Trace

In next 180' east, contact undulates 5'±.

PTS

5-56-55 Dec 1, 1956

Sec 7, R20W, T14N

DBI-1c-145

20.0' Basal Cane Hill as freed as massive overhanging cliff; lamintd 0-1'±

① basal 3', grad into overlying ss, fine gr., abnt. white fossil organic shell frags + unident frags., dk-gry (N3), platy

② middle 1'± grad into overlying + underlying

③ upper 16', dead oil in basal 2'.

Samples 2/

See lith. desc. is need for these three

lamination, abdt dead oil residue

S-58-58

JTS

Dec 12, 1958

Sec 15, R 20 W, T 14 N

1936 Forest Service photo GD 31-5

① 2.5 to 3.0' silts (Cone Hill) with nontorn layers, upper contact undulate as much as 2'.

② 4.0' ss, lam brown, wea as one massive bed, laminated 1' to 0' & x-laminated, no pebbles in them.

ss cuts down 0.5' in 5.0' to SW and truncate flat-lying Cone Hill silt

③ 7.0' crossforms bench.

④ 12.0' ss, similar to 4.0', form one massive bed.

NAME Apr 2 1952 DATE

U. S. GOVERNMENT PRINTING OFFICE 16—37601-1

S-57-1 Secs. 27 + 34, R 20 W, T 14 N
Forest Service 1937 photo GD-31-1

① 1.0' sh, Cane Hill

② 175.0 ss, Prairie Grove, no congl., x bd in lower 125', upper 50' less x bd.

Contact is sl. undulating (up to 1", uncon., sharp, and is approx 11' lower in 20' along strike in direction S 20 W.

③ 108.0' Covered

④ 1.0' sh. Morrow

⑤ 20.0'+ ss, Atoka, x-bd, cliff
Contact sharp, even

U. S. GOVERNMENT PRINTING OFFICE 16—87601-1

Apr 6, 1957

5-57-2

Sec 22, R20 W, T 14 N

1937 FS photo GD-9-53

(1) 4.0' Cave Hill
Sh, fissile,

(2) 30.0' Same bore
ss, congl. in base 1', X-bd,
occ as massive cliff with
secondary bench 10' ± above
base, occ. ss beds 0-2',
laminated 0.2' or less.

Base 1' undulates appox
1' in 20' downward SW to west
and truncates underlying Cave
Hill

Apr 9

Sec 21, R 20 W, T 14 N
1937 FS photo GD-31-3

S-57-3

above Pb also

Good sect in creek
Should be measured

upper Pb SS truncates
underlying shale beds 1' a
15' from S to N.

2.0' - 3.7' ss truncates
lower cd shale.

upper cave hill shale
lies parallel with lower bed.

See samples for base of
rocks.

NAME Am 10 DATE

U. S. GOVERNMENT PRINTING OFFICE 16—87601-1

S-57-4 Sec 28, R 20 W, T 14 N

1937 FS photo GD-31-3

Needs to be measured as part of detailed sect if more Pitkin

2.0' Pitkin, base concealed

① 10.0' ls, upper part may include some sh. / calc. sand
8.0' covered

② 1.0' calc ss, base concealed

③ 1.0'± phosphate ? bed

④ 14.0' covered

⑤ 1.0' sh

⑥ 15.0'+ ls, silty ss, cliff former

Apparent dip of Pitkin 3° E along highway.

Note: Very fossil in phosphatic part; some Pitkin fragments in basal ss, indicating erosion.

Fossils should be collected

5-57-5
Sec 18, R20W, T14N

1936 Photo F. Service 6D-9-31

(1) 30.0'+ Pitkin ls, top of cliff, may be top of Pitkin

(2) 16.0' covered

(3) 16.0' ls, Cane Hill, congl, crinoid stems + pebbles abdt. Rarely a [illegible] cobble.

(4) 10.0' covered

(5) 15.0' ss, forms cliff

(6) 25.0' covered

(7) 20.0'+ Prairie Grove ss.

5-57-6

(1) 3.0' ss Atoka otcp as one massive bed, laminated in beds 1" to 1', wea to square blocks, overlain by 10'± more ~~soft~~ soft material on hilltop. Crops out completely around South side of hill.

See rock sample, + describe

Well up in Atoka

Sec 32, R 21 W, T 16 N

1942 PMA photo DBI-1C-178

5-57-7

Sec 32, R21W, T16N

1942 PMA photo DBI-1C-178

(1) 40' Morrow Silts, has some 1" or less lenticular layers of iron-weathering, well platy to finish

(2) 50.0' Atoka SS, well as massive cliff

Contact undulates as much as 1' in 20' and at places suddenly.

Contact exposed for 40 ± Saturday.

The Atoka thus is exposed unconf. w/ Morrow

5-5 7-8

Sec 32, R 21W, T16N

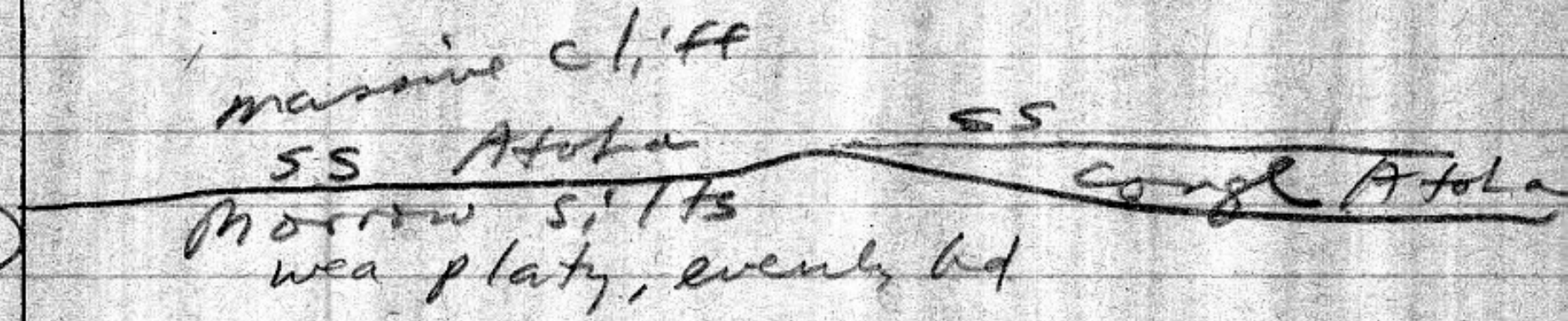
1942 PMA photo DBI-1C-178

3' sh., fossile, Cane Hill

20'+ SS, basal 1st congl. of P. 6.

NAME 5-57-9 DATE Apr 29, 1957

U. S. GOVERNMENT PRINTING OFFICE 16—87601-1



Atoka cuts down 1' ± into Morrow truncating evenly-lying beds

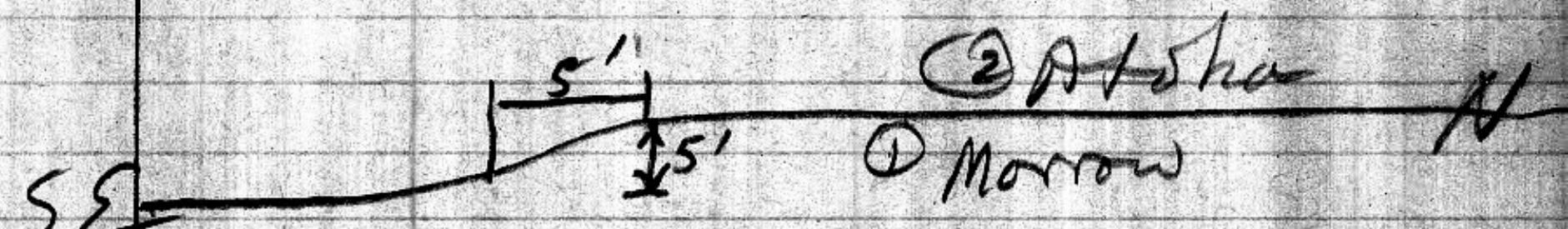
Photo DBI-1C-178

Sec 32, R21W, T16N

5-57-10

Sec 32, R21W, T16N

PMA 1942 Photo ~~DBE~~ BE-1C-178



Atoka SS cuts down 5' from E and south

Base of SS Congl has only remains

NAME PT Stafford DATE Apr. 24, 1957

U. S. GOVERNMENT PRINTING OFFICE 16—87601-1

S-57-11

Sec 32, R 21 W, T 16 N
USDA 1942 photo DBI-1C-178

PC ss

CH silts + ss

① 10.0' CH silts + ss interbd in beds 0.5 to 1.0', ss occ in beds 0.5' or less, silts friable to platy

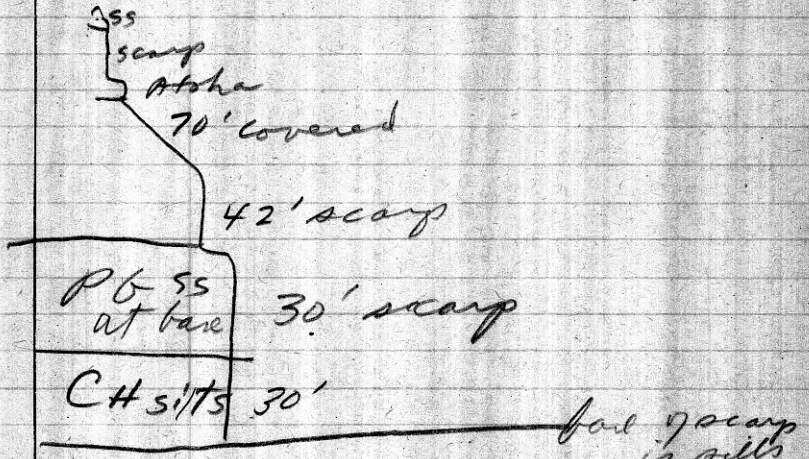
② 35.0' PC ss, occ as sl. x-bed cliff in benches & up to 10' thick blocks

③ 2.0' sh, friable, med. gy

NAME J Stafford DATE May 5, 1957

U. S. GOVERNMENT PRINTING OFFICE 16—87601-1

S-57-12



Pg SS cuts down 1' to west in distance of about 4', truncates bedded silts.

1954 CSS photo DBI - 2N-72

Sec 6+7, R 21W, T 15N.