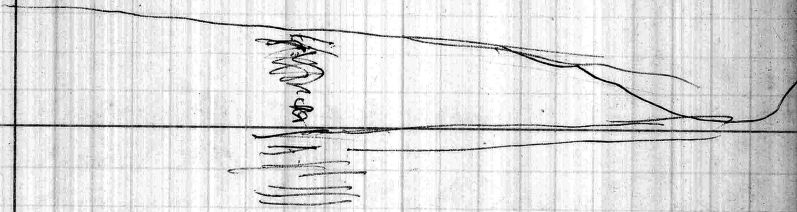


4

Ozone Quad

Ozone Quad.
Float Trip
Hole Creek
Tom Brook
Strawberry
Highway 21



Hartshorne



Atoka

111 11

Float Trip section

April 25, 1959

Measured by Glick, recorded by BRH
Measured along west bank of
Little Piney creek in E 1/2 NW 1/4
sec. 35, T. 11 N., R. 22 W.

↓
up

Ft. ^{imm}

FT-1

31' 6"

sfts; mgy, beds up to 2";
contains few sh chips but no
shale beds noted. FT 1

FT-2

11' 7"

sfts; massive weathers to platy,
argy, finely sandy in part,
upper half poorly exposed
probably grades into overlying
shale unit. FT 2

went South along dip until
we reached water level
Rxs dip downstream at 5°

Covered

4' 9"

Then measured covered interval by dip
Covered int maybe in error
because of above traverse.
mat, probably contains sh

FT-3

2' 6"

ss; (1') mgy, v. fgr, imbed,
sh, dkgy, 1' 6", thin sfts laminae FT 3

FT-4

5' 1"

SS; brgy, m-th. bed, silty, v. gr.
FT 4

FT-5

15' 6"

SS, m bed, mostly 4" to 13" vsilty
v. gr., brgy, FT 5

FT-6

4' 0"

SS as in previous measured
(FT5) unit. FT 6

Covered

29' 6"

Covered

FT-7

20' 0"

sfts; brgy beds from 1/2 to 4"
to silty sh partings to 1"
FT 7

FT-8

17' 6"

sfts as previous described
(FT7) unit. FT 8

FT-9

28' 3"

sfts, beds from 1/2 - 12"
FT 9

FT-10
8' 4"

Lower 3' poorly exposed
appears to be inter bed
slts + sh
upper 5' 4" siltstone
as previously described
grading upward
into vt ss

FT 10

FT-11
7' 9"

slts, platy. for most part. some
beds up to 6", platy is
softer and tends to
weather back

FT 11

FT-12

22' 0"

slts beds 1/4 to 6" upper
2 feet slightly more
sandy

FT-12

April 29, 1959

Hole Creek Section Ozone Quad
Prairie Grove, Bloyd, & lower Atoka
Sampled by Meriwether Haley, & Glick
Section starts at junction of
Hole Creek & south flowing
tributary $\frac{1}{8}$ mi. \pm East of Ozone
Quadrangle & extends up tributary to upper logging road
Measured in Sec. 8, T. 11 N., R. 21 W.

HC-1
7' 11"

Ss., md. gy. weathers br.-gy., mssve.,
limy when unweathered - f. to md.
gr.; contains crinoid columns,
brachs. in 4" zone (v. limy) 2' from
top.

HC-2
3' 3"

Lms., br.-gy, f. to md. sandy, abund.
fssls., md. bedded

HC-3
3' 10"

Lms., br.-gy., md. bedded, weathers to
platy bedded, v. sandy, f. to med.
sand grains.

HC-4
152"
12' 8"

Ss., md. to mssve. bedded, br.-gy., limy
where not decalc.; md. gr., faintly
cross laminated in upper $\frac{2}{3}$ of unit
Upper 1' contains ironstone pebbles
up to 1" long.

HC-5
3' 1"

Ss., br.-gy., md. bedded, f. to md. gr.,
decalcified, contains scattered
ironstone pebbles up to 1" long.

Hole Creek Section (cont.)
Ozone Quad., Ark.

HC-6
1' 2"

lower 8" sh., dk. gy., fiss.; upper 6"
ss., thin bedded, md. gy., md. gr.
decale.

~~1' 2" Covered~~

HC-7 ✓
6' 0"

Sh. + ss., alternate; 3" ss., 9" sh.,
3" ss., 4" sh., 5" ss., 2" sh., 6" ss., 18"
sh., ss. is md. dk. gy., md. gr. - ss. beds
2-4" thick, surfaces show poor ripple mks

HC-8 ✓
5' 8"

ss., br.-gy., thick bedded to massive,
decale, f. gr., abund. orinoid molds,
upper part coarser gr. (up to md. gr.),
top 4" bed sandy ironstone(?)

HC-9
17' 6"

Covered (prob. sh.)

HC-9 ✓
2' 9"

Sh., dk. gy., lower 1' 3"; 1 my. sdy.
ironstone 6"; md. gy. fossiliferous
lmst. 1'; thin sh. partings
between units 9 + 10 (up to 1")

note →

HC-10
2' 2"

Lms. (mostly), slty., iron-rich, sandy, very resistant, forms lip of water fall, stringers up to 4" thick of ss., reddish-brown, conglomeratic, phosphatic, limestone, + ironstone. Abund. crinoids, brachs., bryozoans, 1 ceph. 1" in diam noted, fair to good place to collect fossils

8' 7"

Covered

HC-11^v
12' 0"

sh., br.-gy., semi-fissile, slty.,

HC-12^v
11' 10"
1' 7"

ss., br.-gy., massive, f. to md. gr., decalc,

Covered

HC-13^v
4' 1"

Lms., md. gy., weathers to platy bedding, slty., sandy, v. fossilifer, abund. crinoid columns, unit is prob. a mass. cross lam., clastic lms. when fresh.

21' 0"

Covered - upper 10' prob. dk. gy. sh.

HC-14^x
4' 11"

sh., dk. gy., fiss., abund. dk. gy. weath. to reddish-brown iron stone bands to 1" thick
Contact with overlying unit sharp

HC-15
6' 2"

SS., md. gy., md. bddd, f. gr., interbdd
with sltst. beds to 4" thick +
ironstone beds to 1" thick

Fault

Strike E-W, dips 25° N (apparent)
displ. about 2'

HC-16
20' 1"

Sltst. + ss. interb., sandstone beds
1" to 4" thick, sltst. slaty to
fissile, beds show erculation
prob. resulting from ripple marks
this + underlying unit forms
shear cliff. Uppermost 4" unit
v. hard sltst. or ironst.

HC-17
1' 6"

Lower 1' sltst. md. gy., platy,
Upper 6" ss., dk. br-gy, iron stained,
single bed

8' 6"

Covered

HC-18
5' 0"

Sh., dk. gy., fiss.,

9' 8"

Covered - prob. sh.

HC-19
8' 3"

Sh., dk. gy., fiss., sl. slty.

3' 0" ✓ Covered

HC-20 ✓
8' 2" ✓ ss., md. gy., massive, v. limy, f. gr.,

HC-21 ✓
2' 10" ✓ Lms., md. gy., single bed, trace of md. sand grains, v. foss.

23' 6" ✓ Covered

HC-22 ✓
2' 0" ✓ Sh., dk. gy., fiss.

HC-23 ✓
0' 6" ✓ Lowermost Atoka - Congl. smeared on the first 6" of the Atoka base - appears to be ironstone pebbles + cement, + sand + fossil debris.

HC-24
25' 0" ✓ ss., massive, faintly cross laminated, lt. br.-gy., f. gr., slightly friable, Upper 10' v. friable, weathers back to form overhangs, excellent cross bedding, dipping to the south

HC-25 ✓
5' 7" ✓ ss., massive, sl. friable, f. gr., br.-gy.,

HC-26 ✓
14' 6" ✓
Ss., br.-gy., crossbedded, prob. massive,
f. to v. coarse gr.; gtz. granules in
the lower 4 inches. gtz. granules
also in upper 3'.

HC-27 ✓
4' 0" ✓
Ss., lt. br.-gy., thin to md. bedded,
f. to md. gr.,

HC-28 ✓
~~5' 10"~~
~~1' 9"~~
~~1' 7"~~
to
8' 5" ✓
base upward - the lower 1' 7" is
Interbedded sfts. &
sh, siltst. in beds to 1"; the
next 2' 3" is ss, br.-gy., thin to
md. bedded, siltst. partings as
much as 1" thick, basal 2"
& prob. other strings. contain
gtz. pebbles; upper 2' is sh, br.-
gy., v. sily.; uppermost 2' 7" is
ss, br.-gy., irreg. thin to md. beds,
f. to md. gr.

HC-29 ✓
14' 9" ✓
Ss., thick bedded to ms., lt.
br.-gy., cross lam., co. gr., conta.
gtz. granules. 5 ft. above base
is sh. lens (hd. + sily), 8 in. thick;
gtz. pebbles esp. abund in upper 1' of unit

HC-30 ✓
2' 7" ✓
Lower 7" is platy sfts., br.-gy.,
thin sh. partings. Upper 2 ft.
is ss, br.-gy., thin to md.
bedded, f. gr.

2' 6" ✓ Covered

HC-31 ✓
14' 2" ✓ Ss., md. bedded, br.-gy., md. gr.,
mostly decalc., limey where
fresh.

11' 6" ✓ Covered

HC-32 ✓
17' 3" ✓ Slsy, md. gy., thin bedded, shale
partings up to 4" (dk. gy., fiss.,
in part, slty. in part)
Ironst. bed 2" thick 4' from top.
upper 3' mostly sh. poorly exposed

HC-33 ✓
1' 9" ✓ Lms., single bed, red.-br., slty.,
sdy., foss., ex. hd., phos.

3' 4" ✓ Covered

HC-34 ✓
3' 5" ✓ Ss., br.-gy., md. bedded, m. to c. gr.,
1' 11" ✓ Covered

HC-35 ✓
23' 0" ✓ Sh., md. gy. to br. gy., fiss. in part,
+ slty. + semi-fiss. mostly
14-18' poorly exposed
Base of Atokā?

HC-36 ✓
19' 1" ✓ Ss., massive, cross lam. to NW, br.
decalc., m. to c. gr., no evidence
of congl. at base. Weathering

leaves intricate iron cement
pattern on surface. Upper 5'
yell wh-br., sl. friable, upper 4" is
f. ss., dk. gy. sh parting

HC-37
12' 7"

Ss., thin to md. bedded, br.
m. to c. gr., thin sh. partings
(lower 2 ft.) - overlain by
sh., (10' 7") dk. gy., f. ss., poorly
exp. - "Fayetteville type" - Haley,
1959

HC-38
4' 6"

Ss., massive, single bed, md. dk. gy.
v. silty, congl. esp. at base,
gt 3 pebbles,

33' 1"

Mostly covered - poorly exposed
bl. sh. as HC-37 - unsampled
As much as 10 ft. of this
interval may be ss. as in
HC-39

HC-39
23' 0"

Ss., br., massive, f. to md. gr.,
sl. friable; weathers in iron
rich scroll like surface marking
at 16 ft. above the base;

HC-40
23' 0"

Ss., massive, br. iron stain, f. to
md. gr., crossbedded to NW

HC-41
31' 5"

Ss, as below, massive, gr. size increases to coarse gr. upward in unit

HC-42
1' 6"

Sltst., lower half, grading upward into f. gr. ss. in upper half; sltst., slaty; ss, med. bedded;

70' 0"
(with altimeter)

Covered

HC-43
19' 8"

Sltst., m. gy., beds to 6", interb. with m. gy., slty, sh., beds up to 3"

HC-44
10' 8"

Ss, massive, br.-gy., v. f. gr. lower part; f. to md. gr. in upper part. this is the 1360' sandstone overlain by at least 20' of poorly exposed shale - unsampled

90'

Covered

HC-45
14' 2"

Sltst., md. to thick beds, weathers to ^pslaty bedding, grades into v. f. gr. ^{br}ss. 10-12" above the base then back into sltst.

HC-46
11' 6"

Ss., thin to md. bedded, br., f. gr.,

HC-47
28' 9"

Ss., mass., br., f. to md. gr. in lower 10 ft., v. f. gr. above that. This is the 1530' ss. Top of ss. is v. sharp, overlain by 8-10 ft. of shale, poorly exposed, unsampled.

85'

Covered

HC-48
7' 1"

Siltst., thin to md. bedded, br.-gy.;
hd,

HC-49
8' 0"

Ss., one bed, br., v. f. gr., iron stained, this is the 1620 ft. sand.

70 ft.

Covered

HC-50
2' 0"

Ss., single bed, 2 ft. thick, br-
gy., v. f. gr.,

End of section
(Pine grove at top of hill)

put slips
in all
bags

May 4, 1959
B.R. Holey - E.A. Merewether

Tom Brook Section, T10N, R22W, Sec. 1

Measured section starts 20 ft. above
creek level.

TB-1
17' 3"

Ss., br.-gy., f. to m. gr., 1 bed,
base not exposed - this is
Ernie's massive ss. -

TB-2
25' 1"

Ss., br.-gy., f. gr., 1 bed,
Only lower 10 ft is f. gr. - the
rest is f. to md. gr. with scatter-
ed coarse gr. - top of unit is
top of Ernie's big ss. -
Contact between top of unit
and overlying slts. is not
exposed

3' 2"

Covered

TB-3
5' 9"

slts., m. gy., v. f. gr. sandy in part,
in beds from 2-8" thick,
top 12" may be v. sh. gy., v. f. gr.
ss.

18' 1"

Covered - prob. contains slts. &
sh. ss in TB-4

TB-4
6' 11"

Interbdd. slts. & sh. - slts. md.
gy., irreg. bdd., beds from 2-12"
sh. is dk. gy., sl. slty, to slty, in

Tom Brook Section
(cont.)

zones from 3"-12" in beds $\frac{1}{16}$ " to $\frac{1}{2}$ "
Unit makes cliff

TB-5
18' 0"

Sls., md. gy., well cemented, in beds from 2" - 36" major. are 4"-8", laminae of dk. gy. sh. up to 1" thick. Makes bellaceous cliff

TB-6
12' 7"

Sls., interbed. with shly. slts., both md. gy. - slts. in beds 4-6" thick & shly. sltst. in zones 4-6" thick, beds in zones are from $\frac{1}{16}$ " to $\frac{1}{4}$ " thick - still part of same cliff

TB-7
~~28' 8"~~
~~+ 11' 6"~~
39' 14"

Ss., v. slty., v. f. gr., beds from 4-8", md. gy., case hardens when weathered, may have been sl. lmy, some bedding planes are ripple-marked - very close to being a sltst. - last 14" is a lt. gy. with white flecks which may be feldspar or fossil frags.

51' 9"

Covered - bottom 11' 6" prob. bl. sh.

2
 70
 28
 67
 65
 53

 283

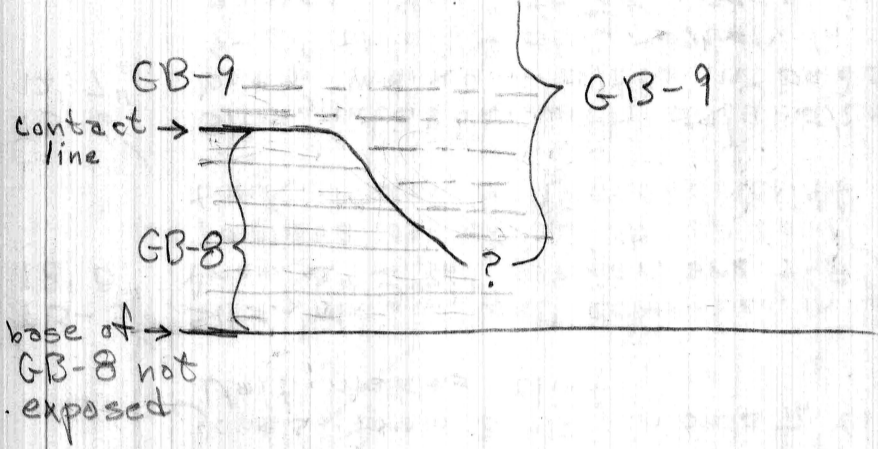
 23

 12 | 283
 24

 43
 36

 7

DIAG. SKETCH OF EXPOS.
DESC. BELOW



(lower 1/2)

TB-8 23' 7" Ss., Reddish-br., fi. to md. gr. (upper 1/2) abund. coarse to v. coarse gtz. in 2' zone 6' from base, massive bedded-ironstone bands up to 1/2" secondary, all angles with respect to bedding - see desc. of TB-9 for upper contact

TB-9 20' 0" Ss., slty., clayey, md. to c. gr., has gtz. + gtzite, pebbles up to 1/4" in diam. - some horizons conglomeratic - sh. pebbles up to 3 by 5" - secondary ironstone bands up to 1" in thickness, bands trend in all directions with respect to bedding - base of unit cuts into underlying unit with a channel at least 20' deep, within 15 ft. of horizontal distance - weathered, well rounded chert pebbles up to 3/4" in diam.

Contact between TB-9 + TB-10 is gradational

TB-10 17' 3" Ss., yellowish-br., md. - c. gr., abund. v.c. gr. + granules of gtz. + gtzite-ironstone bands up to 1/2" thick either parallel or at angles less than

30° to bedding - pebbles of gtz.
up to $\frac{1}{2}$ " in diam. - unit consists
of tongues, wedges, & lenses -
outlined by ironstone bands

TB-11
25' 0"

Ss., f. to md. gr., yellowish-br.,
badly iron stained - rests on
TB-10 with grad. contact.
Abund. c.-v.c. gtz., scattered
granules of gtz. - all one
bed - case hardened

TB-12
48' 6"

Ss., yellow-br., md. gr., occasion.
c. to v.c. gtz., 1" ironstone
bands at all angles to bedding.

TB-13
28' 9"

Ss., f. to m. gr., badly weathered,
reddish-br., ironstone bands
up to $\frac{1}{2}$ " th. & at all angles
to bedding - scattered coarse
to v.c. gtz. -

TB-14
26' 4"

Ss., yellow-br. - md. gr.; ironstone
bands at all angles to bedding;
honey comb type weathering -
may have been limy - friable
scattered v.c. gr. gtz. - top of
unit is gradational with TB-15

TB-15
23' 0" Ss., lt. gy., v. f. to f. gr., honey
comb weathering, irreg.
ironstone bands up to $\frac{1}{2}$ " in
diam., sh. pebbles up to $\frac{1}{2}$ " in
diam., glauconite - Ozark Htsh.
(?) - frags. of plant fossils

TB-16
11' 6" Ss., v. f. to f. gr., lt. gy. to gy. white,
weathers red.-br., sh. pebbles
(?) up to $\frac{1}{2}$ " in diam., no evid.
of bedding, honey comb weather-
ing,

17' 3" Covered - might contain ss. as
in TB-16

End of section - top of
ridge on road

put lettered
slips in
bags 1-5

Strawberry Section

Starts: Sec. 6, T. 10 N., R. 22 W.

Ends: Sec. ~~30~~₃₁, T. 11 N., R. 22 W.

May 5, 1959

B.R. Haley - E.A. Merewether

S-1
25' 11"

Sfts., md. gy., well cemented, irreg. bdd.,
beds from 1"-6" thick, ripple marked,
At 12' 7" an ironstone nodule 1" by
6" in diam.

S-2
16' 5"

Sfts, as S-1,

S-3
16' 1"

Sfts., as S-1

S-4
7' 11"

with occasion.
md. grs.
Ss., lt. greenish-gy., f. to f. gr.,
irreg. bdd., beds from 1/2" to 8",
s/ty., has pebbles + flakes of
dk. gy. sh. 1/8" by 1/2", ripple marked,
irreg. bdd.

S-5
5' 10"

Sfts., lt. gy. ^{to} lt. green. gy., well cement.
fairly clean, ripple marked, beds
from 2-10", has 10" bed of f. to
med. gr. ss. at its base, ss. has
ironstone laminae, crinoid buttons,
ss. is md. gy., has 6" bl. sh. expos.
at top.

17' 3"
S-6
2' 5"

Covered

Ss., br. gy., f. to md. gr., scatt. c. to
v. c. gr., ironstone nods. up to 2" in

diam., crinoid buttons, slts., sh.
pebbles up to $\frac{1}{4}$ " in diam., irreg.
bdd., with beds up to 10" thick.
ss. is md. gy. when fresh.

36' 6" Covered

S-7²
1' 0" slts., md. gy., irreg. bdd., beds up
to 2".

4' 2" Covered

S-7⁶
4' 2" slts, S-7, cont.

S-8
14' 11" Interbdd. dk. gy. sh. + md. gy. slts.,
sh. in beds $\frac{1}{16}$ to $\frac{1}{4}$ ", slts. is
irreg. bdd. + in beds from $\frac{1}{2}$ " to
4", slts. is med. gy.

17' 3" slts. + sh. as S-8, poorly exposed,
not sampled.

S-9
5' 9" slts., md. gy., irreg. bdd., beds
up to 4"

30' 0" Concealed

- S-10 ✓
 11' 3" Sfts., md. gy., irreg. bdd., beds from 1-6", bottoms of beds are worn (?) marked
- 3' 0" Covered - prob. dk. gy. sh.
- 2' 3" Sh., dk. gy., bedding $\frac{1}{8}$ ", not sampled.
- 6" Sfts., md. gy., 2-beds, 2 + 4" thick not sampled
- 15' 0" Covered, prob. conts. sh., dk. gy., + Sfts., md. gy., as in prev. desc., unsamp. unit.
- S-11 ✓
 14' 4" Sfts., md. gy., irreg. bdd., bds from 2-7",
- 28' 9" Poorly exposed dk. gy. sh. - not sampled
- S-12
 9' 5" Sfts., md. gy., irreg. bdd., beds from 2-6",
- S-13
 20' 0" Sh., dk. gy., poorly exposed, + Sfts., md. gy., " ; sh. in beds $\frac{1}{8}$ " - $\frac{1}{2}$ ", Sfts. in beds up to 2".

S-14 ✓
30' 6"

sfts., md. gy., irreg. bdd., bds from 1/2" - 6"; 2 + cw beds of sh. up to 1/2" thick. Upper 12' poorly expos.

S-15 ✓
14' 0"

sfts., md. gy., irreg. bdd., beds from 1/4" to 12"

45' 0"

Covered

S-16 ✓
111' 6"

sfts., br.-gy., irreg. bdd.; bds from 1/2" - 10"; poorly exposed

— Base of big ss. —

Strawberry Section (cont.)
moved west to road in
U.S. Nat. For.

S-17
28' 9"

sfts., yell.-br., weathers to
platy bedding, prob. unweathered
bedding is 1' from l-b in a thick,

S-18
23' 0"

sfts., as in S-17 becomes v.f. gr.
sandy in the upper 12 ft.

S-19
23' 0"

sfts., gy.-wh., irreg. bdd., beds up
to 6", v.f. gr. sandy, has what
appears to be plant frags &
worm borrows; calc hardened in
places - Becomes more sandy toward
top of unit - Top of this unit,
S-19, is the same as the top
of S-16 in earlier Strawberry
section

S-20
2' 0"

ss., gy.-white, v.f. gr., s/ty., fairly
clean, gtzose, weathered worm
markings, and is base of
Ernie's 'big sand

24' 2"

Covered, prob. v.f. gr. ss.

S-21
25' 11"

ss., yellow-br., v.f. gr., all one
bed, honeycomb weathering,

S-22
23' 0"

ss., red.-br., f. gr., contact betw.
this unit & S-21 is grad. - unit

is all one bed - weathers along joints into elephant hide surface

S-23^v
23' 0"

Ss., as S-22, unit becomes increasingly coarser until upper 10' which is f. to md. gr.

S-24^v
23' 0"

Ss., Red.-br., f. to md. gr., badly weathered, upper 5' of unit becomes f. gr.

S-25^v
17' 3"

Ss., Red.-br., f. gr., bedding from one foot to six feet,

S-26
11' 6"

Ss., Red.-yell.-br., v. f. to f. gr., badly weathered

15' 0"

Concealed - prob. conts. ss. as in S-26. - top of concealed zone is approx. top of big ss.

Strawberry Section - 3rd
phase - moved to draw
(cont)

- S-27 11' 6" SII 1 to 5 replace S-27
Ss., yell.-br., f.gr., scatt. md.gr.,
one bed, top of unit is top of
Ernie's big ss.
- S-28 17' 3" Sh., dk. gy., fiss., widely scattered
silty. layers up to 1" thick
- 80' 6" sh., dk. gy., poorly exposed
- Moved to road -
- S-29 44' 3" Sh., lt. to dk. gy., weathered,
bedding from $\frac{1}{16}$ " to $\frac{1}{2}$ ".
Widely scattered silty. layers
up to $\frac{1}{4}$ " thick.
- 35' 0" Covered, poorly exposed dark
gray sh., not sampled.
- S-30 71' 6" Ss., md. gy., f.gr., irreg. bdd., beds up
to 10", ironstone concre. up to 4"
avg. about 1", ripple marked in
part, v. silty. in part,
- 40' 0" Concealed -
- 5' 0" Ss., poorly expos., not sampled
- 35' 0" Sh., bl., poorly exposed, not sampled

60' 0" Concealed, prob. contains lk. gy. sh.
top of unit is base of Ozark
Hartshorne, not exposed

35' 0" Concealed - must contain Ozark
Hartshorne.

S-31
6' 1" ss., lt. gy., v.f. gr. almost silt. size,
hard, irreg. bdd., beds from 1"-10",
fairly clean,

S-32
1' 9" s/lts., lt. gy., non descript bedding,
bedding complex, worm borings,
sand streaks, shale pebbles,
has 5" of irreg. bdd., lt. gy., s/lts.
at top.

S-33
1' 8" Lms., f. to md. gr. sandy, extremely
fossiliferous, brachi., crinoids,
gastropods, bryozoa

S-34
2' 0" s/lts., gy.-white to lt. gy., hard,
ripple-marked, irreg. bdd.,

6' 0" Rarely exposed, prob. same as S-34
-top of this is top of unit and
of section. Bedding 4-12" thick.
Sh. pebbles + flakes 1/4" x 2", crinoid buttons
v.f. sandy in part, sampled with S-34⁵
END OF SECTION

Highway 21 Section
B.R. Haley - E.A. Merewether
Measured in Secs. 21, 22, 27 & 28, T. 11N, R. 23W
May 7, 1959

- 21-H-1
8' 1" Interb. dk. gy. sh. + md. gy. slts.,
sh. is in units 2-12" thick + in
beds $\frac{1}{8}$ - $\frac{1}{4}$ " thick; slts. is in
bed 2-5" thick; unit is prob.
70% sh.
- 21-H-2
32' 5" slts., md. gy., reg. bdd., in beds from
2-8" thick, slts. beds sep. by dk.
gy. slty. sh. or dk. gy. sh. beds
up to 1" thick - unit is prob. 90%
slts.
- 12' 6" Covered
- 21-H-3
22' 0" Sh. dk. gy., bedding $\frac{1}{16}$ - $\frac{1}{4}$ " has 1' slts.
bed at base + 2 ft. slts. zone
8' above base; slts. is md. gy.,
iron stained; sh. has widely scatt.
1" bands of ironstone + badly
ironstained slts. - slts. beds
are lenticular.
- 17' 3" Covered - lower 15' prob. dk. gy. sh.
as in #3
- 21-H-4
18' 4" slts., md. gy., lower 4' in beds 4"-12"
upper part of unit in beds 1"-4"
upper part irreg. bdd., lower part reg. bdd.

has $\frac{1}{8}$ " - $\frac{1}{4}$ " slty. sh. partings
between slts. beds.

21-H-5
23' 0"

Interbd. dk. gy. sh. + md. gy. slts.,
sh. is in zones from 1-8" bedding
 $\frac{1}{16}$ - $\frac{1}{8}$ " slts. in beds $\frac{1}{2}$ " - 3"
lower part of unit is prob. 75%
sh., upper part of unit is prob.
50%.

21-H-6
18' 5"

Interb. dk. gy. sh. + md. gy. slts.,
prob. 60% slts., slts. reg. bdd.
beds from 2-6"; sh. zones from
1-4", bedding up to $\frac{1}{8}$ "

21-H-7
20' 11"

Grade. with overlying unit. This
unit may be measured on a
slump block but the interval
prob. holds. slts., md. gy., irreg.
bdd., beds $\frac{1}{2}$ " - 6", bedding sep.
by dk. gy. sh. + slty. sh. from $\frac{1}{8}$ -
 $\frac{1}{2}$ "; has 8-10" sh. bed at 14' 11"
from base. At 20' 6" is a 5" bed
of dk. gy. sh.

21-H-8
23' 1"

slts., irreg. bdd., beds 2-8", shly.
partings up to $\frac{1}{2}$ " thick, bottom
slts. memb. is overlain by a
3" sh. bed. slts. between this

sh. at the
sh. bed + the top of H-7 thin
Northward from 57" to 44" in
a dist. of 40'. Each individual
unit in this sits. seems to thin.
Some sits. mems. have worm borings.
One ironstone concn. 2" in diam noted
6' from top.

23' 11"
21-H-9
12' 9"

sits., gy. - wh., many worm borings,
borings marked by a dk. gy.
carb. residue, sits. in beds
from 2" - 24" has a few dk. gy.
sh. partings up to 2". A few
ironstone concn. up to 1/2" in
diam. Where not disturbed by
worm borings sits. is laminated
altern. bands of dk. gy. + gy. - wh.
sits., prob. caused by wave action

21-H-10
17' 10"

sits., lt. gy., well cemented, irreg. to
reg. bdd., bds from 2-8" worm
borings but not as abund. as
in #9, and a very few thin
sh. partings. Ripple marked;
under sides of beds has flow casts,
nodes, worm trails, bumps, looks
like Cane Hill. At about 12' has a
2 ft zone of altern. sits. + a fiss. sh.

- 21-H-11
12' 6" Ss, lt.-md. gy, v. f. gr., v. sh. gy, irreg. to reg. bdd, bds 3"-14" a few sh. partings up to 2" thick. Worm borings in bottom 16", scattered worm borings throughout. Ripple marked, foreset bedding to the south. Some foreset bedding marked by ironstone concrescences up to 1/2" in diam. Hard
- 21-H-12
12' 5" Ss, lt. gy, v. f. gr., well cem., fairly clean, worm borings, few thin sh. partings bds from 2-10"
- 21-H-13
36' 5" Ss, v. f. gr. foreset - irreg - bdd, bds from 3-36", most being 6", widely scattered worm borings, lt. gy, foreset to the south, ripple marked,
- 21-H-14
8' 6" Ss, yell.-br., v. f. to f. gr., worm borings (?), irreg. & poorly defined, bedding ranges from 3"-40"
- 21-H-15
1/2" Contact between #14 & #16, dk. gy. sh., lt. gy. clay, green ss., seems to rest on an unconform. on top of #14
- 21-H-16
17' 3" Ss, red.-br., f. gr., all one bed,

- 21-H-17 5' 9" ss, yell.-br., f. gr., scattered md. to c. gr., all one bed.
- 21-H-18 43' 5" sh, dk. gy., bedding from $\frac{1}{16}$ to $\frac{1}{8}$ "
- 21-H-19 13' 3" s/lts., md. gy., irreg. bdd., beds $\frac{1}{4}$ to 6"
- 21-H-20 4' 8" ss, yell.-br., f. gr., All one bed,
- 21-H-21 3' 6" s/lts., br.-gy., v. f. ^{gr}sandy, all one bed,
- 21-H-22 5' 7" Interbdd. dk. gy. sh. & md. gy. s/lts. about 60% sh, s/lts. in beds 1" thick, sh. in zones 2-6" thick, in beds $\frac{1}{8}$ - $\frac{1}{16}$ "
- 21-H-23 25' 0" s/lts., md. gy., interbdd with dk. gy. sh. & s/lty. sh. ^{s/lts.} in beds 2-8" thick, sh. in zones up to 4" beds $\frac{1}{8}$ - $\frac{1}{16}$ "; prob. 70% s/lts. A 4" bed of lt. gy. clay is 43" from ^{top} of unit. 16" from top of unit is 12" clay bed, light gray

- 21-H-24 Ss., red-br., f. gr., beds from 4-10",
17' 3" reg. bedded,
- 11' 6" Covered
- 21-H-25 sh., dk. gy.-gy. bl., bedding $\frac{1}{8}$ - $\frac{1}{2}$ ",
50' 2"
- 21-H-26 ss., red-br., vit. to f. gr., badly
47' 8" weathered locally, bedding
from 2" to 4" thick, weathered
surface, in upper 4", has fillagree
pattern in FeO staining
- 8' 0" Covered - could be shale
- 21-H-27 sh.; bdly. weathered; poorly expos.;
49' 3" lt. gy to gy. white to yell.-br.; $\frac{1}{8}$ to $\frac{1}{4}$ " bds.
- 21-H-28 ss.; red-br.; bdly. weathered; bedding
14' 0" indeterminate; f. to m. gr.; sh. pebbles
& ironstone pebbles up to $\frac{1}{4}$ " in diam;
foreset bdd. to the west; ironstone
bands up to $\frac{1}{2}$ " at all angles to
bdding
- 21-H-29 ss., yell.-br.; f. to md. gr.; bedding from
22' 0" 2"-48"; ironstone bands up to $\frac{1}{2}$ "
generally along bedding planes

21-H-30 Upper 12" of unit has altern. layers of stu., slts., + v. f. gr. ss., all badly weathered

21-H-30
25' 4" Ss., yell.-br.; f. to md. gr.; comp. of zones of friable ss. in bds from 4-24" which seem to be a little finer gr - mostly f. gr. sand; the other zone is a loose porous somewhat coarser sand, no bedding distinguishable; these zones are from 12-30" thick these zones have lenses + stringers of the aforementioned ss., some of the lenses seem to be held together with an iron cement = beach sand (?); foreset bedding to the north; upper 6 ft. of unit is composed of intertonguing lenses + tongues of ss. + clayey ss. - some of the tongues represent channel fills, these channels have cut across clean ss. zones and are intertongued with the lower clayey ss. zones; the base of the channeling is irreg. + is ripple marked

21-H-31
11' 6" Ss., as below, basal unit is a layer of ss. that rests upon 30 with a

channel relationship; ironstone
concre. up to 2" in diam.

- 21-H-32 5' 2" ss, yell.-br, f. gr, irreg. bdd., slty,
bds from 2"-14"
- 21-H-33 16' 10" Interbdd. slts, sh, + v.f. gr. ss, bddy
weathered; ss. in beds $\frac{1}{2}$ "-4"
slts. + sh. in beds $\frac{1}{8}$ "- $\frac{1}{2}$ "; becomes
more shly, less sandy toward the
top
- 21-H-34 3' 10" sh, bddy weathered, bddy iron
stained - prob. once dk. gy.
would make good brick clay
- 14' 5" Covered - prob. contains dk. gy.
sh. as in #35
- 21-H-35 5' 0" sh, dk. gy, bedding $\frac{1}{8}$ "- $\frac{1}{2}$ ", has a
few 1" slt.st. layers in it, slts.
is badly ironstained;
- 17' 3" Poorly exposed, prob. sh. as in #35
- 21-H-36 13' 2" sh, dk. gy, bedding $\frac{1}{16}$ "- $\frac{1}{4}$ ", has 4" slts.
layer 5' from base, top of this
unit is base of Ozark Hartsh.

Base not exposed.

- 21-H-37 11' 6" ss, gy.-wh.; v.f.gr.; almost slts., clean, bedding from 3-36 inches
- 21-H-38 17' 3" ss, gr. wh. to white, v.f.gr. almost slt. size, very clean, bedding 2"-36", ~~ss~~ major, from 3"-6", make excellent building stone
- 5 28' 9" Covered
- 21-H-39 17' 3" Interbd. slts. + v. slty., v.f.gr. ss, irreg. bdd., bds from 1-4", badly iron stained, ripple marked, becomes increasingly sandy toward top of unit
- 19' 9" Covered - Upper 5' sh., poorly exposed, not sampled
- 3' 0" ss, v.f.gr., bdy. weath., poorly exp.,
- 21-H-40
- 21-H-41 28' 9" Sh., dk. gy., bdy. weath., beds $\frac{1}{8}$ - $\frac{1}{2}$ " ironstone bands up to $\frac{1}{2}$ "; middle part poorly exposed, covered by slump block.

21-H-42 9' 9" s/lts., has 1 ft. v.f. gr. sandy zone at base, and a 5 ft. v.f. gr. sandy zone at the top, irreg. bedding in sandy zones, bedding in non-sandy zones is nondescr. Bedding in sandy zones is from 4-12"

Switched from Hwy. to Fire tower road

40' 3" Covered, last 15 ft. poorly exposed dk. gy. sh.

21-H-43 27' 0" Sh., dk. gy., bedding $\frac{1}{16}$ " - $\frac{1}{4}$ " widely scattered s/lts. beds up to 1" thick, s/lts. bds are ripple marked

21-H-44 6' 9" Interb. dk. gy. sh. + md. gy. s/lts. sh. in zones 1-6" thick in beds $\frac{1}{16}$ - $\frac{1}{8}$ " thick; s/lts. is in beds 1-6" thick; s/lts. ripple marked - Measured on a slump block but interval between #43 + the overlying covered interval is thought to be accurate - unit becomes increasingly shaly toward top. 50% sh. at base, 80% sh. at top.

11' 6" Covered.

21-H-45 Sh., dk. gy., bedding $\frac{1}{8}$ " - $\frac{1}{2}$ ", few slty.
51' 9" beds up to $\frac{1}{2}$ ", few ironstone beds
up to $\frac{1}{2}$ ". No slts. or ironst. noted in
upper 30 ft.

23' 0" Poorly exp., prob. dk. gy. sh., as in
#45, not sampled

21-H-46 Ss., v. f. gr., v. slty., greenish gray, irreg.
8' 0" bdd., beds from 1" to 4"

END OF SECTION

TOP OF HILL
BENEATH FIRE
TOWER