

Section 10701 Cretaceous section measured at junction of Texas River and Dussaplan Creek, July 9 and 10, 1962, Mountjoy and Potts. Measured on ridges south and east of junction.

Unit No.		Unit Thickness	Thickness Above Base
	Covered, top of hill		
20	Sandstone, very light grey, medium grained, quartzose, weathers light grey with dark grey. Lichens, bed 1' to 3' feet, resistant, abundant polycopids.	20	1453
19	Covered	67	1433
18	Sandstone, fine to medium grained light grey, quartzose, fine irregular laminations, weathers light grey to light brown, moderately resistant, 2" to 6 inch partings, polycopids from upper foot, small collection made.	13	1366
17	Covered.	36	1353
16	Sandstone, fine to medium grained, quartzose light grey with prominent angillaceous laminations, and crossbeds, weathers light grey to reddish brown in beds 1" to 6 inches.	5	1317
15	Partially covered recessive, appears to be thin bedded siltstone and sandstone.	5	1312
14	Sandstone, fine to medium grained, light grey, quartzose, traces of laminations with 1/4" to 1 inch nodules? which weathers out some appear to be polycopid casts, weathers very resistant light yellow grey to red brown in beds 3 to 10 feet.	32	1307
13	Sandstone, fine grained, quartzose finely laminated, prominent crossbedding, weathers red brown moderately resistant in beds 2 to 12 inches, upper half with 50% brown siltstone interbeds weathers darker and much less resistant, few small polycopids observed in thin.	16	1275
12	Interbedded siltstone, light to medium grey and sandstone very fine grained, finely laminated, light grey with partings of silty shale weathers medium to dark grey recessive in beds less than 1 inch sandstone beds restricted to upper 5 feet.		
11	Sandstone, very fine grained, light grey brown finely laminated in part, occasional worm tubes, forms light grey moderately resistant unit along hillside near 2 to 12 inch bedding basal 2 feet more resistant and sandy and very yellow grey, contains polycopids and belemnites.	13	1249

Unit No.		Unit Thickness	Thickness Above Base
10	Siltstone, medium brown, finely laminated in part argillaceous, mostly obscured by talus from overlying unit; weathers recessive, light brown.	11	1231
9	Sandstone, fine grained, light grey, finely laminated and crossbedded in $\frac{1}{2}$ ' to 1 foot beds, interbedded with siltstone medium grey and silty shale in $\frac{1}{2}$ "-1" beds. Unit weathers light yellow grey to yellow brown, moderately resistant.	23	1220
8	Siltstone, medium brown grey, weathers light to medium grey, very recessive with three $\frac{1}{2}$ " to 1 foot sandstone beds, 20' to 25 feet above base abundant pelocypods. Forms recessive bench on hillside fossil collection from 20 feet upper 17 feet contains a few 1" to 2 inch sandstone interbeds, weathers slightly more resistant abundant worm trails.	67	1192
7	Cliff forming, sandstone, unit basal 2 foot sandstone, fine grained light brown, finely laminated with worm tubes weathers light yellow grey to brown with slightly green cast, next 3' to 4' slightly recessive weathering light brown, grey siltstone and very fine grained sandstone. Gradational above and below, forms recessive bench at base of main cliff. Sandstone, medium grained, light brown grey, worm trails, weathers light yellow brown, forms resistant massive cliff, bedding $\frac{1}{2}$ to 2 feet except for 5 foot bed in middle traces of pelocypods, capped by 1 to 3 foot layer of light grey weathering beds.	41	1125
6	Shale, slightly silty, dark grey with occasional very silty portion, a few small concretions one large belemnite fragment near base weathering recessive generally covered, 25' microsample, upper 20 feet becomes more silty with few 1 to 4 inch beds of siltstone and sandstone changing from dark grey to medium brown grey traces of pelocypods in upper 10 feet, collection made.	76	1084
5	Siltstone, light to medium grey with lenses, laminations and interbeds up to 1 inch of sandstone, very fine grained, slightly calcareous light grey, finely laminated and crossbedded, layer of siltstone concretions 2 feet from top forms moderately resistant marker unit along hillside which can be traced across valley, weathers light yellow grey to medium grey.	10	1008

Unit No.		Unit Thickness	Thickness Above Base
4	Siltstone, light brown, traces of laminations, in part argillaceous, weathers light gray brown, beds average 1 to 2 inches with silty shale units, dark brown grey 5 to 10 feet thick, dominantly sandstone units similar to Unit 3 occurring between 13 to 23 feet and 40 to 45 feet above base. 25 feet microsamples. Unit weathers recessive, contains a few covered intervals up to 5 feet thick. Fossil collection at 65 feet of belemnite and polycopos, above 65 feet dominantly dark grey shale, upper 40 feet very silty and in part siltstone.	160	998
3	Sandstone, light grey, fine grained, quartzose, finely laminated and crossbedded, weathers light yellow grey to brown in 1" to 4" beds, interbedded with siltstone medium grey and silty shale, unit moderately resistant consisting of 4 dominantly sandstone intervals 2 to 4 feet thick, few worm burrows and trails.	22	833
2	Siltstone light to medium brown grey, finely laminated weathers light brown grey, bedding obscure appears to be greater than 4 feet, moderately resistant, gradation to overlying sandstone, upper 10 feet abundant 1/2 to 2 inch sandstone, interbeds, light grey, quartzose very fine grained, small belemnite collected 1 foot below top.	32	816
1	Cover probably siltstone. See unit 3 below. Prominent cirque like basin 1/2 mile southeast of Section 155 NJ just south of Beasay Plus Creek.	35	784

Unit No.		Unit Thickness	Thickness Above Base
4	Siltstone and silty shale, medium to dark grey with 4 or 5, 1/2 to 2 foot beds of orange brown, weathering sandstones, forms recessive bench on hillside.	25-30	
3	Sandstone, fine grained, light brown finely laminated and crossbedded with prominent thin dark grey shale laminations weathering light yellow brown in 1 to 12 inch beds forming a distinct mapping unit along hillside.	11	749
2	Siltstone, light to medium grey, finely laminated with 1" to 2 inch beds of very fine grain sandstone spaced 1' to 4 feet apart weathers slightly more resistant giving outcrop banded appearance. Essentially transitional sequence from silty shale beneath to overlying sandstone, large belemnite at base.	65	738
1	Siltstone, argillaceous or very silty shale, slightly calcareous, medium brown grey, trace of laminations with moderately resistant, obscure bedding, light grey with orange brown weathering concretion layers every 5 to 15 feet, between 100 to 125 feet above base shale becomes less silty and less resistant and concretionary layers become more closely spaced.	673	673
	Microsampled at 25 foot intervals, 180' to 197 feet several 1/2"-1" layers of siltstone, light grey to light brown, more resistant than adjacent shale, above 205 feet concretions not so abundant, 204 to 206 feet - water table emerges, prominent white coating no clay observed at base, concretionary zone in middle thin clay layer at top, at 220' feet spherical concretion layer up to approximately 8" in diameter.		
	206' to 293 feet more resistant interval of siltstone, light brown grey, soft, bedding obscure weathers very light grey, capped by 6 inch zone of concretions 305 to 325 feet abundant concretions, 345 feet concretions again abundant, 345 to 355 feet brown weathering zone at 365 feet more clayey whiter weathering band.		

Unit No.	Unit Thickness	Thickness Above Base
425-448 feet second rusty weathering zone very silty shale to siltstone with small ball and pebble like concretions with smaller spherical concretions within belemnites collected 425' to 450 feet. At 450 feet red weathering concretionary band which is overlain by white weathering layer at 505 feet more silty and weathers more resistant.		
642' to 673 feet - siltstone medium gray argillaceous, finely laminated with occasional concretions - weathers light gray with white wash microconglomerates a to z and a'.		

Measured on east side of Martin Creek about 5 miles west of Mount Clifford (135°40 and 68°10)

Section begins at top of river cliff and ends at river level. Measured July 8 and 9th, Airphoto AL4134-26

Unit	Description	Thickness in feet	Height above base
7	Sandstone, fine to medium-grain, quartzose light brown to grey slightly calcareous weathers light yellow brown to grey in beds 1 to 5 feet, very resistonal includes a few thin interbeds of shale and silt- stone. Some large pelecypods collected 5 to 10 feet from top (154MJ) GSC loc. 52790 <u>Buchia</u> cf. <u>volgensis</u> ; presumably late Berriasian	100 +	
6	Prominent recessive notch. Appears to be shale and siltstone	12	1074
5	Sandstone, fine to medium grain, light brown grey weathers light brown. Resistant 1 ^{ft} to 3 ^{ft} beds. Abundant pelecypods in talus	17	1062
4	Interbedded siltstones and sandstones Top 30 ^{ft} Siltstone, dark grey fossil collection (152 N J 4 b GSC loc. 52788 <u>Buchia</u> cf. <u>volgensis</u> , presumably late Berriasian		

Unit	Description	Thickness in feet	Height above base
4 (cont'd)	12 feet sandstone		
	11 " siltstone		
	5 " sandstone		
	9 " siltstone and silty shale		
	2 " sandstone as below		
	Pelecypods (152 MJ 4a) GSC loc. 52789 <u>Buchia</u> sp. indet. 3 feet siltstone argillaceous,		
	medium to dark grey weathers light grey		
	2 feet sandstone fine grain,		
	light grey finely laminated weathers light brown to red brown.		
	Crossbedded. Contains few pelecypods	74	1045
	<u>Husky Formation</u> (836 feet)		
	<u>Shale unit</u> (442 feet)		
3	Shale, dark grey, slightly silty weathers dark blue grey in part red brown, more resistant than underlying unit, forming series of resistant bands 2 to 5 feet thick. Ammonite impression at 30 feet above base. Becomes strongly silty above 60 feet with few 1 to 2 inch siltstone layers in upper 30 feet. Layer of pelecypods 45 feet above base, micro- fossil samples every 20 feet. Upper silty part weathers dominantly reddish brown	119	971

Unit	Description	Thickness in feet	Height above Base
2	<p>Shale, dark grey-black, fissile fairly hard, weathers dark grey, Rare concretionary layer. In upper 60 feet layers of carbonate crystals rosettes. Occasional pelecypods. Minor faulting and stratigraphic omissions of strata in underlying units. Fault appears to cut out approximately 100 feet of strata and dips steeply north. Underlying 208 feet pieced together from two sections measured on hillside</p>	115	852
	<p>Shale, medium to dark grey, fissile with abundant grey siltstone concretions and concretionary layers which weather red to reddish brown and spaced 1 to 5 feet apart. Numerous <u>Buchia</u> in concretions especially between 20 and 30 feet (153 MJ 16) GSC loc. 52792 and 5 feet below top (153 MJ 1c) GSC loc. 52793 GSC loc. 52793 - <u>Buchia Oxensis</u> (Paulow)</p>	50	737
	<p>Shale, light to medium grey, clayey, weathers soft light grey largely covered, forms top of distinct whitish weathering interval. Concretionary siltstone layers 1 to 4 inches thick occur at 4, 5, 10, 15, 17 and 19 feet above base. Fossil wood observed at 9 feet</p>	19	587

Unit	Description	Thickness in feet	Height above Base
	Sandstone, fine-grained, light grey, weathers reddish brown to light grey - - - -	1	668
	Shale brown, weathers reddish brown and forms a distinct brown band on hillside	3	667
	Siltstone and sandstone very fine grained quartzose light yellowish grey with pebbles up to 2 inches long diameter, a few wood fragments and pelecypod observed in talus from this unit	1	664
	Shale silty light to medium brown	4	663
	Clay light grey - forms base of distinct whitish weathering interval	0.1	659
	Shale, medium greyish brown, with a few silty shale interbeds 1 to 2 feet thick between 15 and 30 feet above base, occasional concretions with <u>Buchia</u> sp., weathers recessive, dark grey except for basal 25 feet which is light grey. GSC loc. 52785 118 feet above base <u>Buchia</u> cf. <u>okensis</u> (Pavlow). GSC loc. 52791 between 90 and 100 feet above base - <u>Buchia</u> ex. gr. <u>mosquensis</u> - <u>piochii</u> ? GSC loc. 52737 33 feet above base <u>Buchia</u> sp. indet.	130	659

Unit	Description	Thickness in feet	Height above base
<u>Lower member (394 feet)</u>			
12	Shale, dark grey brown weathering, silt laminations weathers light grey brown to red brown with interbeds of siltstone, gives outcrop ribboned appearance, calcareous, finely laminated $\frac{1}{4}$ to 3 inch beds. Trace of pelecypods in lower part	24	529
11	Sandstone, very fine-grained, light brown grey finely laminated with coquina ^{ae} of Pelecypods throughout; weathers light yellow brown in beds $\frac{1}{4}$ to 3 inches thick, interbedded with shale, medium grey, silty and some siltstone GSC loc. 52771 5 feet above base - <u>Buchia</u> sp. indet (presumably of Upper Jurassic affinites)	9	505
10	Shale, dark brown grey, few silty shale interbeds $\frac{1}{2}$ to 2 feet thick spaced 5 to 10 feet apart. Occasional concretions with abundant pelecypods mostly in upper 90 feet; weathering light grey. Very recessive with white wash 85 feet above base siltstone bed 1 to 2 inches thick. Light grey, finely laminated siltstone abundant in upper 20 feet. GSC loc. 52772 from 65 feet above base. <u>Buchia cf. moscuensis</u> sensolato	130	496

Unit	Description	Thickness in feet	Height above Base
9	Siltstone, light to medium grey weathers medium grey to red brown. Poor $\frac{1}{2}$ to 3 inch beds. Capped by 1 foot layer of sandstone, fine-grained, light brown grey - - -	8	366
8	Shale, dark brown-grey, silty with thin interbeds of siltstone, light grey, finely laminated, very silty 18 to 32 feet above base. Ammonite fragment 10 feet above base. Micro fossil samples taken every 20 feet two slightly more resistant ^{intervals} improves in upper 15 feet which weathers in part red brown - - - - -	60	358
7	Predominantly siltstone, light to medium brown grey as described in lower units Occasional pelecypod layer. Two recessive intervals in lower half from about 5 to 10 feet and 13 to 22 feet above base. These consist of interbedded silty shale and siltstone. Upper 2 to 3 feet abundant glauconite and forms top of first siltstone unit. A few large concretions occur at top - - - - -	30	298

Unit	Description	Thickness in feet	Height above Base
6	Interbedded shale, dark brown grey and siltstone as below. Weathers recessive in beds less than 1/2 inch.	10	268
5	Siltstone, light grey to brown grey, soft, weathers light yellow grey. Bedding obscure. Trace of pelecypods - moderately resistant	4	258
4	Shale, in part weathers silty, medium brown grey with few thin siltstone layers. Some with pelecypod coquina ² weathers recessive and light grey - -	13	254
3	Base of first siltstone unit. Siltstone, light grey, very soft. Obscure 1/2 to 2 inch partings. Weathers light yellow grey with white coating. Belemnites and pelecypods present. Weathers moderately resistant	6	241
2	Shale, dark grey to dark brown grey, poorly exposed and slumped in basal 75 feet. Appears to be fissile. Prominent light red brown weathering siltstone concretions layers becoming quite numerous above 90 feet.		

Unit	Description	Thickness in feet	Height above Base
2 (cont'd)	<p>In upper 70 feet shale becomes browner in color. Slightly silty, tending to weather platy. Approximately four prominent orange weathering siltstone layers with abundant pelecypod coquinae .</p> <p>105 feet above base concretion containing 3 inch diameter log, prominent pelecypod coquinae</p> <p>20 and 23 feet below top, upper 5 feet forms resistant concretionary layer with abundant pelecypods.</p> <p>Unit weathers recessive, medium to dark grey. Micro-fossil samples obtained every 25 feet.</p> <p>GSC loc. 52769 from interval 23 to 33 feet from top: <u>Buchia</u> sp. indet (presumably of Upper Jurassic affinities).</p> <p>GSC loc. 52770 from interval 43 to 48 feet from top: <u>Phylloceras</u> sp., <u>Clindroterthis</u> sp. indet., <u>Buchia</u> ex. gr. <u>moscuensis</u>? <u>Buchia</u> cf. <u>concentrica</u> Sowerby, late Jurassic (presumably late Oxfordian to Kimmeridgian).</p> <p>GSC loc. 52773 from concretions in interval 60 to 100 feet above base: pelecypods and ammonite indet., <u>Buchia</u> sp. indet?</p>		

Unit	Description	Thickness in feet	Height above Base
<u>Big Creek Formation (top)</u>			
1	Sandstone, medium-to coarse-grained, very light grey, quartzose, weathers yellow brown in 1 to 5 foot beds. Very resistant approximately an additional 10 feet of this unit exposed across river. Top few inches of sandstone very coarse-grained and in abrupt contact with overlying shale	37	37

Section 116P2 Cretaceous-Jurassic

West tributary of Bell River λ 137° 16' W
 147 MJ - 150 MJ ϕ 67° 57' N

150 MJ

Unit	Unit Thickness	Thickness Above Base	
13	Sandstone, light grey to light brown, coarse grained, quartzose weathers light grey. Forms very resistant, massive cliff.	150	3770
	Estimate another 100 feet of recessive weathering sandstone and siltstone to crest of ridge and core of syncline.		
12	Covered.	15'	3620
11	Sandstone, medium grained, medium grey weathers light to medium grey. Beds 1'-3'.	28'	3605
10	Series of sandstone ridges 5'-15' thick mostly sandstone, light grey, fine grained, quartzose, some are coarse grained. A few consist of siltstone. Separated by 20'-50' covered intervals with talus of blue grey weathering shale and siltstone.	340'	3577
9	Sandstone, fine to medium grain, medium grey weathers medium grey. Bedding obscure.	14'	3237
8	Cover.	21'	3223
7	Sandstone, light grey, medium to coarse grain, very quartzose, finely laminated, weathers white to light grey. Resistant 2'-4' beds.	7'	3202
6	Cover, top foot shale, black with traces of lignite sample taken.	22'	3195
5	Sandstone fine to medium grained light grey finely laminated, weathers white to medium grey, quartzose.	5'	3173
4	Covered.	14'	3160
3	Sandstone, dark grey, fine grained weathers medium grey resistant in 1'-3' beds.	10'	3154
2	Covered. Talus of shale, block very hard.	15'	3144
1	Sandstone, very fine grained, dark grey, quartzose and siltstone weathers medium grey in beds 1'-3'. Altitude 160/45 NE.	16'	3123
	Covered, sandstone talus of uppermost unit of 149 MJ estimated.	75'	3113

149 NJ

Unit		Unit Thickness	Thickness Above Base
27	Sandstone, very light grey, quartzose medium grained, weathers medium grey in beds 4"-2". Top forms dip slope. Further accurate section not possible.	20'	3038
26	Shale, dark grey, silty with lenses of light grey sandstone. Traces of plant fragments. Weathers dark blue grey. Beds 1". Recessive. Altitude 1600/25 NE	7'	3019
25	Sandstone, light grey, medium grained, quartzose, weathers light grey to red brown in 5'-10' beds. Very resistant.	27'	3011
24	Covered interval, upper part of which may be 10' shale unit which can be seen along strike-bench forming.	32'	2934
23	Sandstone, medium grey and light grey, fine to medium grained, quartzose coarsely laminated and crossbedded weathers red brown to light grey in 1'-5' beds. Very resistant. Basal 15' slightly argillaceous transitional to underlying unit.	125'	2952
22	Siltstone and very fine grain sandstone dark grey argillaceous weathers bluish grey in part red brown. Obscure 1"-12" bedding. Forms prominent recessive notch.	35'	2827
21	Sandstone, fine to medium grain, quartzose, medium to dark grey weathers bluish grey to red brown. Forms massive resistant cliff.	50'	2792
20a	Siltstone and sandstone very fine grain light grey trace of lamination weathers light bluish grey moderately resistant obscure 1"-3" beds.	25'	2742
20'	Thickness unknown because of following. Sandstone, light grey, quartzose hard, weathers light grey to red brown and forms brown band at base of cliff.	4'	2717
19	Shale and mudstone, dark grey silty, no bedding weathers blue grey with yellow and red brown coatings. Upper 5' very silty and medium to light grey.		
18	Shale, in part silty, dark grey to black weathers dark grey with some yellow and reddish brown zones. Lower 125 feet has prominent fracture cleavage and appears to be contorted. Occasional siltstone concretion layers.		

Unit		Unit Thickness	Thickness Above Base
	<p>Belemnite fragments in talus at 175' and 200'. Special concretions 1"-2" in diameter start at 230' and siltstone concretions up to 1 foot long. Belemnites in place at 260' and 350'. Concretions stop at 305 375-450. Essentially covered probably shale as below. No microsamples taken for this interval. 450-475 - 13P microfossil. Samples 10a - 10v microfossils. Upper 150' border and more indurated at 642 changes from recessive weathering to moderately resistant.</p>	642'	2713
17	<p>Sandstone, fine grained, medium brown grey, finely laminated and crossbedded. Weathers brown grey in beds 1"-2". Above 15' becomes more recessive due to interbeds of siltstone and silty shale, dark grey in beds 1"-3". Upper 5' siltstone, dark grey weathers dark grey, recessive, obscure 2"-6" beds.</p>	41'	2073
16	<p>Shale, silty, dark grey with 1"-4" interbeds of argillaceous siltstone and sandstone. Unit weathers recessive dark grey.</p>	19'	2030
15	<p>Uppermost main sandstone, fine grained, medium grey, finely laminated and crossbedded weathers brown. Beds 1"-2". Resistant Upper 5' light grey and medium grained.</p>	25'	2011
14	<p>Sandstone, as below in 2"-6" beds, interbedded with siltstone, medium brown and finely laminated, weathers brown in 1/2"-2' beds with silty shale interbeds. Unit weathers recessive. One Buchia observed predominantly siltstone.</p>	22'	1986
13	<p>Sandstone, fine grained, medium to dark grey, quartzose, traces of fine laminations, weathers medium grey brown. Beds 1'-5' Very resistant except for basal 5' which is transitional through sandstone and siltstone to underlying unit. 30-32' - recessive layer.</p>	54'	1964
12	<p>Shale, silty, dark grey, in part siltstone, weathers dark grey to black, moderately recessive. Traces of pelecypods - Buchia, collection from talus and 33'-46' - observed up to 60'. Micro samples every 20' 149 NJ a,b,c,d. Above 60' interbeds of siltstone up to 1" thick forms 25-50'.</p>	80'	1910

Unit		Unit Thickness	Thickness Above Base
11	Siltstone, medium brown grey weathers brown in 1/2"-1" beds interbedded with dark grey silty shale with 3' bed of sandstone, very fine grained, medium grey, finely laminated at top. Recessive except for sandstone.	11'	1830
10	Sandstone, fine grained, quartzose dark brown grey weathers medium to dark brown in 2"-2' beds. Resistant. Forms top of first sandstone unit.	10'	1819
9	Shale, dark brown grey to black. A few thin interbeds of siltstone which become predominant in upper 5'. Weathers dark grey, recessive. Few pelecypod impressions near base.	19'	1809
8	Sandstone, fine grained, quartzose medium to dark grey. Trace of fine laminations weathers medium brown in beds 1/2'-3'. Basal 8' thinner bedded and slightly darker. Pelecypods in bed 2' from top. Collection made.		
7	Recessive siltstone, argillaceous dark grey, abundant worm tubes. Trace of laminations, weathers dark grey recessive. Some shaly interbeds.	2'	1768
6	Sandstone, fine to medium grained light grey weathers light brown grey. Beds 2'-5'. Very resistant. More quartz than unit 4. None Buchias.	8'	1766
5	Sandstone, very fine grained, dark grey, slightly calcareous weathers orange brown and forms distinct marker bed.	2'	1758
4	Sandstone, fine grained, quartzose, medium grey, slightly argillaceous, trace of fine laminations. Weathers light to medium grey. Very resistant. Beds 1/2'-2'.	17'	1756
3	Covered.	7'	1739
2	Sandstone, fine grained, quartzose medium to dark grey, weathers medium grey in 1/2'-2' beds. 5' above base - Pelecypods Buchia similar to those collected in talus.	9'	1732
1	Interbedded sandstone, fine grained, medium to dark brown grey weathers dark grey in 1"-4" beds. Occasional bed up to 1' thick and siltstone and silty shale, dark grey in 1/2"-2" beds. Unit weathers recessive and dark grey. About 70 per cent exposed. Upper 10' covered.	59'	1723

147 NJ

Unit		Unit Thickness	Thickness Above Base
8	<p>Shale, dark grey to black with some silty zones, prominent fracture cleavage. Dips vertical to 70°. Occasional siltstone concretions. Some with pelecypod fragments. Also some pelecypod fragments in shale. Concretions prominent above 250'. Weathers dark grey recessive. Thickness probably not accurate. Fossils within 25 per cent from 250-275 concretions appear to be vertical. Microfossil samples taken @ 25' intervals up to 275' - continuing measurement using altitude of overlying sandstone unit. Microsample 8 from upper 25'. Dark grey coally shales grade to brown siltstones and very fine grain sandstone in this 25' interval.</p>	466'	1664
7	<p>Sandstone, fine grained, medium to dark grey, argillaceous, weathers brown in 1"-6" beds with 1/2"-2" interbeds of dark grey siltstone.</p>	12'	1198
6	<p>Cover</p>	5'	1186
5	<p>Sandstone, fine grained, quartzose light to medium grey weathers brown to light grey brown. Coarse laminations and crossbeds. Beds 1'-5'. Upper 10' rubble covered.</p>		
4	<p>Covered, few outcrops of siltstone and silty shale, dark brown weathers dark grey. A few pelecypods in talus.</p>	95'	1118
3	<p>Sandstone, fine grained, quartzose medium brown grey, finely laminated and crossbedded weathers medium brown in 1' to 3' beds. Resistant, forms small cliff. Strike 130° Dip 10° 21'-26'. Recessive bench-shaly partings. Upper 40' lighter in colour and purer.</p>	83'	1023
2	<p>50% cover. Few outcrops of sandstone, medium grey, fine grained, quartzose, slightly argillaceous finely laminated and crossbedded weathers medium brown in beds 2"-12". Sandstone appears to be separated by intervals of dark grey to black, siltstone and silty shale.</p>	32'	910
1	<p>Covered.</p>	220	901
	<p>Traced unit 17 of 147 NJ to Mountain spur due south about one quarter mile.</p>		

117 MJ

Unit		Unit Thickness	Thickness Above Base
17	30% exposed, mostly rubble, interbedded sandstone, very fine grained, medium brown in beds 1"-3" and siltstone and silty shale, medium grey. Occasional pelecypods. Fossils in talus of upper 20'.	40'	688
16	Sandstone, very fine grained, medium gray-brown, finely laminated and crossbedded weathers brown in beds 2"-1". Occurs in 3 10'-20' units separated by more recessive intervals of thin bedded sandstone siltstone and silty shale. Few Pelecypods most abundant in upper sandstone. Top of dominant sandstone sequence.	84'	648
15	Sandstone, very fine grained, argillaceous dark gray brown and siltstone in beds 1"-1' interbedded with dark grey silty shale, finely laminated. Weathers moderately resistant. Occasional pelecypods above 50' - 50% cover. Mostly sandstone showing through. Occasional coquinas of pelecypods.	70'	564
14	Shale and siltstone, dark brownish grey to black, weathers recessive and very dark grey 105'-115'. Poor outcrop of thin bedded finely laminated siltstone and sandstone with abundant Buchia and Pelecypods. Collection sands Microsamples 14a - to 105' 14b - 115' to top. Upper 50' predominantly black silty shale with few argillaceous beds.	156'	494
13	Scattered outcrops of sandstone, fine grained probably interbedded with siltstone and silty shale capped by a 7' resistant sandstone, fine grained, quartzose, light brown grey, slightly calcareous, finely laminated, weathers light brown forms lowest sandstone rubble on ridge across creek due south. Buchia in upper sandstone and in talus below. In part limonitic cement.	37'	338
12	Covered, few outcrops of thin bedded sandstone.	54'	301
11	Sandstone, very fine grained, finely laminated, medium gray brown with siltstone, dark gray brown with thin partings and interbeds of silty shale, becomes more argillaceous upwards and 75 per cent covered toward top. Unit weathers recessive dark grey. Fossils collected from upper half, mostly talus occurring as coquinas in siltstone beds.	30'	247

Unit		Unit Thickness	Thickness Above Base
10	Sandstone, fine to medium grained, quartzose, medium brown grey; matrix in part limonitic, finely laminated, crossbedded, weathers medium brown. Beds 3"-2' with few platy weathering interbeds. Forms small cliff. Contains <i>Buchia</i> and other pelecypods from outcrop and talus. Few collected may be from overlying unit. Appear to be <u>volgenais</u> .	16'	217
9	Covered interval, rubble of sandstone as below forming large talus blocks <i>Buchia</i> in talus - straight form about 1" wide and long. May be <u>volgenais</u> or <u>Koysers</u> lings. 10' measured by pogo stick. 210' perpendicular to strike by tape.	110'	231
8	Sandstone, fine grained, light brown grey finely laminated and crossbedded, weathers light brown in beds 1"-2". Resistant.	15'	91
7	Covered.	5'	76
6	Sandstone, very fine grained, finely laminated, medium brown grey, some crossbeds with interbeds of dark grey siltstone and black silty shale in 1/2"-3" thick beds. Most prominent in basal 10'. Sandstone forms beds 2"-1' weathers medium brown. One large fragment of bark in talus.	33'	71
5	Sandstone as below and therefore possibly same unit as 3. Forms one resistant bed.	16'	38
4	Covered.	3'	32
3	Sandstone, light grey, fine grained, quartzose, weathers light brown. Beds 1'. Strike 355° Dip 30° Contains quartz filled fractures and vugs.	5'	29
2	Covered.	9'	24
1	Sandstone, fine grained, slightly calcareous, light to medium grey brown, limonitic stain in matrix, weathers light brown with grey lichen. Bedding appears to be 3"-12". Poor outcrop largely rubble.	15'	15

Section 116F6 Head of Fish Creek, Permian to Jurassic

Photo 14361-14

λ 136° 25'

158 MJ

157 and 158 MJ

ϕ 67° 58'

Unit No.		Unit Thickness.	Thickness Above Base
38	Sandstone forms uppermost cliff on mountains, fine grained, quartzose light grey becomes dark grey above 80' with 5' to 10' beds of light interbedded. Above 80', upper 20' to 30' is fine to medium grained, quartzose, light grey, unit weathers light to medium grey, with dark grey lichens in 1' to 5' beds. Very resistant and cliff forming. A few pelecypods present in basal 30', to east appears to be overlain by 1 or 2 100' to 200' Units of similar dark grey weathering sandstone. Fossil collection includes <u>Fentalions</u> which were common along some beds up to 100' above base.	230	3751 3687
37	Covered.	20	3501 3457
36	Sandstone, fine grained, quartzose, light to medium grey in part strongly laminated, weathers light yellow to brown grey, in beds 1"-3", moderately resistant, dominate platy weathering.	45	3481 3437
35	Siltstone, medium to dark grey, weathers dark grey very resistant bedding obscure with interbeds of sandstone, light grey, fine grained 1"-6" thick above 65', a few traces of pelecypods, upper 15' covered.	95	3436 3392
34	Sandstone, fine grained, quartzose, in part laminations, weathering light yellow grey, to reddish brown; a few concretion layers up to 1' thick. Spaced 10' apart, a few belemnites.	15	3381 3297
33	Covered, a few beds of sandstone thin bedded, showing through talus.	30	3326 3282
32	Sandstone, alternating beds of laminations and non laminations, 1'-2' thick, fine grained, light grey to brown grey, weathers brown to yellow brown, darker than underlying unit somewhat thinner bedded 1"-12".	19	3296 3252
31	Sandstone, slightly calcareous, light brown grey, fine grained, fine laminated, crossbedded, occasional belemnites particularly lower part. Traces of pelecypods, weathers light brown to reddish brown, very resistant forms blocky talus in beds 1" to 4" between 116'-138' recessive interval of thin bedded dark grey sandstone and siltstone, with concretions layer at top.	170	3277 3233

Unit No.		Unit Thickness	Thickness Above Base
30	Sandstone, fine grained, quartzose, medium to dark brownish grey, weathers yellow brown, bedding obscure a few concretions and belemnites basal cliff 19', upper part contains a few shale interbeds and sandstone as in overlying unit. Less resistant in 2"-12" beds. Concretion layer at 29 ft. with inoceramus.	46	3107 3063
29	Sandstone, light grey, prominent laminations, and crossbeds, fine to medium grained, weathers bright yellow grey 1'-3' beds, somewhat recessive, basal 25' medium to dark grey and slightly more resistant concretions along many beds.	84	3061 3017
28	Siltstone and very fine grained sandstone, light brown grey, soft, weathers light brown grey to reddish brown, bedding obscure moderately resistant, belemnites fairly abundant.	29	2977 2933
27	Siltstone, dark grey brown, argillaceous, soft, with a few 1" silty shale interbeds abundant belemnites occasional concretions weathers dark grey to reddish brown, concretions have a few pelecypods.	40	2948 2904
26	Fossil collection from basal 15' concretionary layers, 263 collected 24' above base in concretion, Sandstone, very fine grained, medium grey, quartzose, with fairly abundant belemnite throughout, with occasional ironstone concretions up to 60' above base, many fossiliferous, weathers medium grey to reddish brown, bedding obscure, forms very resistant cliff, upper 40' becomes argillaceous and finer grained, in part siltstone recessing black 263 talus ammonites 30' from top from either top of this unit or 27.	110	2908 2864
25	Shale, dark grey, silty, with several 1'-3" interbeds of siltstone above 40', also a few concretions; one pelecypod collected at 55'; unit weathers; very recessive, medium grey to reddish brown.	180	2898 2754
24	Siltstone, medium grey in part argillaceous weathers dark reddish brown with a few pelecypods recessive.	10	2618 2574

Unit No.		Unit Thickness	Thickness Above Base
23	<p>Prominant red banded cliff unit sandstone, fine-medium grained, light grey, very quartzose, fine laminations, and crossbedded, weathers light grey to yellow grey in part green. Occurring in one to two ft. beds, separated by 1 to 3' beds of dark red weathering Glaukinitite? fine grained, sandstone large paleocypris collected in upper 10'. Upper 20' to 30' slightly recessive, Lingula observed about 75' above base. Permian-Jurassic Contact about here?</p> <p>??"</p>	195	2608 2564
22	<p>Sandstone, light to medium grey, fine grained, quartzose, fine lamination, crossbedded, weathers yellow grey in part light greenish red, in 2"-12" beds separated by 1/2 to 2" recessive interbeds of shale and silty shale unit moderately resistant.</p>	35	2413 2369
21	Covered.	40	2378 2334
20	<p>Sandstone, very fine grained, light grey, 1"-2" beds, of siltstone, occasional ironstone concretions, some fossiliferous; unit weathering light brown grey in 1"-12" beds. Fossils from basal 20' upper 15' sandstone beds become fine grained, fine laminations crossbedded, weathers greenish grey.</p>	50	2338 2294
19	Covered interval.	85	2288 2244
18	<p>Mostly cover, appears to be predominately shale, dark grey, to black, slightly silty, weathers dark grey, very recessive with dark red weathering concretion layer in basal 5' to 10'. A few pecten like fossils from talus of this layer</p>	105	2203 2159
17	<p>Starting at top of light yellow grey weathering carbonate unit, siltstone medium grey, abundant spirophyton, large productids collected 2' above base; weather light brown to reddish brown, in 1"-4" beds. Not quite as resistant as underlying unit.</p> <p>July 13, 1962. Barometer 4770 Shifted along strike north to next gully.</p>	15	2028 2054
16	<p>30%-50% outcrop, scattered outcrops of siltstone light grey, calcareous in part concretionary and argillaceous, collected fossils from 5', concretous layer on top.</p>	50	2082 2039

Unit No.		Unit Thickness	Thickness Above Base
15	Siltstone, very calcareous, possibly limestone, light grey, trace of fine laminations suggestion of brach. fragments; weathers light yellow grey, very resistant and cliff forming.	65	2033 1989
14	Siltstone, light medium grey, very calcareous, fine laminations, abundant spirophytons, basal 10' argillaceous remainder in 1'-5' beds unit weathers light brown a few brachiopods, between 22'-23' limestone light grey, silty, fine laminations weathers light grey, forms resistant cliff in upper 5' two prominent yellow weathering beds of limestone about 1' thick. Micro K, trace of lamination lower one underlain by 1"-3" band of light grey chert.	44	1968
13	Sandstone, very fine grained, slightly calcareous, abundant spirophytons, traces of laminations. A few brach., weathers light yellow brown in 1'-4' beds very resistant becomes more calcareous towards top very abundant spirophyton in top 5'.	35	1924
12	Sandstone, very fine grained, medium grey with occasional concretions weathers light grey. Resistant, cliff forming. Abundant Spirophyton observed in talus from cliff.	42	1689
11	Siltstone medium grey, weathers reddish brown, moderately resistant, essentially one bed.	15	1847
10	Siltstone, light grey, finely laminated, in part argillaceous; weathers reddish brown - yellow in beds 1'-12" recessive, basal 20' partially covered micro-fossils samples 10A from Basal 50' 10B from Upper 50'.	105	1832
9	Covered.	50	1727
8	Sandstone, very fine grained, medium grey, finely laminated, very fossiliferous particularly at base collection from base collection from base 5'. A few dark weathering concretions beds, weathers light grey to brown and forms a resistant cliff. Suggestion of Spirophyton.	17	1647

Unit No.		Unit Thickness	Thickness Above Base
6	Missed No. 7 70% covered sandstone, very fine grained and siltstone medium grey, abundant spirophyton, forms prominent recessive interval beneath overlying marker unit.	69	1630
5	Sandstone, medium grey, very fine grained, traces of laminations, a few brachs., weathers light brown grey to red brown, forms small cliff tends to part in 1"-6" beds, abundant Spirophyton upper 40' contains several 1-3' argillaceous siltstone and silty shale interbeds, breaking unit into series of 1-5' cliffs.	76	1561
4	Sandstone, very fine grained light to medium grey, weathers light brown, grey to red brown, abundant Spirophyton, Brachs., more abundant similar to Unit 3. But weathers more resistant and thicker bedded, tends to part in 3"-2' beds.	125	1485
3	Covered interval 50% sandstone outcrop as Unit 2. Abundant Spirophyton.	25	1360
2	Sandstone, very fine grained poor laminations, medium grey, weathers brown, moderately resistant 1-12" partings Spirophyton present, partial exposure, present also were spirifers and productids.	20	1335
1	Covered interval talus fossils at base.	41	1315
Crossed fault of small throw. West side up about 400' measuring new section in next creek north beginning at top of moderately resistant sandstone with abundant spirophyton. Suggest that this horizon correlates with top of Unit 12 of MJ 157.			
Followed dip slope to west for 1/2 mile.			
157 MJ - measuring lower part of section.			
12	Sandstone, very fine grained, light brown grey, traces of laminations, Spirophyton moderately abundant, weathers medium grey to reddish brown. Series of 10'-20' cliffs. Bedding massive, with Partings 1"-12". Occasional ironstone concretions followed dip slope to east assuming no change in stratigraphic position.	135	1274
11	Covered with 2083, 5'-10' outcrops of sandstone as below.	83	1139

Unit No.		Unit Thickness	Thickness Above Base
10	Essentially sandstone similar to below light to medium grey, very fine grained, poor abundant laminations. Quartzose, occasional ironstone concretions, do not appear to contain fossils. Abundant spirophyton, weathers greenish grey to brown, cliff forming, tendency to part every 1"-6" forming platy talus.	44	1056
	Covered interval	35	1012
9	Less resistant sequence of sandstones and covered intervals (described from bottom to top); sandstone, very fine grained, medium grey abundant poor laminations, occasional ironstone concretions with fossils, 5'-15' apart. Unit weathers greenish grey to medium grey, generally massive with 1"-1' partings, Spirophyton, very abundant, almost on every bedding plane - 30 feet. Covered interval - 55 feet Sandstone as described - 30 feet Covered interval - 27 feet Sandstone as described - 24 feet Covered interval - 23 feet Sandstone this is most resistant so far 0°/15°E. - 53 feet. No fossils seen in talus or outcrop above 3rd sandstone, except abundant Spirophyton.	244	977
8	Covered.	67	733
7	2nd resistant cliff, actually three cliffs separated by covered interval of 25'. Sandstone, very fine grained, quartzose, abundant poor laminations, light to medium grey. No brachs, abundant Spirophyton throughout, weathers greenish brown to reddish brown, with 1"-4" partings, cliff forming, 20-40' high fossil. Collection 7a was from base of 3rd sandstone cliff, both from ironstone? concretions which weathers dark red, occurring in lenses 4"-8" thick only present in third sandstone; slightly recessive beds, between 10'-20' from top, upper sandstone is fine grained.	223	666
6	Siltstone, medium grey, slightly calcareous, trace of laminations weathers medium grey to brown, in beds 1"-12", forms recessive grass covered slope between 50-60' exposed no fossils observed.	80	443

Unit No.	Description	Unit Thickness	Thickness Above Base
5	Covered.	46	363
4	Sandstone, very fine grained, slightly calcareous, medium grey, abundant worm trails, very fossiliferous, with productid coquinae, one ammonite observed, collection 4 _a from base, weathers light brown grey, indistinct 2"-12" beds, much less resistant than Unit 2, Spirophyton.	17	317
3	Covered.	35	300
2	Sandstone, very fine grained, quartzose, trace fine laminations, slightly calcareous, medium brownish grey, occasional to abundant throughout productid coquinae collection 2 _a 4' to 5' above base abundant Spirophyton, weathers brown to slightly reddish brown, beds 1'-5', very resistant.	65	265
1	Siltstone, medium to dark grey, slightly calcareous, with traces of productid spirifer and other Permian fossils, abundant worm trails in part of rock, with occasional interbeds of sandstone, very fine grained, calcareous, light to medium grey, traces of laminations, weathers medium brown grey, to brown, in 2" to 2' beds, moderately recessive, and forms a grass covered slope, approximately 160°/10°E 1 _a Fossil collection, 100' below junction of creek on south bank between 75' and 100' below base of 1st resistant unit. Barometer 1060 at base of 1st resistant unit.	200' to 250'	200'

Section 116P3 West tributary of Bell River.

λ 137° 18'

φ 67° 46'

Beginning at lowest exposures in core of anticline on west limb.

(159 157)

Unit No.		Unit Thickness	Thickness Above Base
62	Sandstone, light gray, medium to coarse grained, weathers, light gray interbedded 1"-6" thick.	25	3744.5
61	Sandstone, fine to medium grained, light gray to light brown with abundant pelecypods weathers light grey/brown, forms distinct brown marker unit at top of mountain moderately resistant, essentially interbedded with platy partings.	12	3719.5
60	Covered.	11	3707.5
59	Sandstone, medium to coarse grained, light gray, weathers light grey, forms one resistant unit.	26	3696.5
58	Covered, some talus of sandstone brown, very calcareous weathers brown, thin bedded traces of worm burrows.	15	3670.5
57	Sandstone, light gray, medium to coarse grained, weathers light grey, very massive, beds greater than 10'.	35	3655.5
56	Sandstone, fine grained, dark grey, fine laminated weathers, medium dark grey in 1/4"-6" beds, a few pelecypods 50' talus covered above 40' thicker bedded in part medium grained, weathers more resistant.	195	3620.5
55	Covered forms a saddle appears to be black shale or siltstone, except for basal 15' which consists of sandstone, very fine grained light grey with abundant pelecypods weathers thin bedded and platy.	285	3625.5
54	Sandstone, fine grained, light brown, quartzose, weathers light grey, forms blocky talus.	5	3340.5
53	Covered.	16	3335.5
52	"White quartz division" (3450/2500) sandstone, white to medium brown grey, quartzose, fine grained to very fine grained weathers medium grey in distinct 1"-3' beds. Covered with light grey and black lichens, main part of cliff above 150'. Slightly recessive between 100'-150' and partly talus covered, upper cliff fine-medium grained, very massive, in beds 10' thick.	300	3325.5

Unit No.		Unit Thickness	Thickness Above Base
51	Siltstone, dark grey, similar to below, but weathers more resistant medium bluish grey with 1"-4" partings basal part of main cliff include with 50.	22.5	3025.5
50	Siltstone, dark grey, weathers dark bluish grey to reddish brown, bedding obscure, tends to break along planes less than a foot apart, at 170' some interbeds of sandstone very fine grained, medium grey in 1'-4' units, unit becomes more resistant above this level.	240	3013
49	Covered, probably the same as below but covered with overlying sandstone talus.	161	2773
48	Mostly covered, appears to be shale, black, silty, with some argillaceous siltstone beds weathers, very recessive dark grey to black.	110	2612
47	Siltstone and sandstone, very fine grained, dark grey silty shale interbeds a few brown calcareous sandstones, weathers dark grey, recessive in indistinct 1"-3" beds, at about 40' ammonites and pelecypods collected.	60	2502
46	Sandstone, very fine grained, quartzose, light-medium brown grey, slightly calcareous, fine laminated, crossbedded, lower 30' is darker and more argillaceous, weathers light grey, medium brown, beds 1"-3' resistant and cliff forming.	84	2442
45	40%-60% exposed interbedded sandstone, fine grained, light grey, slightly calcareous, fine laminated, weathers light grey to light brown, in 1"-2' beds, some cross-bedding; siltstone medium brown grey, dark grey, silty shale, in 1"-3" beds, unit is moderately recessive sandstone forming 5'-10' small cliffs, belemnite found at 165' ammonite found in talus.	250	2358
44	Siltstone, medium brown grey, trace of laminations, weathers dark brown grey, occasional concretion layer fairly abundant pelecypods (<i>Buchia okensis</i>) and belemnites in coquina layers in indistinct 1"-12" beds. The fossils and rock are same as in Unit 38. (see below).	65	2103
43	Covered.	13	2043

Unit No.		Unit Thickness	Thickness Above Base
42	Sandstone, fine grained, light-medium grey, quartzose fine laminated and crossbedded, weathers light grey to brown in beds 1"-2", a few concretous siltstone lenses in upper part, resistant, fall forming along strike to south, some folding and possibly faulting which probably extends into units 40 and 41.	95	
41	Siltstone, dark brown grey, fine laminated, poorly exposed weathers dark grey in 1"-2" beds, upper part beds thick and more resistant.	150	
40	Moved along strike to south about 1/2 mile, starting at top of prominent sandstone 160/55° SW, mostly covered, but outcrop down hillside of silty shale and siltstone dark grey, forming recessive saddle.	185	
39	Resistant mappable sandstone ridge, sandstone, light brown grey, quartzose, weathers, light medium grey, beds, 1"-12" platy.	49	
38	Between 65'-75', <u>Buchia</u> collected appears to be okensis interval contains talus of siltstone dark grey, weathers dark grey, probably contains a few concretions upper 100' mostly covered.		
37	Change of Dip 15°E probably folding and faulting in section, sandstone, fine grained, slightly calcareous, fine laminations, weathers grey brown, in 1"-2" beds maybe a repeat of 35. Dip at top is 25°W. Assuming small syncline anticline.	10'-15' Est. Plus 45'	
36	Covered, with abundant talus of siltstone dark grey to black.	50	
35	Sandstone, very fine grained, brown, weathers, grey to brown in 1"-12" beds, 40% cover slightly calcareous dip appears to be about 70°W upper half of unit. 5'-10' beds of sandstone, separated by 2'-5' beds covered interval.	83	2025
34	Covered interval at 85'-45' bed of sandstone with brown weathering layer at top containing a few buchia, a few scattered outcrops of dark grey siltstone and silty shale with 3 or 4, sandstone beds, up to 5' thick.	165	1942

Unit No.		Unit Thickness	Thickness Above Base
33	Sandstone, light brown gray, very fine grained, weathers light to red grey, abundant small quartz veins on slickensides.	26	1777
32	Covered interval, a few outcrops and talus of silty shale and siltstone.	85	1751
31	Sandstone, fine grained, white brownish grey, quartzose, in part limonitic cement, weathers light-medium grey, forms first sandstone ridge, altitude 1500/500 SW.	22	1666
30	A few scattered outcrops of siltstone light brown grey and slightly calcareous, fine laminated, weathers in beds 1/2-2".	50	1644
29	Covered, some talus of dark brown, grey siltstone, upper 10' silty shale.	67	1594
28	Mostly covered with talus of siltstone, and silty shale, dark brown, grey, finely laminated, forming recessive notch along ridge.	60	1527
27	Covered by talus from underlying sandstone.	50	1467
26	Talus covered upper 10' forming a talus dip slope mostly talus similar to 25, fine-medium grained medium grey weathers light grey, a few traces of pelecypods.	30	1417
25	Sandstone, fine-medium grained, light medium grey, weathers light medium grey in 1'-3' beds resistant forms ridge top.	30	1387
24	Covered.	15	1357
23	Sandstone, finely laminated, fine grained, medium grey weathers light-medium grey, in 1'-3' beds forms top of cliff.	25	1342
22	Covered.	90	1317
21	50% outcrop, sandstone, medium grey, fine grained, quartzose, weathers light grey, very poor outcrops.	20	1227
20	Covered, <u>Duchia</u> collected in talus.	54	1207

Unit No.		Unit Thickness	Thickness Above Base
19	Sandstone, similar to 17 only fine-medium grained, forms even more resistant marker cliff along hillside bed 1'-4'. Fine laminated and crossbedded.	30	1153
18	Covered	27	1123
17	Sandstone, light grey, quartzose medium grained, slightly porous traces of fossil fragments weathers light grey to light brown in 1'-5' beds very resistant.	30	1096
16	Sandstone, similar to 14. Fine grained, fine laminated weathers medium grey in 1"-6" beds also reddish brown.	65	1066
15	Sandstone, fine grained, light medium brown grey fine laminated, weathers light grey brown beds 1-5' resistant.		
14	Sandstone very fine grained medium brown grey, fine laminated, quartzose, weathers dark brown in 1"-4" beds.	19	974
13	Covered	48	952
12	Basal 15' sandstone, 25' covered sandstone, very fine grained, dark brown grey weathers dark brown in 1"-2' beds, a few siltstone interbeds fine laminations and crossbedded, upper 10' weathers lighter grey and is more resistant.	87	904
11	Covered, a few outcrops sandstone as below.	100	817
10	Sandstone, very fine grained, medium grey, fine laminations, weathers light to medium grey in 1"-4" beds.	15	717
9	Covered interval, a few scattered outcrops of black silty shale.	295	702
8	Sandstone, very fine grained medium to dark grey, quartzose, weathers dark grey tends to be recessive only 60% exposed.	50	407
7	Pelecypod coquina in sandstone, fine-medium grained, calcareous, light grey, weathers light brown, 2'-4' beds resistant.	10	357
6	Sandstone, light-medium grey, fine-medium grained quartzose, weathers grey brown, with medium grey lichens in beds 2-5' thick, more massive than underlying a few Dentalium near top.	40	347

Unit No.		Unit Thickness	Thickness Above Base
5	Sandstone, very fine grained, some siltstone, at base medium to dark grey, quartzose weathers medium to dark grey with brown cast, in beds 2'-2' moderately resistant upper 70' more resistant and cliff forming. No sharp break with overlying unit. 160°/30°W.	250	307
4	Covered	36	57
3	Siltstone dark grey, fine laminated, weathers light to dark grey, beds indistinct appear to be 1"-6" generally recessive.	21	21
2	Covered, a few scattered outcrops, siltstone, dark brown grey, traces of worm tubes, weathers dark grey recessive, beds 1"-2".	200' to 300' Est.	
1	Sandstone, fine grained, quartzose, medium to dark brown grey, weathers medium grey, very resistant beds 1"-5' underlying beds covered.		

Date: July 8, 1962
Section: 117 A-1
Station: 12 PM
Air Photo: A 14363-24

Measured base to top and Copied top to bottom.

Unit		Unit Thickness	Thickness Above Base
12PM-13	Page 59 Sandstones, mostly light grey brown, thick bedded, very fine grained. Forms coarse angular talus, very top is a 20' vertical face. Weathers with rusty grey surface. Unfossiliferous, except for unidentified casts. Pogo sticking difficult. (thickness may be high) <u>Attitude 15°/10°</u>	215'	2615'
12PM-12	Page 59 Sandstone, light green, very fine grained, thick bedded with occasional thin beds. Weathers greenish grey. Somewhat sheared and probably near a fault as dips change throughout. Forms a small vertical face.	65'	2400'

Unit		Unit Thickness	Thickness Above Base
12 PM-11	<p>Page 59 Sandstones, mostly shades of medium brownish grey, fine grained, bedding 2" and fairly regular. Some is light brown grey and thinner bedded. Traces of <u>Spirophyton</u>. Rock forms slabby talus. Weathers dark grey with a yellow tinge. Covered with black lichen.</p>	285'	2335'
	Covered Interval	245'	2050'
12PM-10	<p>Page 58 Limestone rubble, shaly, medium grey, finely crystalline and thin bedded. Occurs as talus above Unit 9. Weathers orange yellow. Also some green grey sandstone. Appears to be <u>Spirophyton</u>.</p>	45'	1805'
12PM-9	<p>Page 58 Limestone, light to medium grey, very finely crystalline, thin bedded. Appears to have fossil fragments but only one poorly preserved brachiopod was found. Rock feels slightly siliceous. Weathers light yellow grey and forms a discontinuous series of cliffs along valley.</p> <p><u>Attitude 20°/15°E.</u></p>	170'	1760'
12PM-8	<p>Page 57 & 58 Covered Interval - valley between ridges. First half completely covered. Last half shows loose talus in frost boils. Talus is gravel size and of the same lithology as Unit 9. In fact this material may all have been derived from the cliff of Unit 9 to the east.</p>	375'	1590'

a9

Unit		Unit Thickness	Thickness Above Base
12PM-7	<p>Page 57 Siltstone - Sandstone, light grey, fine grained, thin irregular bedding. Weathers a distinct orange to yellow and forms a platy talus. The top 30' forms a cliff and ridge top. Throughout are common <u>Spirophyton</u> and at top (7b) and bottom (7a) are casts of snails and brachiopods.</p> <p><u>Attitude 15°/25°</u></p>	295'	1215'
a7			
b7			
12PM-6	<p>Page 57 Siltstone, calcareous, dark grey, very thinly bedded. Weathers grey brown. About 50% moss covered. Forms somewhat recessive slope and may contain minor faulting. Almost unfossiliferous but brachiopod fragments found.</p>	85'	920'
a6			
12PM-5	<p>Page 56 & 57 Calcareous siltstone and silty limestone dark grey, extremely fine grained, thin bedded. Probably some shaly in part as found on low slope and fine talus. Contains brachiopods at base. At 95' above base is another brachiopod collection. Also at 165'. At the very top the lithology is slightly more silty with occasional crossbedding.</p> <p><u>Attitude 175°/31°</u></p>	205'	835'
a5			
b5			
c5			
12PM-4	<p>Page 56 Calcareous siltstone as in Unit 3 but forming a small cliff.</p>	10'	630'

Unit		Unit Thickness	Thickness Above Base
12PM-3 a3 b3	<p>Page 56 Calcareous siltstone. Essentially the same lithology as Unit 2 but forming a 20° slope and rubbly outcrop. There are fairly common brachiopods at the base. At 40' from base there are more fossils. Rocks in this unit form angular rather than platy fragments.</p>	350'	620'
12PM-2 a2	<p>Page 56 Silty limestone. Essentially the same as Unit 1 but forming continuous outcrop. The top 75' forms a steep cliff. This unit contains a sparse productid(?) brachiopod fauna, very thinly bedded and weathers very much like shale into foliated stacks. Yellow grey weathering colour extends $\frac{1}{2}$" into rock.</p> <p><u>Attitude @ top: 170°/45°E.</u></p>	135'	270'
12PM-1	<p>Page 45 A moss covered slope extending from just above the creek to Unit 2, which is continuous outcrop. At the very bottom and throughout, frost boils contain a mixture of shale, calcareous, medium grey, subfissile, with a silty feel and siltstone, medium grey, yellow grey weathering, containing fragments of shale(?), very thin bedded and limestone, very finely crystalline, probably silty, weathering yellow grey. Worm casts(?) or fossil fragments weather out on surfaces. About 10% outcrop and of that about 60% is siltstone.</p> <p>Creek bed was made up mainly of the same lithology plus some rare chert fragments. Older beds are not apparent along the creek.</p>	135'	135'
	Total Section: 2615'.		

Note
 units at 9 probably thin.
 unimportant section inverted, lower may
 be listed either upright or inverted.

Section 117 A2 (15PM)

Bell River head, measured on north-south trending ridges
 east of Bell River (68°09' and 136°56').

Measured by R.M. Procter, July 15-16/62, Photo A13232-29

Unit No.	Description	Unit Thickness	Thickness Above Base
9	Mudstones, shale and some sandstone?, poorly exposed colour banding obvious in creek. Bottom of exposure pale reddish grey weathering. Upper shades of grey. Top is dark silty shale overlain by dark grey sandstone quartzite, very fine grained and very compact, 10' thick fairly resistant. Strike 180° dip 40° east. Silty shale for micro fossil sample 15 PM 9-MP1 (one bag)	135'	
	Moss covered interval - dips very uncertain. Debris appears to be much like units 7 and 8.	225'	
8	Sands and shales interbedded? Sands are very thin bedded medium grey, almost platy, very thinly laminated and some have clam? casts (8A), weather yellow grey. Fragments of dark shales or argillaceous siltstone, present in talus.	185'	
7	Sandstone - quartzite, dark grey, fine grained, thin-bedded and forming high ridge at east of section with prominent dip slope and subsequent small ridges. Weathers dark grey - 170°/45° E	285'	
6	Essentially the same as unit 5 but over half covered, forms low ridges and one high one at top about 70 feet high, weathers dark grey.	260'	

Unit No.	Description	Unit Thickness	Thickness Above Base
5	Sandstone, - quartzose, light to medium grey. Fine grained thin bedded (10 inches) forming good cliff covered with large angular talus. Weathers light grey but covered with dark grey lichens	115'	
4	Sandstone, - quartzose light brownish grey, fine grained thin bedded (10 inches) and thinly laminated. Base is rubbly and rusty weathering; towards top weathers yellow grey to white but has black lichen cover. Forms first. Steep face with a few ridges above. Upper part is in part rubble covered.	210'	
	Covered - mostly sandstone rubble from above but bottom 70 feet appears to be argillaceous.	155'	
3	Shale, black, fissile, - weathering in pencil-like fragments, outcrops as foliated stacks to north of main slope. <u>Strike 159° Dip 25°NE</u> Micro sample from bottom <u>15 FM3 - MP1</u>	245'	
2	A recessive slope - appears to be shale throughout. Contains at base a few feet of conglomerate dark grey, dark grey chert pebbles from 1/16 to 1 inches, well rounded - poorly sorted. Matrix appears to be very fine grained dark sandstone to siltstone. Overlain by shale dark grey (at 20 feet) silty fossil samples. <u>15 FM 2 MP 1 at 10'</u> <u>15 FM2 MP2 at 20'</u> Ironstone weathered debris fairly common. Strike 160 dip 70° east silty argillite? - black but weathering	450'	

Unit No.	Description	Unit Thickness	Thickness Above Base
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reddish brown between 50 and 200 feet above base - nearly all shale as at 20 feet. Common vein quartzite - some with silts - argillaceous associated. Occasional very small polished black chert pebbles. in shale. Shale unfossiliferous except for limonite filaments which may represent plant mixture. Between 200 and 450 feet rocks essentially as below - occasionally more silty than shaly. Micro fossil sample - 15 PM 2 MP 3 at 320'

- | | | | |
|---|--|-----|--|
| 1 | Siltstone, quartzose dark grey, with carboniferous plant remains shaly, thin irregular bedding. Weathers medium to dark grey and forms low slopes. At 75 feet contains one pelycopod. At 110 feet another and larger one (inocerams?) scattered throughout in weathered mixture are mudballs (?) - $\frac{1}{2}$ to 3 inches diameter generally spherical some tape red cylindrical most with central fragment of plant mixture. | 320 | |
|---|--|-----|--|

110 feet above base strike 170° dip 70°± east strike and dip difficult to check as unit is 50% covered and partly frost heaved. Top 30 feet appears more silty and sandy than lower and weathers to more rounded larger debris. Mud balls? Continue almost to top - consists of same material as surrounding shales.

Section 117M4 Tributary of Blow River.

λ 137° 28'

ϕ 68° 25'

Southwest of Mount Davies Gilbert and East
of Blow River. Photo 11451-13 July 16/62

MJ 160

Unit No.	Unit Thickness	Thickness Above Base
	<p>Top of small ridge 170° Strike, lowest dip observed 25°-30°W scattered talus and very poor outcrops of shale, silty dark grey and siltstone and sandstone, very, fine grained, light-medium grey, fine lamination; weathers light brown, in beds less than 1". Sandstone very rare.</p>	
	MJ 161	
29	<p>Partially exposed measured 375' horizontally outcrop near top 20' thick, fine to medium grained, medium grey, trace of laminations poorly sorted, dirty, weathers brown, with light grey lichens in 1' beds parting in plates $\frac{1}{2}$"-1" thick 20°/25°W 375 x sin 25° (.42) = 157' estimate between 400' & 600' of recessive weathering outcrop to creek barometer 2720.</p>	3429
23	<p>Covered measured 753' horizontal abundant, talus of platy sandstone as in Unit 27, 753 x .5 = 376.5'.</p>	3272
27	<p>Sandstone in $\frac{1}{2}$' to 2' beds fine to medium grained, light to medium bluish grey finely laminated, dirty, poorly sorted, matrix weathers to limonite, weathers brown with light grey lichens in $\frac{1}{2}$" to 1" beds, platy, separated by 1' to 5' beds of shale silty dark grey and siltstone finely laminated light to medium grey partings less than $\frac{1}{2}$", unit forms highest point on ridge 175°/40°W Use 30° Dip for calculations.</p>	2897
26	<p>Shale, light, very silty, fine laminated, with interbeds $\frac{1}{2}$"-2" of sandstone, medium grey, argillaceous, fine laminations crossbedded, some layers of fine grit and conglomerate, weathers light grey to brown in thin beds, generally less than 1", micro-sample 50'-100'-26A, 250'-299'-26B Pelecypod at 100' probably silty shale above 100' and forms small saddle, several thin grit and fine conglomerate layers around 200 feet.</p>	2840

Unit No.		Unit Thickness	Thickness Above Base
25	Interbedded sandstone, fine to medium grained, poorly sorted, medium grained, argillaceous? arkosic, in part finely laminated, occurring in 1"-6" intervals of siltstone and some silty shale, fine laminated light to medium grey, unit weathers brown with light to dark grey lichens, thin bedded and platy 100/45°W, forms top of small ridge.	43	2541
24	Covered probable fault as observed on air photo and along strike stratigraphic omission of about 200'.	70	2493
23	Sandstone, fine grained, light grey, trace of laminations quartzose, weathers light grey in 1/2"-2" beds.	7	2428
22	25' pugged at start, predominately cover, talus of shale, dark grey, silty, weathers brown, platy siltstone base forms prominent recessive gully 432' measured up slope, slope is 22°, 432 sin 67°(.91)=439 two micro-samples. 0-200 Upper 80' covered with 200-400 Siltstone, Sandstone, Talus Prominent recessive gully at 200'.	464	2421
21	Siltstone and Sandstone, very fine grained, medium grey brown, finely laminated, some crossbedding, weathers with light and dark grey lichens, in 1/2"-1" beds, forms small resistant ridge, basal 10' exposed, upper part 50'-75' cover, sandstone interbeds, 1'-3' thick, spaced 5'-10' apart.	155	1957
20	Covered, measured 340' horizontal 180°/50°W 340 Sin 40° (.64)=216	218	1802
19	Predominately siltstone and silty shale, dark grey, finely laminated, with interbeds of sandstone, 1"-2' thick, spaced 1'-10' apart, giving strong ribbed appearance.	433	1584
18	Covered measured 275' horizontal, appears to be folded, dips flat to 30°, lower half covered upper half interbedded, shale, silty, dark grey and siltstone and fine grained, sandstone, light grey, finely laminated, in beds up to 2".	69	1101

Unit No.		Unit Thickness	Thickness Above Base
17	Siltstone, medium to dark grey, finely laminated with interbeds of dark grey silty shale, in $\frac{1}{2}$ "-2" beds, with interbeds of sandstone, 1'-2' thick, spaced 5'-10' apart fine grained, light brown, grey, quartzose, weathers light grey, the dip varies from 50° W - 15° W.	100	1032
16	Covered, horizontally measured 139' with tape 139 Sin 20° (.34) = 47'.	47'	932
15	Sandstone, fine grained, glauconitic?, light-medium brown grey, fine laminations, weathers brown-dark grey, in $\frac{1}{2}$ "-2" beds, platy barometer 3220 at top of ridge, upper 20' of this unit contains 4 or 4, 2'-5' interbeds of argillaceous siltstone and silty shale dark grey sample for micro 170° / 20° W, dip slope talus of thin bedded, sandstone, 15-35' covered estimate.	40	855
14	Covered.	30	845
13	50% exposed, sandstone, very fine grained, light brown, quartzose, trace of laminations, weathers dark grey in $\frac{1}{2}$ "-2" beds.	9	815
12	Covered	14	806
11	Sandstone, fine grained, dark grey, fine laminations, weathers medium dark grey, in $1/4$ "-2" beds, platy, upper half of underlying covered interval appears to consist of similar rock, a few interbeds of dark grey silty shale and siltstone.	15	792
10	Covered interval.	72	777
9	Sandstone, fine grained, medium to dark grey, fine laminated, weathers, medium grey, in $\frac{1}{2}$ "-4" beds, platy, moderately resistant, forms top of ridge.	12	705
8	Covered.	30	693
7	Sandstone, fine grained, medium to dark grey, fine laminations, crossbedded, weathers light to dark grey, mostly dark grey lichens, beds 2"-1", parting along laminations, every $\frac{1}{2}$ "-1". 165° / 15° W.	33	663

Unit No.		Unit Thickness	Thickness Above Base
6	<p>Siltstone, light to medium grey, finely laminated, weathers light brown grey, in $\frac{1}{2}$"-2" beds, with thin interbeds of dark grey silty shale, above basal 20' predominately shale. 0-50 161 NJ6A 50-150 161 NJ6B Line of pooping was 75° slope of hill 25°.</p>	630	630
5	<p>Sidetailed into gully on west up 25' in elevation, estimate walked over 125-175' of section covered.</p>		
4	<p>2'-5' good outcrop, sandstone, very fine grained, light grey, fine laminations and crossbedded, weathers medium grey, in $\frac{1}{2}$"-2" beds, appears to be siltstone and silty shale, medium to dark grey underneath for approximately 50' then cover below and cover above.</p>		
3	<p>Mostly bluish grey shale above 170°/30°W Elev. 2625'.</p>		
2	<p>Above 2540 considerable talus of sandstone, very fine grained, and siltstone in $\frac{1}{2}$"-$\frac{3}{4}$" platy beds this continues to 2600' near top of ridge then appears to be close to dip slope into saddle, probably this is along strike from 160 in saddle. Elevation 2540'.</p>		
1	<p>Shale, silty, dark, grey, weathers bluish grey, very probably slump scattered talus over hillside, a few pieces of siltstone, slope 15°, altitude appears to be west dip as exposures in creek 1 mile to north along strike. All dip 20°-30° SW.</p>		

162 NJ

140-160/5-20° SW, 30'-50' of outcrop, mostly shale dark grey, silty, hard prominent joints or cleavage perpendicular bedding, breaking shale into long splinters, basal 15' has $\frac{1}{2}$ "-2" interbeds of sandstone, fine grained dark grey, fine laminations, weathers brown moderately resistant, down stream $\frac{1}{2}$ to $\frac{3}{4}$ mile 20/25' 40 to 60 feet of good sandstone forms a small cliff, sandstone, fine to medium red to dark grey, dirty, poorly sorted, poor laminations, a few crossbeds, weathers light grey to reddish brown is $\frac{1}{2}$ " to 2" beds with a few shale partings

Unit No.	Unit Thickness	Thickness Above Base
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and interbeds of recessive siltstone less than 1' thick. A few plant fragments noted in talus a few clay mud balls up to 1". Outcrops continue for about 1/2 mile downstream still dip to N.E. 25° next creek from S.W. has relatively flat dip then S.W. dips must be a small anticline and syncline following creek.

Section 117 A5 (13PM)

Black Shale Creek on Yukon NWT boundary (68°17 and 136°31).

Measured by R.M. Frocter, July 9, 1962. Photo A14361-22

Unit No.	Description	Unit Thickness	Thickness Above Base
13	Sandstone, yellowish gray, medium to thick bedded, fine grained. In part with carbon remains (Plant?) Weathers medium grey with black lichens. Forms steep cliff. Flat lying.	110'	
	Covered interval		450'
12	Covered with debris of shale and sandstone mixed. Shale is black, fissile and one bag micro sample taken. Sandstone is yellow grey, fine grained to medium grained.	85'	
11	Covered with debris of frost heaved beds including dark grey shaly siltstone and yellow weathering yellow medium grained sandstone.	115'	
10	Sandstone, rusty coloured, fine grained, thin-bedded, weathers yellow grey. Bottom 200 feet about 80% covered, at very top - limonitic weathering sandstone. 45°/15° West.	480'	
9	Sandstone yellow grey, fine grained, thinly laminated at base, slope 80% covered 135 feet above base argillaceous siltstone - dark grey (13 PM 9 - 135). Sandstone continues to 470' above base with about 15%	605'	

Unit No.	Description	Unit Thickness	Thickness Above Base
	<p>out crop - talus appears to be same as below</p> <p>dominantly sandstone with occasional shaly siltstone</p> <p>Upper 135 feet forms cliff to ridge top, consists of sandstone, brown grey, fine grained thick bedded with some thin beds sandstone is carbonaceous? in part, and weathers light grey with black lichens just below top 5 feet of very thinly bedded medium grey carbonaceous sandstone with laminae of shale black (carbonaceous?) 35°/35°N</p> <p>Section continued with offset to north.</p>		
	Cover interval - shale (13 PM 8X)		85'
8	<p>Sandstone, medium grey at base becoming cleaner. Just below top is cliff forming thick bedded to massive light brown grey sandstone. Weathers white with black lichens (appears to be same as top unit of 106 M7) very top has platy yellow grey, very thin bedded sandstone.</p> <p>22°/44°E</p>		525'
	Covered interval		160'
7	<p>Sandstone, brownish grey, very fine grained, thin regular bedding weathers light yellow grey and forms a couple of small knobs about 40% covered 30°/55°E</p>		235'
	Covered interval - shale?		65'

Unit No.	Description	Unit Thickness	Thickness Above Base
6	Sandstone medium grey carbonaceous? Very fine grained very thin irregularly bedded. Weathers light yellow grey forms first knob behind first ridge. Unfamiliar fossil cast at top 30°/42° E.	110'	
5	Sandstone essentially brownish grey throughout, weathers rusty, deeply weathered, medium bedded	160'	
4	Sandstone, greenish grey fine grained, quartzose, thin bedded - forms small shoulder near top. Thickness difficult to determine.	±25'	
3	Sandstone (all talus) nearly all medium grey brown very fine grained. Weather orange grey with black lichens. Talus consists angular blocks.	670'	
2	Sandstone same as in unit 1 but forms 15 degree slope - mostly out of place weathers orange grey and brownish grey appears to be in part shale containing one brachiopod and spirophyton.	235'	
1	Sandstone, medium grey, very fine grained, quartzose, well sorted, very thin bedding, weathers yellow orangish grey, forms low knob at base of section, contains spirophyton and indistinct brachiopod 30°/19° W.	70'	

190MJ, 191MJ

Section 117MJ Creek northwest of Blow River about 30 miles λ 137° 49' east of Trout Lake camp.

ϕ 68° 38'

Lower Cretaceous conglomeratic sandstone unit and adjacent shales. Photo 11406-114. Measured July 26 and 27th in two parts. Upper part (191MJ) in small northwest tributary, lower part (190MJ) measured on ridge immediately north of prominent river canyon.

Section 191 MJ

Unit	Thickness	Height Above Base	
25	Shale, medium to dark grey, soft, weathers reddish brown very thin bedded, scattered outcrops only about 10% exposed. Overlain by extensive cover estimated.	350	
24	Shale, medium to dark grey, soft, weathers dark reddish brown very thin bedded in irregular chips and splinters. Micro samples collected between 53 and 73 feet, 114 and 134 feet above base.	154	3631
23	Mostly covered along creek - on ridge to north consists of shale as below with numerous calcareous, light grey weathering siltstone concretions. One <u>Inoceramus</u> - like fossil collected.	123	3477
22	Shale, dark grey, non-calcareous, with prominent very light grey weathering concretions and lenses of siltstone, medium grey, very calcareous, finely laminated between $\frac{1}{2}$ and 3 feet thick at 10, 30, 114, 188, 213 and 260 feet above base, $\frac{1}{2}$ to 3 inch lenses of conglomerate infrequently present in basal 100 feet: 20 foot micro-samples taken.	286	3249
21	Shale, dark grey, very thin bedded weathers dark grey recessive, partially covered; above 95 feet shale is softer and weathers dark reddish brown almost fissile with a rare chert pebble.	208	2963
20	Shale, medium grey, hard, rare traces of plant fragments, prominent light brown weathering 6 inch concretionary bed 396 feet above base, occasional siltstone. interbeds 1 to 4 inches thick, weathers medium grey to bluish grey, very thin bedded and in places fissile, much less resistant than underlying unit except for uppermost 200 feet. Micro-samples collected between 250 and 350 feet, above base.	534	2755

Unit	Thickness	Height Above Base
19 Shale, in part silty with traces of silt laminations, occasional (1 to 6 inches) interbeds of siltstone and fine-grained sandstone, medium grey, finely laminated and brownish grey weathering; shale weathers medium grey in thin splinters less than $\frac{1}{2}$ inch thick, 120 to 125 feet above base shale is light grey and weathers light brown, in part concretionary.	299	2221
18 Shale, slightly silty, medium grey, very hard, weathers light to medium brownish grey in plates to thin splinters, with some 1 to 12 inch intervals with abundant silt laminations tending to argillaceous siltstone giving outcrops poor banded appearance.	173	1922
17 Siltstone, light grey, finely laminated in 3 to 24 inch beds interbedded with shale, silty medium to dark grey in 1 to 12 inch beds, unit weathers medium grey recessive; microscope from base.	52	
16 Sandstone, very coarse-grained, calcareous, arkosic, light grey, weathers light brownish grey, in irregular 1 to 2 inch plates and forms a resistant cliff; above 38 feet sandstone is finer grained and contains 3 to 12 inch interbeds of silty shale and siltstone with occasional plant fragments.	72	1749
15 A highly variable unit. It weathers medium grey and is slightly recessive. Lenses and beds of conglomerate, $\frac{1}{2}$ to 3 feet thick, pebbles up to about 3 inches but mainly $\frac{1}{2}$ to $\frac{1}{4}$ inches, in a matrix of very coarse grained sandstone. The conglomerate is interbedded with sandstone, in $\frac{1}{2}$ to 2 foot beds, coarse grained, slightly calcareous, light grey, arkosic and weathering medium brownish grey. Also, there are 1 to 12 inch very irregular lenses and beds of shale separating both the conglomerate and sandstone. The shale is medium grey and silty.	24	1677
14 Sandstone, very coarse grained, light grey, slightly calcareous, containing a few rounded shale fragments and weathering light grey interbedded with occasional $\frac{1}{2}$ to 1 foot interbeds of shale and siltstone, medium grey, recessive, and weathering in chips and splinters. The sandstone is in beds of 1 to 10 feet.		

Unit	Thickness	Height Above Base
<p>Across the small tare fault at the base there is the possibility of stratigraphic omission.</p>		
<p>The unit above 25 feet is less resistant and like shale and siltstone make up 50% of the rock; abundant but poor plant fragments present.</p>	36	1653
<p>13 Shale, dark grey, silty with a few interbeds of sandstone, coarse grained, conglomeratic, light greenish grey, beds 1 to 3 feet; unit weathers recessive except for sandstone beds.</p>	20	1617
<p>12 Sandstone, light grey, coarse grained, arkosic, traces of poor lamination, occasional rounded fragments of dark grey shale, weathers medium brownish grey.</p>	2	1597
<p>11 Conglomerate, pebbles 1/16 to 2 inches and mostly dark grey chert with some white quartzite with some large fragments of dark grey shale, in a coarse grained, light grey sandstone matrix, breaks around pebbles; unit weathers medium grey brown and is resistant.</p>	5	1575
<p>10 Shale and sandstone as in Unit 8. Micro-samples 191 MJ 10a 0'-20' b 45'-61'.</p>	61	1590
<p>9 Covered interval in the measurement of this unit, 20 feet were pegged and 155 feet topped horizontal (equivalent to 113 feet of strata using a dip of 50°).</p>	133	1529
<p>8 Shale, silty, dark grey, hard, weathering medium grey in irregular chips and splinters, beds 2 inches to 2 feet interbedded with sandstone, very fine grained, and siltstone, finely laminated and crossbedded light grey, occurs in bed 3 to 13 inches and weathers brownish grey in plates less than 1 inch; recessive weathering. At this point the section was measured on the north side of a small fault. Micro-samples 191 MJ 8a 0'-15' b 65'-89'.</p>	89	1361
<p>7 Sandstone, coarse grained, light greenish grey, calcareous and weathers light brownish to medium grey in indistinct plates, 2 feet above base 1 foot bed of conglomerate and shaly conglomerate. The upper part of this unit is identical to the upper part of unit 43 of 190 MJ and, as in the case of unit 43, is also here overlain by a thick recessive unit and strongly suggests correlation to unit 42 of 190 MJ.</p>		

Unit		Thickness	Height Above Base
	A small fault occurs along the creek and is oriented eastwest with the south side being displaced to the east by about 150'-200'.	29	1292
6	Predominantly shales with a few interbeds of sandstone, 2 to 24 inches thick, medium grained, greenish gray and weathering brown with minor amounts of conglomerate; weathers medium gray and is recessive.	34	
5	Conglomerate, pebbles from 1/8 inch to boulders 8 inches long, poorly sorted, in a medium to coarse grained, greenish gray sandstone matrix, and weathering gray to orange brown, contains a few lenses of conglomeratic sandstone; forms a massive unit and is very resistant. The base is much coarser than the top.	17	
4	Sandstone, coarse grained, light greenish gray, poorly sorted, arkosic, weathers light brownish gray and essentially one bed.	7	
3	Shale, very silty, with lenses and partings of very coarse grained sandstone, occasional chert pebbles and weathers medium gray. This unit can be followed along the west bank of the river.	29	
2	Conglomerate, poorly sorted, pebbles up to 2 inches in beds from 1' to 3 feet interbedded with very coarse grained, arkosic, poorly sorted, light gray sandstone in 2 to 4 foot beds. These are also interbeds of shale as below which are generally less than 1 foot thick.	36	
1	Shale, dark gray, silty, weathers bluish gray in irregular splinters and chips with few beds of poorly sorted conglomerate in the basal and uppermost 5 feet which weathers medium gray. The unit forms a prominent recessive interval.	34	

Section 1906J

Continued west of section on ridge north of creek-note base of unit 7 of 1913J is base of sandstone unit at top of unit 43 described below.

Unit		Thickness	Height Above Base
44	Sandstone, light grey, weathering as below and having indistinct bedding between 2 to 4 feet.	10	
43	Shale, medium grey, slightly silty interbedded with a few fine beds of conglomerate up to 1' thick and sandstone medium to coarse grained, light greenish grey, calcareous and arkosic. Micro-sample 170WJ 43 is from the lower 18' of the unit. Unit is overlain by a very prominent gully. It is estimated that there is between 300' and 400' of cover to the next outcrop on the ridge to the southwest. This ridge was described at 170WJ.	18	1263
42	Unit 505 covered; mainly coarse conglomerate with silty shale interbeds; the conglomerate having a shaly matrix. There are a few interbeds of sandstone in the lower 10 feet.	31	1245
41	Conglomerate, very coarse with several 5 to 8 inch cobbles, in an argillaceous coarse sand matrix, weathers recessive.	15	1214
40	Sandstone, coarse grained, light greyish green and calcareous. There is a 5 foot bed of conglomerate, light grey and weathering platy at the base. At 15 feet there is a 3 foot bed of silty shale. The upper 20 feet contain several 2 to 12 inch beds of conglomerate; unit forms top of resistant weathering cliff.	35	1199
39	Shale, dark grey, silty, micro-sample 190WJ 39.	12	1164
38	Conglomerate, as below and in 1' to 5 foot beds interbedded with sandstone, medium to coarse grained, calcareous, greenish grey to brown, in beds 1' to 3 feet weathers brown, forms top of main cliff on the ridge. Above 47 feet the conglomerate is very fine and generally occurs as lenses or beds less than 1 foot thick and $\frac{1}{2}$ to 1 foot beds and lenses of dark grey silty shale spaced 2 to 10 feet apart occur throughout.	72	1152
37	Predominantly conglomerate in beds and lenses. Some of the conglomerate is very coarse with several large boulders of limestone 40 to 2 x 4 x 4 feet. In the lower 20 feet considerable shale interbeds and lenses; also lenses and interbeds of sandstone, very coarse grained, 2 to 4 feet thick.		

Unit	Thickness	Height Above Base
The unit has the appearance of material being deposited and dumped in chaotic disorder, weathers reddish brown in 1 to 4 foot beds and is moderately resistant 25 feet above base a 2 foot boulder of conglomerate and above 25 feet are several 1/2' to 1 foot interbeds of dark grey shale producing recessive intervals.	42	1080
36 Shale, dark grey, silty, with lenses of conglomerate in the basal 5 feet, weathers medium grey, recessive.	33	1038
35 Conglomerate, thickens and thins along strike, lenses of sandstone, pebbles up to 6 inches, shale fragments, and is poorly sorted.	4	1005
34 Sandstone, fine to medium grained, light greenish grey, arkosic, weathers light brown and in beds from 3 to 12 inches; some plant fragments.	9	1001
33 Shale as in Unit 31 with a 3 foot sandstone bed 3 feet above base which is fine to medium grained, light greenish grey and arkosic.	17	992
32 Conglomerate as below with sandstone interbeds and capped by resistant sandstone which is light grey, medium grained, arkosic, weathering light brown, the conglomerate forms basal 12 feet of unit.	26	975
31 Shale, dark grey, silty and weathers medium grey with a few interbeds of siltstone and fine grained sandstone, 3 feet above base there is a 3 foot bed of sandstone, coarse grained, light grey, in part conglomeratic and weathering brown in 1 to 12 inch beds.	26	949
30 Conglomerate as below with sandstone lenses and interbeds. Actually from 11' to 20 feet the unit is sandstone, coarse grained, light greenish grey, poorly sorted and arkosic.	20	923
29 Shale, dark grey, silty, hard, forms recessive notch on hillside.	8	903
28 Sandstone, fine to coarse grained, poorly sorted, light greenish grey, arkosic and weathers light grey to brown, very resistant, massive, between 15 and 20 feet there is a prominent shale lens which is replaced southward by sandstone.	42	895
27 Conglomerate, pebbles up to 3/4 inch average about 1/2 inch, in a coarse grained sandstone matrix, the upper 3 feet contain abundant dark grey shale fragments, beds 1' to 3 feet and forms base of next cliff.	13	853

Unit	Thickness	Height Above Base
26 Shale, medium grey, silty, with a few interbeds of conglomerate which have pebbles up to 1 inch diameter; the unit weathers recessive and is partly covered.	14	840
25 Conglomerate, pebbles from $\frac{1}{2}$ to 3 inches with a few up to 5 inches but most about $\frac{1}{2}$ inches in a matrix of greenish grey, fine to coarse grained sandstone. The unit weathers brown and forms a resistant cliff. From 25 to 40 feet the rock is sandstone, coarse grained, light greenish grey, weathers brown and forms top of cliff.	40	826
24 Shale, medium brownish grey, hard, weathering medium grey in irregular splinters and chips, interbedded with sandstone, very fine grained, greenish grey, arkosic, traces of plant fragments, in 1 inch to 2 foot beds and weathering reddish brown, consists of about 60 to 70% shale; in a 1' sandstone bed at 15' two bags of abundant but poor plant fragments were collected. Sample No. 190W 24. Micro-samples: 190W 24a bottom to top.	138	736
23 The main part of cliff is predominantly conglomerate, from very coarse grained sand to pebbles up to 2 to 3 inches and a few up to 6 to 12 inches, sub-rounded and average size of $\frac{1}{2}$ inch, in a matrix of medium greenish grey, coarse grained sandstone, also, contains few fragments and chunks of dark grey shale. Interbedded with the conglomerate is sandstone, coarse grained, light grey, arkosic; unit weathers brown to reddish and is very resistant; beds are greater than 5 feet thick, one Heliconite fragment noted in conglomerate. From 11' to 59 feet above base unit is mainly sandstone, slightly calcareous, arkosic, light to medium greyish green and weathers light orange brown, contains a few lenses of conglomerate and shale interbeds. This unit forms part of the same cliff as the underlying unit. The beds are 1' to 4 feet thick.	23	651
22 Shale, dark grey, hard, contorted, contains a few boulders and pebbles; appears to be faulted.	12	623
21 Interbedded sandstone, very coarse grained, light to medium grey; conglomerate occurring in lenses and beds $\frac{1}{2}$ to 3 feet thick and conglomerate, very coarse, some boulders up to 1 foot average about 1 inch, pebbles mostly dark grey chert and white quartzite;		

Unit	Thickness	Height Above Base
	28	616
20	5	583
19	24	583
18	192	559
17	102	377
16	15	265

some green and light grey chert, sub-rounded to sub-angular, basal 3 feet contains pieces and chunks of underlying shale unit. The outcrop forms one resistant unit and weathers brown; crudely crossbedded; two photos of this unit were taken.

Shale, dark grey, and weathers bluish grey as below, interbedded with lenses of conglomeratic very coarse grained sandstone and which appears to thin and thicken along strike. The unit forms a recessive notch in cliff.

Conglomerate, breaks across the pebbles, from very coarse grained sandstone up to 2 inches, in a matrix of poorly sorted coarse grained sandstone. The unit weathers light brown and in part orange brown, resistant in beds over 2 feet thick. There are a few fragments of underlying shale in the conglomerate.

Shale, dark grey, slightly silty, hard, with very thin interbeds of siltstone, finely laminated, light brownish grey, beds 1/2" to 2 inches apart and generally less than 1/2 inch thick, with occasional beds of sandstone, very fine grained, medium grey, finely laminated and 1 to 4 inches thick. The unit weathers recessive and medium to dark grey forming a recessive notch on hillside.

- Micro-samples: 190 M318a 0'-25'
- b25'-50'
- c50'-75'
- d75'-100'
- e100'-125'
- f125'-150'
- g150'-175'
- h175'-192'

No sandstone beds above 125' feet.

Interbedded shale, very silty, dark grey and siltstone, medium grey, finely laminated and sandstone, fine grained, arkosic, light brownish grey, finely laminated; beds 1"-10" thick. Shale and siltstone beds are 1/2"-3" thick, unit is 10-20% covered.

- Micro-samples: 190 M317a 0'-30'
- b 30'-50'
- c 50'-70'
- d 70'-102'

Covered interval.

Unit		Thickness	Height Above Base
15	Shale, silty, dark grey, interbedded with siltstone, light to medium grey, finely laminated in 1" to 3 inch beds and weathering brown; shale weathers dark grey with a banded appearance; at 13 feet a 3 foot bed of sandstone, medium grey, fine to coarse grained, finely laminated, and weathers orange brown; resistant; in the upper 15 feet there are 3 or 4 sandstone interbeds similar to the 3 foot bed plant fragments present in talus; down the slope 5' to 10' feet of conglomerate along strike from the top of this unit; there appears to be a small fault between, though the conglomerate may lens out before reaching this point in the section.	31	247
14	Conglomerate pebbles average 3/4 inches with some at the base of the unit up to 3" to 4 inches in a matrix of shale, dark grey, similar to unit 12 except that the pebbles are more abundant. The unit weathers medium grey brown; in upper 2 feet prominent depositional slump features.	12	216
13	Sandstone, very coarse grained, arkosic, light brownish grey, conglomerate is found in the middle and at the base and containing shale fragments, weathers light to orange brown and appears to be very crudely crossbedded, the conglomerate thickens to 10' feet at the top of the slope.	3	204
12	Conglomerate, very poorly sorted, pebbles from sand size up to 4 inches and large shale fragments up to 1 foot occasional siltstone concretions, in matrix of shale, silty, dark grey, weathers medium to dark grey; somewhat recessive.	25	201
11	Conglomerate, very poorly sorted, pebbles 1/8 to 1 inch, mostly sub-rounded to sub-angular, dark grey chert with some light grey and green, also abundant large fragments and lenses of dark grey shale, weathers light to orange brown; one resistant unit.	8	176
10	Shale and siltstone as below but here shale is predominant; weathers dark grey to reddish brown; more recessive than unit 9 below.		

Unit		Height Above Thickness Base	
9	Shale, very silty, with fine silt laminations, in part siltstone, dark grey, very thin bedded and weathering medium grey interbedded with sandstone, fine to medium grained, light grey, finely laminated, arkosic, weathering brown and occurring in $\frac{1}{2}$ to $2\frac{1}{4}$ inch beds spaced 1 to 12 inches apart which give the outcrop a prominent banded appearance. There appears to be a minor fault at the top of this unit. Overlying beds dip more steeply.	41	127
8	Sandstone, very coarse grained, medium grey, arkosic, trace of laminations, weathers light to orange brown, resistant, basal 2 feet are conglomeratic with abundant angular shale fragments; contact with underlying shale is very irregular with 6 to 12 inches of relief.	9	86
7	Shale, silty, dark brownish grey, weathers medium bluish grey, very thin bedded with interbeds of siltstone, brown, finely laminated, $\frac{1}{16}$ to $\frac{1}{4}$ inches thick and spaced $\frac{1}{2}$ to 2 inches apart, recessive and thins to about 5 feet up hillside (north) at the expense of the underlying unit. Micro-sample 190M7.	22	77
6	Mainly sandstone, very coarse grained, non-calcareous, arkosic, fine conglomerate throughout with small angular fragments. In basal 3 feet pebbles up to $\frac{1}{2}$ and 1 inches sub-angular with abundant blebs and angular fragments of silty shale throughout but very abundant in the basal 2 feet fragments of shale are generally less than $\frac{1}{2}$ inches thick and about 1- $\frac{1}{2}$ inches long, unit weathers light orange brown and thickens up hillside.	10	55
5	Siltstone, argillaceous, dark brownish grey and shale, dark grey which in upper half of the unit is highly contorted, contains numerous pebbles up to 2 to 3 inches and angular and rounded boulders of conglomerate, contortion appears to be due to depositional slumping as no evidence of faulting, contact with overlying unit is very irregular.	11	45
4	Conglomerate, pebbles up to 1 inch average of $\frac{1}{2}$ inches; occasional pebble up to 3 inches in a matrix of sandstone, very poorly sorted, argillaceous to very coarse grained, dark grey, arkosic; weathers light to orange brown forming a resistant cliff. Some large concretions up to 18 inches at the base.	6	34

Unit		Thickness	Height Above Base
3	Shale, medium brownish grey, abundant chert and sandstone pebbles 1/4 to 1/2 inch diameter grading upwards into conglomerate with a shale matrix with fragments and chunks of shale (photo taken), dark grey, up to 12 x 2 to 3 inches. Thickness variable, ± 5 feet.	9	25
2	Conglomerate, pebbles from 1/3 to 2 inches average size about 1/2 inch diameter, breaks around pebbles, poorly sorted, sub-angular, in a matrix of sandstone, very coarse grained and in part fine conglomerate, some partings and lenses of silty shale, also large chunks of silty shale. On the hillside (north) the unit thins to 5 feet from about 20 feet and is overlain by 12 to 15 feet of shale, dark brownish grey, with numerous pebbles and lenses and beds of conglomerate as below and weathering light to orange brown. Very recessive and resistant; some poor crossbedding. The contact with the underlying silty shales is slightly contorted and may be faulted; at top of conglomerate, strike is 25° and dip is 55° west.	19	19
1	At this point, the strike is 30° and the dip 65° to the west; below main part of section approximately 600' to 750 feet of mainly shale, dark grey, silty, weathering bluish grey in small irregular chips, thin bedded and interbedded with 1/8 to 1/2 inch beds of siltstone, finely laminated and forms 20 to 40% of rock, also contains occasional bed of sandstone, light grey, very fine grained, finely laminated, tending to quartzose, generally weathering light brown; Micro sample 190 MJ1a is from approximately 200 feet below overlying unit; 60 to 75 feet below the first conglomerate layers of pebbles in the silty shales up to 1 inch but generally less than 1/2 inch occur every 5 to 10 feet; occasional siltstone concretion. Micro-sample 190 MJ1b was collected from upper 25 feet.		

July 18, 1962

47 23
Section 1138 Sleepy Mountain Jurassic

Lift to section via ONF at 10 AM. Hot and sunny light winds. Ridge approximately $\frac{1}{2}$ mile south-east of Sleepy Mountain. The section was begun in the lowest exposure in a prominent gully on the north side of the ridge.

(16410) Photo 11406-39

λ 138° 23'
 ϕ 68° 41'

Unit		Unit Thickness	Thickness Above Base
13	Start of semi-outcrop. Sandstone, fine grained, quartzose, light brownish grey, weathers light grey with dark grey lichens, tending to part in 1 to 4 inch plates. Unit ends at top of ridge; (barometer 3540 feet). A few poor pelecypod impressions in sandstone talus.	25'	1623 1653
12	Covered. Talus appears same as unit below.	60'	1628
11	Sandstone, fine grained, quartzose, medium brownish grey, traces of laminations, weathers light to medium grey, tending to part in plates $\frac{1}{2}$ "-3" thick, rare pelecypod noted in talus. 46 feet above base a 2 foot bed of sandstone, very fine grained, strongly calcareous, finely laminated, medium grey, weathers light orange brown. Above 70 feet the amount of cover increases from 50% to 60 to 70%.	132'	1568
10	Covered interval.	54'	1436
9	Sandstone, fine to medium grained, light brownish grey, quartzose, traces of poor laminations, weathers light to dark grey and in part reddish brown, tendency to part in large plates or slabs $\frac{1}{2}$ inch - 4 inch thick, traces of very poor pelecypods and <u>Dentalium</u> impressions. At 42 feet of this unit the barometer reads 3530 feet. At 161 feet the rock appears to be essentially the same as before. Moved laterally across slope a distance of $\frac{1}{2}$ mile east to the next prominent gully to continue section. Possible overlap or omission of up to 25 feet of strata.	161'	1382
8	Sandstone, the lower 10 feet argillaceous very fine grained, medium grey, a few argillaceous laminations, tending to quartzose, very hard and weathering light grey, in 2 inch to 2 foot beds, finely laminated.	67'	1221

Unit	Unit Thickness	Thickness Above Base
<p>The upper 20 feet to 30 feet is fine to medium grained and slightly thicker bedded. The overlying beds are covered by sandstone talus.</p>		
<p>Barometer at top of unit 3570 feet.</p>		
<p>7 Inadational with underlying unit. Forms base of main cliff. Siltstone, dark grey, very argillaceous, slightly calcareous, silty parts finely laminated and occurring in lenses and laminations up to 1 inch weathers dark grey, in poor $\frac{1}{2}$ to 5 inch beds. Traces of plant fragments or worm trails. 32 feet above base a bed of sandstone, 1 foot bed, very fine grained, light to medium grey, quartzose, light weathering. The upper $\frac{1}{2}$ of the unit is more silty than the lower part. Contact with rock above is gradational.</p>	40'	1154
<p>6 Shale, dark grey, slightly ^{7/11} weathers dark grey in irregular $\frac{1}{2}$ inch to $\frac{1}{4}$ inch chips. At 31 feet there is a band of siltstone, 5" thick, medium grey, weathers light brown, laminated. At 43 feet shale becomes more resistant, more silty, weathers in chunks up to 2 inches; there beds form small cliff in creek.</p>	150'	1114
<p>Throughout unit traces of plant fragments. Upper 20 feet contain laminations and small beds up to $\frac{1}{2}$ inch of siltstone, weathers more resistant.</p>		
<p>Barometer top of cliff 3460 feet.</p>		
<p>5 Shale, slightly silty, dark grey, non-calcareous, with 3 inch bed of siltstone at base and 3 resistant bands in upper 3 feet between 3 and 12 inches thick, light grey, finely laminated, with upper thickest unit very fine grained sandstone, a few clay fragments in the sandstone and siltstone, weathers light to medium brown.</p>	8'	964
<p>4 Covered moved laterally 100 feet across slope.</p>	8'	956
<p>3 Shale, silty, non-calcareous, dark grey, weathers dark grey, irregular chips up to $\frac{1}{2}$ inch, occasional concretions, siltstone, medium to dark grey, brown weathering.</p>	38'	948
<p>At 30 feet a siltstone bed, medium brown grey, slightly calcareous, finely laminated, appears to be a bed 2 inch to 6 inch thick, also in overlying talus.</p>		

Unit	Unit Thickness	Thickness Above Base
	Upper 8 to 10 feet of this unit partially covered.	
2	Covered.	70'
1	Barometer at base 2990'.	
	Shale, dark grey, non-calcareous, with abundant medium to coarse sand grains, weathers dark grey to slightly reddish brown, obscure 1/8 to 1 inch partings or bedding.	137'
	Above 15 feet mostly covered. Talus suggests a dark grey shale without sand grains. <	
	Concretions from 30 feet to 60 feet, dark grey, mudstone or siltstone, very slightly calcareous, long axis to 1 foot. <	
	At 76 feet a 4 inch concretionary bed with abundant pelecypods also present in overlying shale to occasional balaenorites. At 90 feet another concretionary layer with larger sized pelecypods. Fossils collected, sample 164MJ1b at 80' and 164MJ1c at 84'. <	
	Cover between 90 feet and 115 feet. Talus of dark grey silty shale. At 115' shale, dark grey, slightly silty, minor concretionary possibly due to slump. <	
	Concretions between 121 feet and 125 feet.	
	Concretions at 130 feet.	
Micro-samples	164MJ1a 0'-15'	
	b 70'-90'	
	c 115'-137'	
	164MJ3a 0'-20'	
	b 20'-33'	
	164MJ5a 0'-8'	
	164MJ6a 0'-20'	
	b 20'-40'	
	c 40'-60'	
	d 60'-80'	
	e 80'-100'	
	f 100'-120'	
	g 120'-137'	

Continued section in prominent gully on north side of Sleepy Mountain approximately 1/2 mile to the northwest. Outcrops suggest strata are relatively flat lying and used barometer to obtain thickness of units. Began measuring down from prominent pelecypod bed noted in above unit.

Unit		Unit Thickness	Thickness Above Base
3	<p>Shale, silty, medium grey, with abundant pelecypods, in large part concretionary giving outcrop brown cast. This is the same zone as unit 1 of 164MJ between 76 feet and 90 feet. Here it is overlain by dark grey silty shale with occasional to moderately frequent concretions, estimated 100 feet to 125 feet to the first thin band of siltstone.</p> <p>Sample 165MJ3a - fossils from 13'.</p> <p>Barometer at 18' of unit 3 is 3220 feet.</p>	18'	703
2	<p>Shale, dark grey, weathers dark grey and reddish brown, occasional solitary and layers of concretions which weather reddish brown.</p> <p>Micro-sample 165MJ2a 0'-25' b 25'-50' c 50'-75' d 75'-95'</p>	95'	685
1	<p>Shale, black, non-calcareous, very thin bedded, not quite fissile, with occasional dark grey siltstone concretions. 165MJ1a was collected from 2960 feet and 165MJ1b from 15'-55' feet. 115 to 175 feet above base zone of large concretions with maximum diameters of 2 feet. The shale here is slightly silty. At 125 feet a 1 foot bed of sandstone, medium to coarse grained, dark grey, with a few belemnites.</p>	175'	590
1a	<p>Mainly cover between barometer readings of 2945 feet and 2655 feet.</p>	90'	415
1b	<p>Concretionary shale zone from 2855 feet to 2680 feet. Sample 165MJ4a collected from talus in the interval 2855 feet to 2730 feet. They consist of <u>Euchia concentrica</u> and one ammonite impression. Sample 165MJ4b from about 2720 feet to 2750 feet + 20 and consisting of <u>Cardioceras</u>.</p> <p>Sample 165MJ4c consists of pelecypods and ammonites. The ammonites are probably <u>Amoeboceras</u> and were collected from large concretions between 4 and 6 feet in diameter.</p>	175'	325
	<p>Shales are dominantly hard, black, almost fissile, with abundant concretions between 1 and 2 feet across and weathering</p>		

Unit		Unit Thickness	Thickness Above Base
1c	<p>dark red and in part orange red. Many concretions barren but some richly fossiliferous.</p> <p>Shale, black to dark grey, flaky and much softer-tending to be fissile and with an occasional siltstone bed or lens 2 to 12 inches thick.</p> <p>Sample 164M4d. A few pelecypod fragments collected about 50 to 75 feet below top.</p> <p>Covered a few scattered outcrops of dark grey shale, largely muskeg.</p>	125 to 150'	150