

GSA Data Repository Item # 8607

Title of article Time of initial thrusting in the Sevier orogenic belt,
Idaho-Wyoming and Utah

Author(s) P. L. Heller, S. S. Bowdler, H. P. Chambers, J. C. Coogan, et al.

see Geology v. 14, p. 388 - 391

Contents 11 pages

Appendix 1 References and stratigraphic information

APPENDIX 1. Location, data, and references for stratigraphic information
used in subsidence analysis

Crawford Thrust Plate - Northern Terminus

<u>Unit Name</u>	<u>Age (Ma)</u>		<u>Depth (m)</u>		<u>Sandstone</u>	<u>Shale</u>	<u>Limestone</u>
	Top	Bottom	Top	Bottom	(%)	(%)	(%)
Unconformity	204	208	8939	8939	-	-	-
Nugget Ss.	184	204	8638	8939	100	0	0
Unconformity	182	184	8638	8638	-	-	-
Gypsum Springs Fm.	181	182	8587	8638	20	60	20
Twin Creek Ls. Sliderock Mbr. Rich Mbr.	176	181	8427	8587	20	0	80
Twin Creek Ls. Boundary Ridge Mbr. Walton Canyon Mbr. Leeds Creek Mbr.	169	176	7858	8427	10	10	80
Twin Creek Ls. Giraffe Creek Mbr. Preuss Ss. Stump Ss.	163	169	7347	7858	40	40	20
Unconformity	119	163	7347	7347	-	-	-
Gannett Group	113	119	6600	7347	40	40	20
Smoot Fm. Smiths Fm. Thomas Fork Fm. Cokeville Fm. Quealy Fm. Sage Junction Fm.	98	113	4400	6600	60	40	0

APPENDIX 1. (cont.)

Crawford Thrust Plate - Northern Terminus (cont.)

Unit Name	Water depth (m)*		Porosity (%)	Cumulative uncompacted thickness (m)	Tectonic subsidence	
	maximum	minimum			maximum	minimum
Unconformity	-	-	-	0	-	-
Nugget Ss.	60	0	3	489	340	282
Unconformity	-	-	-	489	-	-
Gypsum Springs Fm.	60	0	3	611	430	371
Twin Creek Ls. Sliderock Mbr. Rich Mbr.	100	0	1	809	562	462
Twin Creek Ls. Boundary Ridge Mbr. Walton Canyon Mbr. Leeds Creek Mbr.	100	0	1	1632	1001	901
Twin Creek Ls. Giraffe Creek Mbr. Preuss Ss. Stump Ss.	100	0	5	2341	1377	1277
Unconformity	-	-	-	2341	-	-
Gannett Group	0	-300	10	3175	1652	1352
Smoot Fm. Smiths Fm. Thomas Fork Fm. Cokeville Fm. Quealy Fm. Sage Junction Fm.	0	-300	15	5281	2472	2372

*Water depths in meters below sea level. Negative values are above sea level.

Crawford Thrust Plate - Northern Terminus (cont.)

REFERENCES

- Hileman, M.E., 1973, Stratigraphy and paleoenvironmental analysis of the upper Jurassic Preuss and Stump Formations, western Wyoming and southeastern Idaho: unpub. Ph.D. Dissertation, Univ. of Mich., Ann Arbor, 203 p.
- Imlay, R.W., 1967, Twin Creek Limestone (Jurassic) in the western interior of the United States: U.S.G.S. Prof. Paper #540, 105 p.
- Pipirngos, G.N., and O'Sullivan, R.B., 1973, Principal unconformities in Triassic and Jurassic rocks, western interior of the United States - a preliminary survey: U.S. Geol. Survey Prof. Paper 1035-A, 29 p.
- Rubey, W.W., 1973, New Cretaceous formations in the western Wyoming thrust belt, U.S. Geol. Survey Bull. 1372-I, 35 p.
- Rubey, W.W., S.S. Oriel, and J.I. Tracey, Jr., Geologic map and structure sections of the Cokeville 30-minute quadrangle, Lincoln and Sublette Counties, Wyoming, U.S. Geol. Survey map I-1129.

Appendix 1. (cont.)

Northern Green River Basin, Western Wyoming

<u>Unit Name</u>	<u>Age (Ma)</u>		<u>Depth (m)</u>		<u>Sandstone</u> (%)	<u>Shale</u> (%)	<u>Limestone</u> (%)
	Top	Bottom	Top	Bottom			
Nuggett Ss.	201	208	3514	3584	100	0	0
Unconformity	183	201	3514	3514	-	-	-
Gypsum Springs Fm.	180	183	3488	3513	0	50	50
Unconformity	179	180	3488	3488	-	-	-
Lower Sundance Fm.	169	179	3382	3488	0	70	30
Unconformity	163	169	3382	3382	-	-	-
Upper Sundance Fm.	159	163	3290	3382	70	30	0
Morrison Fm.	152	159	3177	3290	40	60	0
Unconformity	119	152	3177	3177	-	-	-
Cloverly Fm.	113	119	3076	3177	100	0	0
Thermopolis Sh./ Mowry Sh.	98	113	2748	3076	0	100	0
Frontier Fm.	91	98	2420	2748	40	60	0
Cody Sh./ Bacon Ridge Ss.	88	91	1370	2420	20	80	0
Unconformity	84	88	1370	1370	-	-	-
Mesaverde Fm.	70	84	125	1370	40	60	0
Harebell Fm.	66	70	0	125	0	100	0

Appendix 1 (cont.)

Northern Green River Basin, Western Wyoming (cont.)

Unit name	Water depth (m)*		Porosity (%)	Cumulative uncompactd thickness (m)	Tectonic subsidence	
	maximum	minimum			maximum	minimum
Nuggett Ss.	60	0	8	149	120	60
Unconformity	-	-	-	149	-	-
Gypsum Springs Fm.	10	0	8	235	140	128
Unconformity	-	-	-	235	-	-
Lower Sundance Fm.	60	0	9	408	295	236
Unconformity	-	-	-	408	-	-
Upper Sundance Fm.	60	0	9	494	324	263
Morrison Fm.	0	-100	10	682	383	283
Unconformity	-	-	-	682	-	-
Cloverly Fm.	0	-100	10	745	383	283
Thermopolis Sh./ Mowry Sh.	150	15	11	1290	877	742
Frontier Fm.	30	0	13	1625	895	865
Cody Sh./ Bacon Ridge Ss.	100	30	19	2672	1425	1355
Unconformity	-	-	-	2672	-	-
Mesaverde Fm.	0	-100	34	3514	1600	1500
Harebell Fm.	0	-100	48	3514	1600	1500

*Water depths in meters below sea level. Negative values are above sea level.

Northern Green River Basin, Western Wyoming (cont.)

REFERENCES

- Dorr, J., Spearing, D., and Steidtmann, J., 1977, Deformation and deposition between a foreland uplift and an impinging thrust belt: Hoback Basin, Wyoming: G.S.A. Spec. Paper no. 177, 82 pp.
- Imlay, R.W., 1980, Jurassic paleobiogeography of the conterminous United States in its continental setting: U.S.G.S. Prof. Paper 1062.
- Love, J.D., 1956a, Cretaceous and Tertiary stratigraphy of the Jackson Hole area, northwestern Wyoming: Wyoming Geological Association Guidebook 11th Annual Field Conference, p. 76-94.

Appendix 1. (cont.)

Utah Foreland - Southwest Uinta Basin, East side of Wasatch Plateau

<u>Unit Name</u>	<u>Age (Ma)</u>		<u>Depth (m)</u>		<u>Sandstone</u> (%)	<u>Shale</u> (%)	<u>Limestone</u> (%)
	Top	Bottom	Top	Bottom			
Unconformity	204	208	5032	5032	-	-	-
Wingate Ss.	198	204	4934	5032	95	5	0
Kayenta Fm.	195.5	198	4846	4934	95	5	0
Navajo Ss.	190	195.5	4730	4846	95	5	0
Unconformity	179	190	4729	4730	-	-	-
Page Ss./ lower Carmel Fm.	176	179	4678	4729	80	0	20
upper Carmel Fm./ Entrada Ss.	166	176	4470	4678	63	35	2
Unconformity	165	166	4470	4470	-	-	-
Summerville Fm./ Curtis Fm.	163.5	165	4360	4470	68	22	0
Unconformity	159	163.5	4360	4360	-	-	-
Morrison Fm.	147	159	4155	4360	28	72	0
Unconformity	115	147	4155	4155	-	-	-
Cedar Mountain Fm.	97	115	4029	4155	35	65	0
Unconformity	95	97	4029	4029	-	-	-
Dakota Ss.	91	95	4013	4029	88	12	0
Mancos Sh. Ferron Ss. Mbr. Tununk Sh. Mbr.	89	91	3758	4013	26	74	0
Mancos Sh. Emery Ss. Mbr. Bluegate Sh. Mbr.	84	89	2458	3758	20	80	0
Blackhawk Fm./ Star Point Ss.	79	84	1053	2458	70	30	0

Appendix 1. (cont.)

Utah Foreland - Southwest Uinta Basin, East side of Wasatch Plateau (cont.)

Unit name	Water depth (m)*		Porosity (%)	Cumulative uncompactd thickness (m)	Tectonic Subsidence	
	maximum	minimum			maximum	minimum
Unconformity	-	-	-	15.5	9	9
Wingate Ss.	10	-10	7	167	108	88
Kayenta Fm.	10	-10	7	300	186	166
Navajo Ss.	10	-10	10	468	282	262
Unconformity	-	-	-	-	-	-
Page Ss./ lower Carmel Fm.	.60	0	8	542	373	313
upper Carmel Fm./ Entrada Ss.	.60	0	8	873	572	512
Unconformity	-	-	-	-	-	-
Summerville Fm./ Curtis Fm.	30	0	9	912	532	502
Unconformity	-	-	-	-	-	-
Morrison Fm.	0	-100	9	1353	796	696
Unconformity	-	-	-	-	-	-
Cedar Mountain Fm.	0	-100	9	1510	885	775
Unconformity	0	-	-	-	-	-
Dakota Ss.	0	0	10	1462	818	818
Mancos Sh. Ferron Ss. Mbr. Tununk Sh. Mbr.	150	0	11	1862	1212	1062
Mancos Sh. Emery Ss. Mbr. Bluegate Sh. Mbr.	150	15	12	3296	1859	1724
Blackhawk Fm./ Star Point Ss.	0	-300	15	3679	1859	1559

*Water depths in meters below sea level. Negative values are above sea level.

Appendix 1. (cont.)

Central Utah Foreland - Southwest Uinta Basin, East side of Wasatch Plateau
(cont).

<u>Unit Name</u>	<u>Age (Ma)</u>		<u>Depth (m)</u>		<u>Sandstone</u>	<u>Shale</u>	<u>Limestone</u>
	Top	Bottom	Top	Bottom	(%)	(%)	(%)
Unconformity	204	208	5032	5032	-	-	-
Wingate Ss.	198	204	4934	5032	95	5	0
Kayenta Fm.	195.5	198	4846	4934	95	5	0
Navajo Ss.	190	195.5	4730	4846	95	5	0

Appendix 1. (cont.)

Central Utah Foreland - Southwest Uinta Basin, East side of Wasatch Plateau
(cont.)

<u>Unit Name</u>	<u>Water depth (m)*</u>		<u>Porosity</u> (%)	<u>Cumulative uncompacted thickness (m)</u>	<u>Tectonic subsidence</u>	
	maximum	minimum			maximum	minimum
Price River Fm./ Castlegate Ss.	0	-300	19	4028	2001	1701
Unconformity	-	-	-	-	-	-
Flagstaff Ls./ North Horn Fm.	30	0	25	4331	2126	2096
Colton Fm.	0	-300	32	4570	2177	1877
Green River Fm.	0	-300	40	5045	2282	1982

*Water depths in meters below sea level. Negative values are above sea level.

Utah Foreland - Southwest Uinta Basin, East side of Wasatch Plateau (cont.)

REFERENCES

- Fisher, D.J., Erdman, C.E., and Reedsides, J.B., 1960, Cretaceous and Tertiary Formations of the Book Cliffs, Carbon, Emery, and Grand Counties, Utah, and Garfield and Mesa Counties, Colorado: U.S. Geol. Survey Prof. Paper 332, 80 p.
- Imlay, R.W., 1980, Jurassic paleobiogeography of the conterminous United States in its continental setting: U.S. Geol. Survey Prof. Paper 1062, 134 p.
- Lawton, T.F., 1983, Tectonic and sedimentologic evolution of the Utah foreland basin: unpublished PhD Dissertation, University of Arizona, Tucson, Arizona, 217 p.