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Contents 15 pages

Measured type section description of new Middle
Cambrian formations named in the above paper.

Hintze & Robison 1

GSA Supplementary
Material

75-16

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Measured type section descriptions of new Middle Cambrian formations named in following paper published in Geological Society of America Bulletin in 1975.

MIDDLE CAMBRIAN STRATIGRAPHY OF THE HOUSE, WAH WAH, AND ADJACENT RANGES IN
WESTERN UTAH

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WAH WAH MOUNTAINS MEASURED SECTIONS

Wah Wah Summit Formation (new). Lower member of this formation forms ledges and cliffs rising steeply above Trippe Limestone slopes. Upper white marker member forms the most conspicuous band of light strata in the entire Cambrian sequence of the Wah Wah Mountains and southern (Black Hills) part of the House Range. Type section, described below, is in NE 1/4 sec. 23, T. 25 S., R. 16 W., as shown on 1960 Wah Wah Summit, Utah quadrangle map.

Basal beds of overlying Orr Formation generally consist of medium- to dark-gray, thick-bedded limestone and dolomite that form cliffs rising steeply above the slope or bench formed on the white marker member of the Wah Wah Summit Formation. Lithologically the boundary between the Wah Wah Summit and Orr formations is gradational with similar lithologies appearing on either side of the contact. However, bioclastic and oolitic or pisolitic beds characterize the lower Orr Formation, and are much less common in formations below.

White marker member of Wah Wah Summit Formation

Unit	Feet	Meters
19. Limestone, light-gray, fine-grained, stromatolitic, contains 10 percent interbeds of yellowish-gray laminated dolomite.	30	9.2
18. Limestone, as unit 19, but with 30 percent interbedded laminated dolomite.	35	10.7
17. Limestone, light-gray, fine-grained, stromatolitic	7	2.1
16. Limestone, light-gray, interbedded with yellowish-gray laminated dolomite boundstone in 30 cm beds, forms slopes.	20	6.1
15. Limestone, light-gray, algal heads at base, forms ledge.	5	1.5
14. Limestone, light-gray, with interbedded laminated dolomite, forms slope.	10	3.1
13. Limestone, light-gray, fine-grained, massive ledge.	3	.9
12. Limestone, light-gray, with interbeds of yellowish-gray dolomitic boundstone, forms slope.	5	1.5
11. Limestone, medium-light-gray, fine-grained, massive ledge.	4	1.2
10. Limestone, light-gray, with interbeds of yellowish-gray laminated dolomite, forms slope.	5	1.5
9. Dolomite, yellowish-gray, with interbeds of dark-gray limestone in 30 cm beds.	6	1.8
8. Limestone, medium-gray, mottled, bioturbated, massive ledge.	8	2.5

Unit	Feet	Meters
7. Dolomite, yellowish-gray, laminated boundstone	2	.6
6. Limestone, dark-gray, mottled ledge	2	.6
5. Limestone, dark-gray, mottled with brownish-gray interbedded with yellowish-gray laminated dolomite.	4	1.2
4. Limestone, dark-gray, mottled with brownish-gray, fine-grained, bioturbated, forms ledge.	3	.9
3. Dolomite, yellowish-gray, laminated boundstone	1	.3
2. Limestone, medium-dark-gray, medium-grained, ledge.	3	.9
1. Dolomite, yellowish-gray, laminated boundstone, forms slope.	4	1.2
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Total white marker member	157	47.8

Ledgy member of Wah Wah Summit Formation

Unit	Feet	Meters
12. Limestone, medium-dark-gray, medium-grained, some beds mottled with brownish-gray dolomite, few thin beds of light-gray, fine-grained dolomite near base increasing upwards to give a brownish overall cast to this ledge-forming unit.	130	39.6
11. Limestone, medium-dark-gray, mottled with light-olive-gray dolomite, bioturbated, forms ledge.	65	19.8
10. Limestone, medium-dark-gray, medium-grained contains 60 percent beds of pisolites, other beds are mottled, thick-bedded, form ledges.	180	54.9
9. Limestone, medium-dark-gray, medium-grained, with brownish-gray dolomitic partings, contains about 10 percent pisolitic layers, medium- to thick-bedded, forms ledges.	45	13.7
8. Limestone, medium-dark-gray, medium-grained, with mottled dolomite in irregular channels or bioturbated pathways, several pisolitic layers near top, forms the most prominent dark cliff in the middle of the Wah Wah Summit Formation.	60	18.3
7. Limestone, light-gray, fine-grained, contains some small white calcite blebs or tube fillings, forms massive ledges and rounded cliffs.	88	26.8
6. Dolomite, yellowish-gray, sugary texture, ledge.	7	2.1
5. Limestone, medium-dark-gray, medium- to	80	24.4

	Feet	Meters
coarse-grained, with yellowish-gray partings, unevenly bedded, forms rounded cliffs and ledges.		
4. Limestone, light-gray, fine-grained, some dark layers, contains small white calcite rods in a few horizons, massive, forms rounded cliffs.	115	35.1
3. Limestone, dark-gray, mottled with olive-gray dolomite, upper half contains pisolites, forms ledge.	33	10.1
2. Covered slope, probably thin-bedded, dark limestone.	12	3.7
1. Limestone, dark-gray, mottled with irregular light-brownish-gray dolomite in both bedded and transverse zones, oolitic and pisolitic in upper half, forms basal ledge.	10	3.0
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Total ledgy member thickness	825	251.5

The uppermost beds of the Fish Springs Member of the Trippe Limestone are not well exposed in the Wah Wah Summit quadrangle. Where exposed they are thin-bedded, medium-grained limestone with shaly partings.

Trippe Limestone. Name for this unit comes from Deep Creek Mountains, Utah (Nolan, 1935). This interval in Wah Wah Mountains forms a continuous sequence with Pierson Cove Formation (new) below and Wah Wah Summit Formation (new) above. Section was measured in western foothills of Wah Wah Mountains at Pierson Cove in NE1/4 sec. 12, T. 26 S., R. 16 W., as shown on 1960 Wah Wah Summit quadrangle map.

Cliffs and ledges of the lower Wah Wah Summit Formation form marked topographic break with the slope-forming Fish Springs Member at the top of the Trippe Limestone, a map contact that is easily recognized on air photos and in the field. Exact lithology of uppermost Trippe beds in Wah Wah Summit quadrangle is not known because interval is talus covered in all sections examined. The Trippe Limestone generally forms light-banded slopes between the adjacent dark cliff-forming formations.

<u>Fish Springs Member</u>		Thickness	
Unit		Feet	Meters
1.	Interval covered except for basal third which is thin-bedded shaly limestone with some interbeds of distinctive intraformational limestone conglomerate containing fragments of trilobite <u>Eldoradia</u> . Forms prominent slope below cliffs at base of Wah Wah Summit Formation; easily traced on air photos.	115	35.1

Lower member of Trippe Limestone

16.	Limestone, dark-gray, mottled, with 20 percent interbeds of light-gray laminated dolomitic boundstone, forms slopes with some ledges.	100	30.5
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	Feet	Meters
15. Dolomite, yellowish-gray, laminated boundstone, with 10 percent interbeds of thin-bedded limestone in upper third.	17	5.2
14. Limestone, dark-gray, with few thin horizons of yellowish-gray laminated boundstone, forms massive cliff.	85	25.9
13. Dolomite, yellowish-gray, laminated with interbeds of dark-gray and brownish-gray limestone, forms ledges.	90	27.4
12. Limestone, dark-gray, mottled and striped with brownish-gray dolomite, forms cliff.	35	10.7
11. Limestone, dark-gray, capped with 30 cm light laminated dolomitic boundstone, cyclic.	11	3.4
10. Limestone-dolomitic boundstone cycle, basal two-thirds is dark-gray bioturbated lime mudstone, capped with 1 m yellowish-gray laminated dolomitic boundstone.	9	2.8
9. Limestone, dark-gray, uneven bedding, grading into laminated dolomitic boundstone in top 1 m, forms ledge.	7	2.1
8. Dolomite, yellowish-gray, laminated boundstone, forms low ledges.	21	6.4
7. Limestone, mottled dark-gray, medium-grained, ledge.	2	0.6
6. Dolomite, medium-gray, laminated, ledge.	5	1.5

	Feet	Meters
5. Dolomite, dark-gray, with laminated zones.	5	1.5
4. Dolomite, yellowish-gray, laminated limestone, interbedded with medium-gray thin-bedded dolomitic limestone, forms low ledges.	38	11.6
3. Limestone, medium-gray, massive, concentric algal structures of 60 cm diameter are poorly defined.	6	1.8
2. Dolomite, yellowish-gray, laminated boundstone, forms slope.	25	7.6
1. Limestone, dark-gray, striped with yellowish- gray dolomitic layers, thin-to medium-bedded, forms low ledges above cliffs of Pierson Cove Formation	50	15.2
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Total	621	189.3

Pierson Cove Formation (new). Type section, NE1/4 sec. 23, T. 26 S., R. 16 W., west foothills of Wah Wah Mountains about 2 km south of Pierson Cove as shown on 1960 Wah Wah Summit quadrangle map. Although the lowest sixth of the Pierson Cove Formation includes much light-gray laminated dolomite that shows as light bands on air photos, the bulk of the formation is typified by its dark-gray color. On air photos and in the field, the Pierson Cove Formation appears as the darkest of any cliffs in the Wah Wah Mountains. The contact of Pierson Cove Formation with overlying Trippe Limestone is placed at the color and topographic change from dark cliffs of the uppermost Pierson Cove to the alternating light- and dark-gray banded, ledge- and slope-forming beds of the lower Trippe Limestone as mapped in the Wah Wah Mountains. Kinds of lithologies are similar to those of the Trippe, but proportion of each kind is different. Basal Trippe is a yellowish-gray laminated dolomite that shows as a prominent light band on air photos. A few minor faults offset beds in the type section but are easily recognized.

Pierson Cove Formation comprises eight light and dark bands on air photos that are correlated with the units described in the type section as follows:

Band 8 - dark cliff - Units 26-30,	471 ft,	143.6 m
Band 7 - light ledges - Unit 25,	103 ft,	31.4 m
Band 6 - dark cliff - Units 12-24,	312 ft,	95.1 m
Band 5 - light ledges - Unit 16	43 ft,	13.1 m
Band 4 - dark cliff - Units 11-15,	311 ft,	94.8 m
Band 3 - white slope - Unit 10,	38 ft,	11.6 m
Band 2 - dark ledge - Unit 9	47 ft,	14.3 m

Band 1 - white slope - Units 1-8 116 ft, 35.6 m

Total 1441 ft. 439.2 m

Pierson Cove Formation

Thickness

Unit	Feet	Meters
30. Limestone, medium-gray, medium-grained, with thin interbeds of laminated dolomite; forms ledges, lithologies transitional to basal Trippe Limestone that forms dolomite slopes above.	74	22.6
29. Dolomite, yellowish-gray, laminated, forms slope.	9	2.7
28. Limestone, dark-gray, medium-grained, with mottled dolomitic limestone bioturbated zones, forms ledges.	33	10.1
27. Dolomite, yellowish-gray, laminated, interbedded with medium-gray, granular limestone, forms slope.	7	2.1
26. Limestone, medium-dark-gray, mottled with light-olive-gray bioturbated oolitic zones, uneven and poorly marked bedding, few horizons with tubes and blebs filled with white calcite. Forms cliffs.	348	106.1
25. Dolomite, yellowish-gray, very fine-grained, laminated boundstone, interbedded with medium-gray, very fine-grained limestone that composes 60 percent of unit. Rip-up clast layers common. Forms slopes and ledges less steep than adjacent units.	103	31.4
24. Limestone, dark-gray, mottled with olive-gray dolomitic zones, likely bioturbated, forms ledges.	15	4.6

	Feet	Meters
23. Limestone, medium-gray, with tubular blebs and rods of white calcite composing 10 percent of rock, massive ledge.	25	7.6
22. Limestone, dark-gray, mottled with brownish-gray dolomitic zones, forms ledges.	35	10.7
21. Covered, laminated dolomite in soil, forms slope.	25	7.6
20. Limestone, dark-gray, mottled with brownish-gray dolomitic limestone, forms cliffs and ledges.	49	14.9
19. Limestone, similar to unit 18, but with prominent 10-20 cm partings, forms bench.	8	2.4
18. Limestone, dark-gray, mottled with brownish-gray dolomitic zones, probably bioturbation features; includes rods and blebs filled with white calcite in few blebs, forms cliffs. Bedding marked by faint parting and stylolitic cracks 20-200 cm apart.	130	39.6
17. Limestone, dark-gray, medium-grained, mottled with irregular light-gray zones transverse to faint bedding, few stylolitic cracks, forms cliff.	25	7.6
16. Dolomite, yellowish-gray, laminated boundstone, with 30 percent interbeds of very thin-bedded medium-gray limestone, forms prominent light slope at base of cliff-forming upper Pierson Cove.	43	13.1
15. Limestone, dark-gray, banded with	35	10.7

	Feet	Meters
dark-brownish-gray dolomite composing 40 percent of unit, thin-bedded, forms ledges.		
14. Limestone, medium-gray, thin-bedded, nonresistant.	13	4.0
13. Limestone, dark-gray, with brownish-gray mottled zones of dolomite, medium-grained, forms ledges.	210	64.0
12. Limestone, light-gray, fine-grained, massive.	13	4.0
11. Limestone, medium-dark-gray, medium-grained, mottled with brownish-gray dolomitic areas, probably bioturbated, forms cliff with units 12 and 13.	40	12.2
10. Limestone, medium-gray, medium-grained, very thin-bedded, forms slope zone.	38	11.6
9. Limestone, dark-gray, medium-grained, mottled with brownish-gray dolomite fillings in burrow or bioturbation pathways. Forms cliff prominent on air photos.	47	14.3
8. Dolomite, yellowish-gray, fine crystalline, thin-bedded to laminated, slope forming.	20	6.1
7. Dolomite, yellowish-gray, with 20 percent interbeds of medium-to light-gray limestone, laminated or with low-relief algal heads in some horizons, forms slope.	40	12.2
6. Dolomite, yellowish-gray, laminated, slope forming.	30	9.1

	Feet	Meters
5. Limestone, medium-gray, fine-grained, massive.	6	1.8
4. Dolomite, medium-gray, mottled, bioturbated.	2	.6
3. Dolomite, yellowish-gray, laminated boundstone, slope.	10	3.0
2. Dolomite, dark-gray, fine-grained, mottled.	3	.9
1. Limestone, medium-gray, thin-to medium-bedded, forms slope above top of Eye of Needle massive cliffs.	5	1.5
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Total	1441	439.2

Eye of Needle Limestone (new) - Type section, NW1/4, sec. 25, T. 26 S., R. 16 W., west foothills of Wah Wah Mountains, 1.3 km north of Eye of Needle shown on 1960 Wah Wah Summit quadrangle map. Contact of Eye of Needle Limestone and overlying Pierson Cove Formation is somewhat transitional as the same lithologies that make up the lower Pierson Cove are also found, in somewhat different proportion, in the highest beds of the Eye of Needle Limestone. For mapping purposes the contact is placed where the massive cliffs characteristic of Eye of Needle Limestone give way topographically to the prominent slope-forming zone, composed largely of light-yellowish-gray laminated dolomitic boundstone of the basal Pierson Cove Formation.

Unit	Thickness	
	Feet	Meters
4. Limestone, light-medium-gray with 30 percent interbeds of thin-bedded yellowish-gray dolomite; limestone contains small rods, blebs and tubes filled with white calcite and silty limestone; unit forms uppermost part of Eye of Needle cliffs.	29	8.8
3. Limestone, light-gray, fine-grained, mottled with light-yellowish-gray fine-grained dolomitic limestone; no obvious bedding, massive, cliff forming.	45	13.7
2. Limestone, dark-gray, medium-grained, with large irregular zones of medium-light-gray limestone, color variation being mostly parallel to and outlining bedding in otherwise massive rocks.	63	19.2

Feet Meters

Both light and dark limestones contain 30 percent rods, blebs and tubes 0.1 to 0.5 cm diameter filled with white calcite and crudely bedded.

Unit 2 forms streaked part of massive-

Eye of Needle cliff.

- | | |
|--|--------------|
| 1. Limestone, light-gray, fine-grained, mottled with light-yellowish-gray fine-grained dolomitic limestone, probably representing bioturbated lime mud. No obvious bedding, forms massive cliff. | 65 19.8 |
|--|--------------|

Total 202 61.5

Top of underlying Swasey Limestone is thick-bedded, dark-gray limestone, mottled with dark-brownish-gray dolomite. Eye of Needle-Swasey contact placed at color change and at break in slope with Eye of Needle forming lighter and steeper cliffs and Swasey less steep and darker cliffs and slopes.