

Erratum to: The inner ramp facies of the Thanetian Lockhart Formation, western Salt Range, Indus Basin, Pakistan

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The original version of this article, unfortunately, contained errors, which are enumerated below.

1. In the first sentence of the Abstract, “Charrat” should be changed to “Makarwal.” The sentence should now

read “The Lockhart Formation from a major carbonate unit of the Paleocene Makarwal Group in Upper Indus Basin, Pakistan represents a larger foraminiferal–algal build up deposited in a cyclic sequence of the carbonate ramp.”

2. The texts “(see plate-xx for top most bed of Hangu Formation)”, which is found at the bottom part of the Figure 3 should not be captured.

The online version of the original article can be found at <http://dx.doi.org/10.1007/s12517-013-1099-7>.

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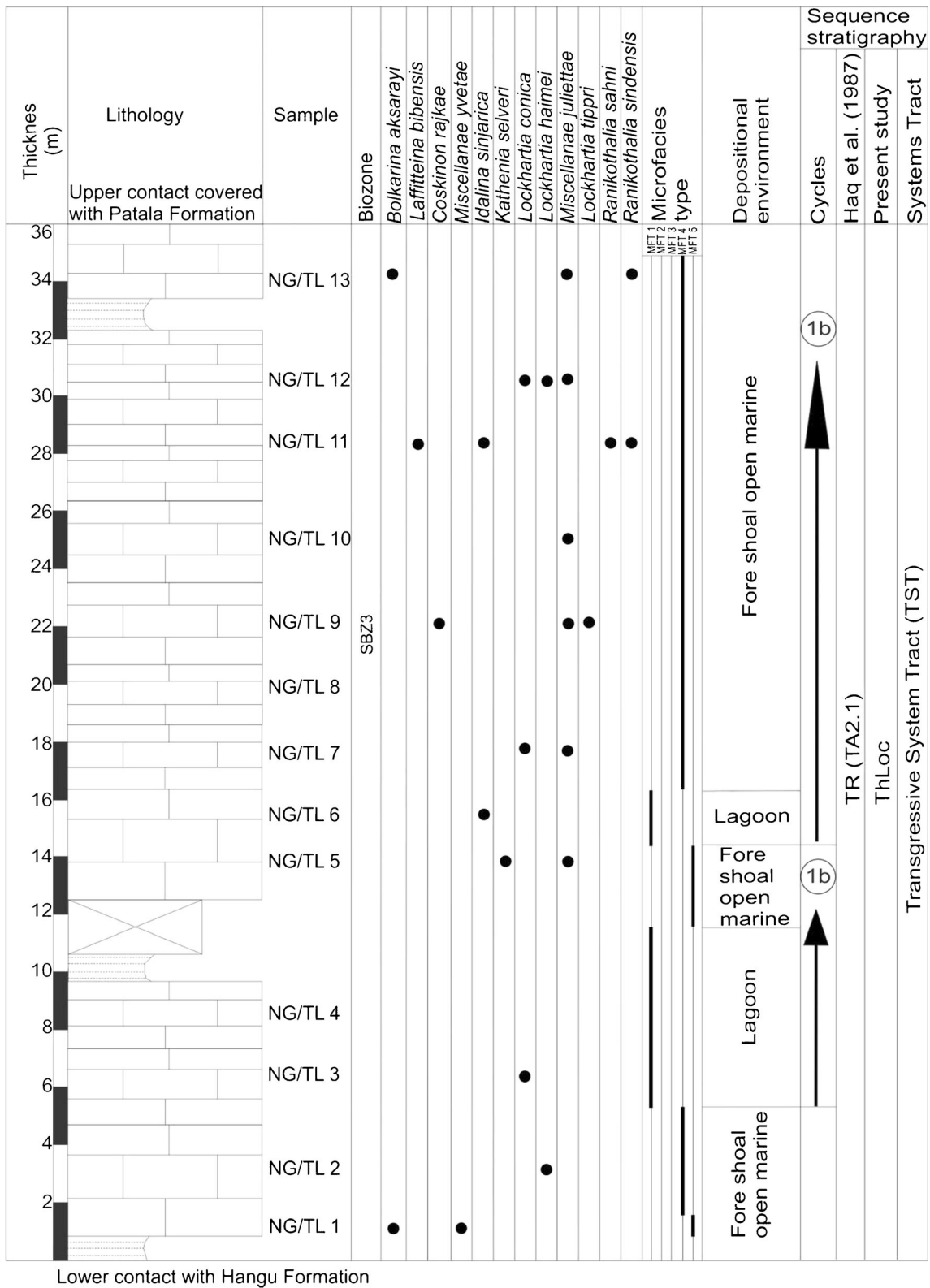
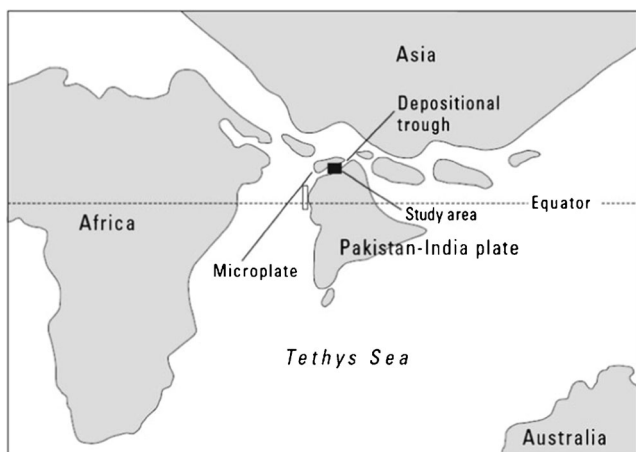


Fig. 3 Lithological log of the Lockhart Formation, Nammal Gorge Section (Upper Indus Basin) showing distribution of foraminifera, microfacies, depositional environments, depositional cycles (*upward-pointing arrows*) and depositional sequence.

3. Some captions did not match the correct images. The correct captions and images of the affected figures are presented in this paper.

Fig. 5 Late Paleocene continental configuration of the Pakistan-India plate and a microplate showing a Paleocene–Eocene



depositional trough (modified from Wardlaw and Martin (2007)). The microplate is part of the Afghanistan plate, shaded rectangle represent the approximate position of Upper Indus Basin, Pakistan (see Figure 6a & 6b for depositional settings). Empty rectangle represents approximate position of the Lower Indus Basin (see Figure 6c for depositional setting).

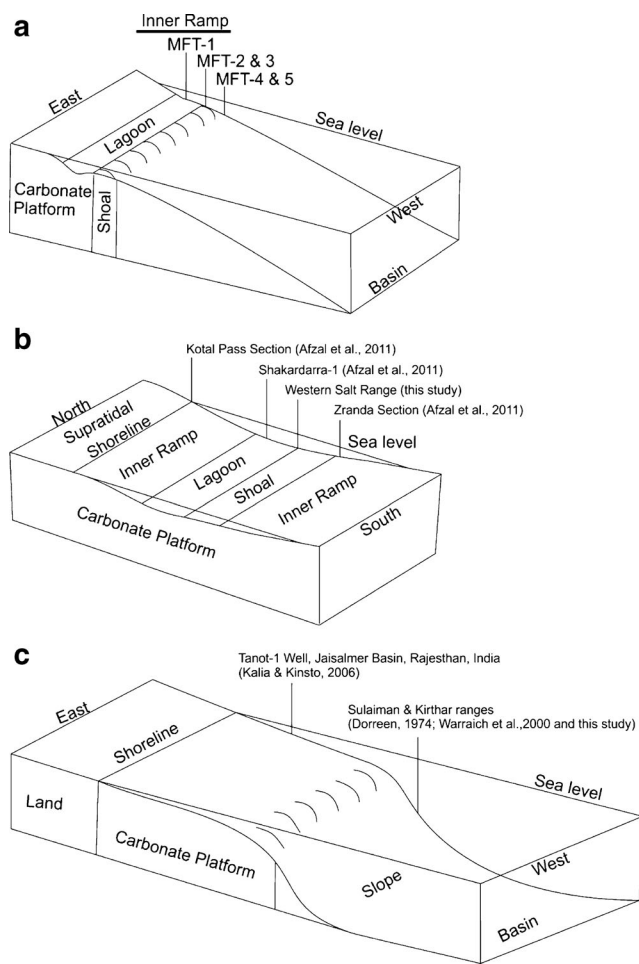


Fig. 6 Cartoons showing the depositional settings of the Indus Basin during Thanetian (SBZ3) times; a. East-West distribution of different microfacies types (MFT'S) based on sections; Dhok Kas, Nammal Gorge and Mari Indus (Kalabagh), western Salt Range, Upper Indus Basin (MFT- Microfacies types), b. The north south distribution of different depositional environments in Upper Indus Basin, Pakistan, c. East West distribution of different depositional environments in the Lower Indus Basin, Pakistan.

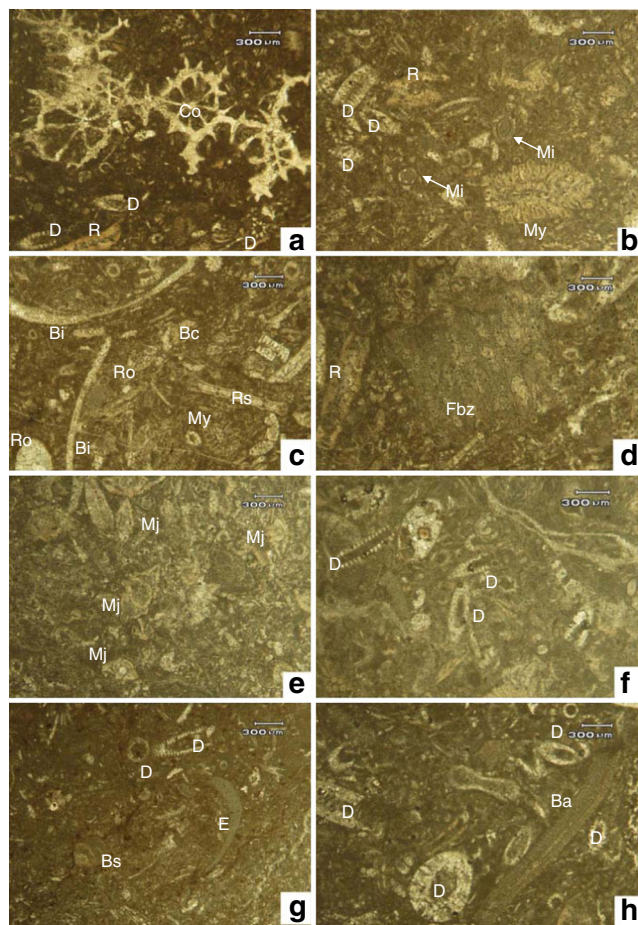
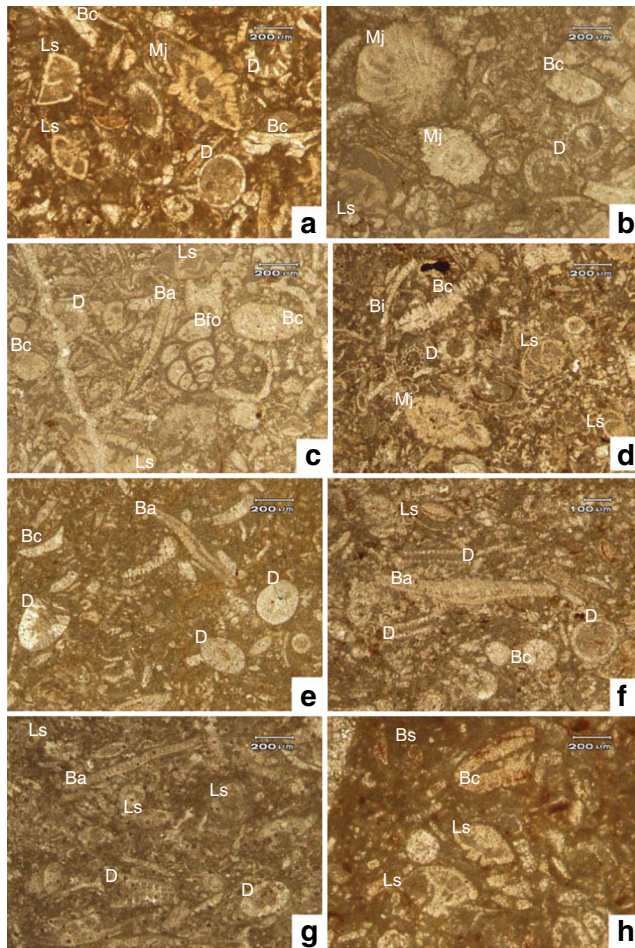


Plate 1 Photomicrographs showing microfacies of the Mari Indus (Kalabagh) Section, Upper Indus Basin, western Salt Range (Pakistan); **Figure a**: Bioclastic dasycladale wackstone (MFT1), showing tabulate coral fragments (Co), dasycladale green algae (D), *Ranikothalia* sp. (R), sample # KB/TL 1. **Figure b**: Bioclastic dasycladale wackstone (MFT1), showing dasycladale algae (D), *Miscellanea yvattea* (My), miliolid (Mi), sample # KB/TL 1. **Figure c**: Bioclastic foraminiferal wack-packstone (MFT2), showing bivalves (Bi), bioclasts (Bc), *Rotalia* (Ro), *Ranikothalia sindensis* (Rs) and *Miscellanea yvattea* (My), sample # KB/TL 2. **Figure d**: Bioclastic foraminiferal wack-packstone (MFT2), showing fenestrate bryozoans (Fbz), *Ranikothalia* sp. (R),

sample # KB/TL 2. **Figure e:** Bioclastic foraminiferal packstone (MFT3), showing *Miscellanea juliettae* (Mj), sample # KB/TL 4. **Figure f:** Bioclastic dasycladale foraminiferal wack-packstone (MFT4), showing dasycladale algae (D), sample # KB/TL 5. **Figure g:** Bioclastic dasycladale foraminiferal wack-packstone (MFT4), showing smaller benthic foraminifera (Bs), dasycladale algae (D), Echinoids (E), sample # KB/TL 8. **Figure h:** Bioclastic dasycladale foraminifera wack-packstone (MFT4), showing *Bolkarina askarayi* (Ba), dasycladale algae (D), sample # KB/TL 9.



bioclast (Bc), sample # DK/TL 7. **Figure d:** Bioclastic dasycladale foraminiferal wack-packstone (MFT4), showing dasycladale algae (D), *Miscellanea juliettae* (Mj), *Lockhartia* sp. (Ls), recrystallized bioclast (Bc) and bivalves (Bi), sample # DK/TL 2. **Figure e:** Bioclastic dasycladale foraminiferal wack-packstone (MFT4), describing *Bolkarina askarayi* (Ba), dasycladale algae (D), recrystallized bioclast (Bc), sample # DK/TL 4. **Figure f:** Bioclastic dasycladale foraminiferal wack-packstone (MFT4), describing *Bolkarina askarayi* (Ba), dasycladale algae, recrystallized bioclast (Bc), and *Lockhartia* sp. (Ls), sample # DK/TL 5. **Figure g:** Bioclastic dasycladale foraminiferal wack-packstone (MFT4), describing *Bolkarina askarayi* (Ba), dasycladale algae (D), and *Lockhartia* sp. (Ls), sample # DK/TL 12. **Figure h:** Bioclastic foraminiferal wackstone (MFT5), showing smaller benthic foraminifera (Bs), *Lockhartia* sp. (Ls) and recrystallized bioclast (Bc), sample # DK/TL 6.

Plate 2 Photomicrographs showing microfacies of the Dhok Kas Section, Upper Indus Basin, western Salt Range (Pakistan); **Figure a:** Bioclastic foraminiferal wack-packstone (MFT2), showing dasycladale algae (D), *Miscellanea juliettae* (Mj), *Lockhartia* sp. (Ls) and recrystallized bioclast (Bc). Sample # DK/TL 3. **Figure b:** Bioclastic foraminiferal wack-packstone (MFT2), showing species of dasycladale algae (D), *Miscellanea juliettae* (Mj), *Lockhartia* sp. (Ls) and recrystallized bioclast (Bc), sample # DK/TL 8. **Figure c:** Bioclastic foraminiferal packstone (MFT3), showing *Bolkarina askarayi* (Ba), dasycladale algae (D), biserial foraminifera (Bfo), *Lockhartia* sp. (Ls) and recrystallized

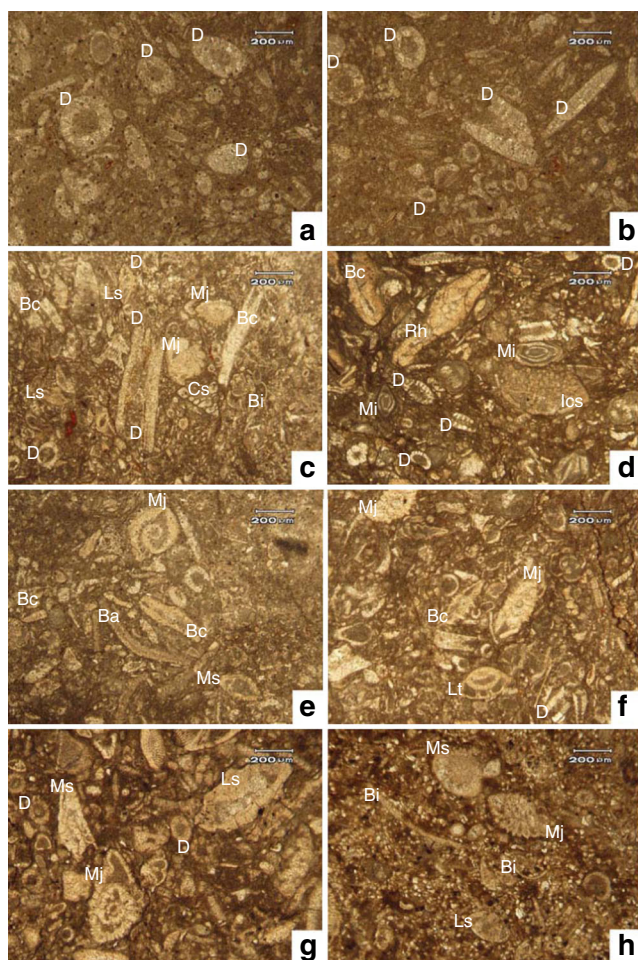


Plate 3 Photomicrographis showing microfacies of the Nammal Gorge Section, Upper Indus Basin, western Salt Range (Pakistan); **Figure a**: Bioclastic dasycladale wackstone (MFT1), showing dasycladale green algae (D) embedded in fine grained micritic background, sample # NG/TL 4. **Figure b**: Showing dasycladale green algae (D) in bioclastic dasycladale wackstone (MFT1), sample # NG/TL 4. **Figure c**: Bioclastic dasycladale foraminiferal wack-packstone (MFT4), describing *Miscellanea juliettae* (Mj), dasycladale algae (D), *coskinon rajka* (Cs), bivalves (Bi), recrystallized bioclast (Bc) *Lockhartia* sp. (Ls), sample # NG/TL 9. **Figure d**: Bioclastic dasycladale foraminiferal wack-packstone (MFT4), describing dasycladale algae (D), *Ranikothalia sahani* (Rh), *Idalina* cf. *sinjarica* (Ics), miliolid (Mi) and recrystallized bioclast (Bc) *Lockhartia* sp. (Ls), sample # NG/TL 11. **Figure e**: Bioclastic dasycladale foraminiferal wack-packstone (MFT4), *Bolkarina askarayi* (Ba), *Miscellanea juliettae* (Mj), *Miscellanea* sp. (Ms) and recrystallized bioclast (Bc), sample NG/TL 11. **Figure f**: Bioclastic dasycladale foraminiferal wack-packstone (MFT4), *Miscellanea juliettae* (Mj), *Lockhartia tippri* (Lt), dasycladale algae (D) and recrystallized bioclast (Bc), sample # NG/TL 9. **Figure g**: Bioclastic dasycladale foraminiferal wack-

packstone (MFT4), *Miscellanea juliettae* (Mj), *Lockhartia* sp. (Ls) and dasycladale algae (D), sample # NG/TL 12. **Figure h**: Bioclastic foraminiferal wackstone (MFT5), describing *Miscellanea juliettae* (Mj), bivalves (Bi) and *Lockhartia* sp. (Ls), sample # NG/TL 1.

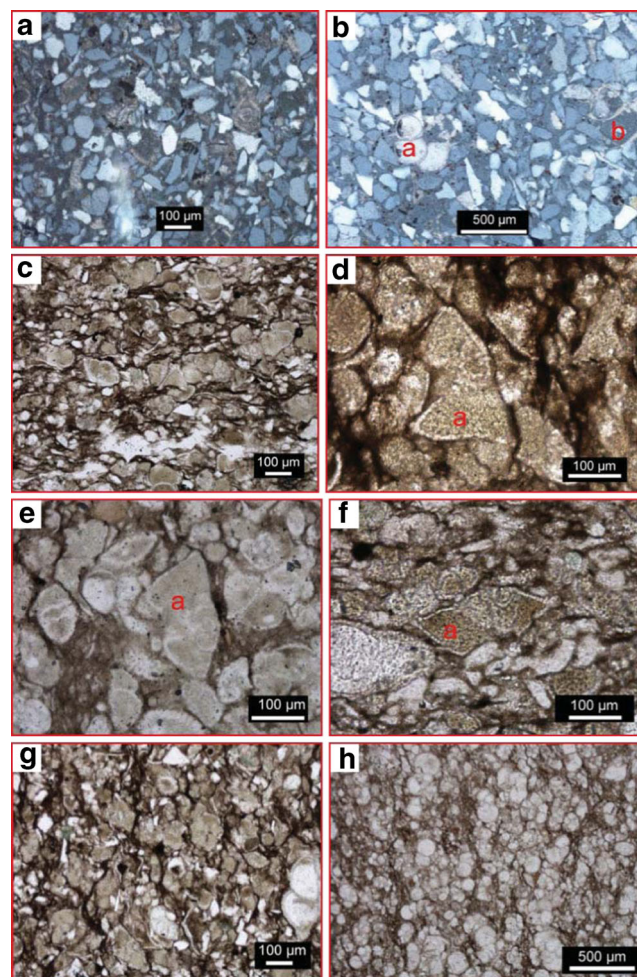


Plate 4 Photomicrographs showing facies of the Dungan Formation, Rakhi Nala Section, Sulaiman Range, Lower Indus Basin (Pakistan). **Figure a**: Photomicrograph of lower part of the Dungan Formation at Rakhi Nala, Sulaiman Range, and showing quartz sandstone facies devoid of any age diagnostic planktic foraminifera, sample # Td17. **Figure b**: Photomicrograph of lower part of the Dungan Formation at Rakhi Nala, Sulaiman Range, showing quartz sandstone facies, *Subbotinae* (a) and *Morozovella* (b) species are present, sample # Td9. **Figure c**: Photomicrograph of lower part of the Dungan Formation at Rakhi Nala, Sulaiman Range, representing mixed planktic foraminifera quartz sandstone facies with dominant morozovellids, sample # Td13. **Figure d**: Photomicrograph of upper part of the Dungan

Formation at Rakhi Nala, Sulaiman Range, representing planktic foraminiferal siltstone facies, *Morozovella* sp. cf. *M. aequa* (a) is present, sample # Td34. **Figure e:** Photomicrograph of upper part of the Dungan Formation at Rakhi Nala, Sulaiman Range, representing planktic foraminiferal siltstone facies, *Morozovella* sp. cf. *M. aequa* (a), sample # Td34. **Figure f:** Photomicrograph of lower part of the Dungan Formation at Rakhi Nala, Sulaiman Range, representing mixed planktic foraminifera quartz sandstone facies, *Morozovella* sp.

cf. *M. gracilis* (a) is present, sample # Td13. **Figure g:** Photomicrograph of upper part of the Dungan Formation at Rakhi Nala, Sulaiman Range, representing planktic foraminiferal siltstone facies, sample # Td31. **Figure h:** Photomicrograph of upper part of the Dungan Formation at Rakhi Nala, Sulaiman Range, representing planktic foraminiferal siltstone facies, showing change in planktic foraminiferal assemblages from morozovellid-dominated to subbotinid/acarininid-dominated assemblages, sample # Td46.