

Geology of the Himalayan Foothills from the Perspective of the Attock – Cherat Range

TALK

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The Attock-Cherat Range contains boundaries between very different pre-Mesozoic terranes. South of the Hissartang thrust, the Kala Chitta Range and Potwar Plateau foreland fold-thrust belt comprises an unmetamorphosed Phanerozoic sequence with Ordovician to Carboniferous missing; Indian-shield rocks are overlain by Eocambrian evaporites. This correlates easily with subsurface cratonic rocks of the Punjab plains south of the Salt Range. North of the Khairabad (Panjal) thrust, late Precambrian continental-margin clastics (Manki Slate, Tanawal Quartzite) are overlain by a relatively complete Paleozoic and Mesozoic section which does not correlate well with the shield but is similar to sequences in Kashmir and Afghanistan. These strata are metamorphosed and intruded by granitic rocks, and they can be mapped northward across the Peshawar basin and Swat to the suture zone (MMT). Between the Khairabad and Hissartang thrusts are two problematical thrust plates. The northern plate is dominated by a late Precambrian flysch sequence (argillite, sandstone, and rare limestone, very weakly metamorphosed) named the Dakhner Formation; this is traced NE into the Hazara Formation. The Dakhner resembles the more highly metamorphosed Manki Slate farther north, but it lacks counterparts to the Tanawal Quartzite, Shahkotbala Limestone, Uch Khattak Limestone, and Shekhai Limestone characteristic of the Precambrian north of the Khairabad thrust. The fossiliferous Lower Paleozoic sequence overlying the Precambrian of the Peshawar basin is absent south of the Khairabad thrust, where the Dakhner is overlain directly by Paleocene strata and locally by Jurassic or Cretaceous rocks. Similar relationships are seen in the Kherimar Hills and Hazara. The southern thrust sheet consists of Darwaza Limestone, Hissartang Quartzite and associated redbeds, and Inzari Limestone overlain by Paleocene. The Darwaza to Inzari sequence lacks fossils and does not correlate easily with the lower Paleozoic of the Peshawar basin or with any other sequence, including that of the Salt Range. The Mesozoic and Tertiary of these thrust sheets correlate with the fold-thrust belt to the south even though the older rocks do not, indicating that the Dakhner, Darwaza-Inzari, and Kala Chitta sequences were juxtaposed in pre-Paleocene and possibly pre-Jurassic time. The lack of evidence for Eocene collision suggests that the major encounter of the Attock-Cherat Range was between India and one or more microplates, and this encounter may have been largely strike slip on the western margin of the Indian plate.

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