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AN ACCOUNT OF THE UPPER SIWALIK RHINOCEROTIDS OF PAKISTAN

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Fossil remains of Pleistocene rhinocerotids have been collected from three upper Siwalik localities of Gujrat, Jhelum and Mirpur districts (Pakistan), belonging to Tatrot and Pinjor stages of the Soan Formation (3.5–0.9 Ma). The sample includes well-preserved maxillary and mandibular fragments along with isolated teeth. The fossils collected from upper Siwalik sediments exposed near the Tatrot village in Jhelum district are identified as belonging to *Rhinoceros sivalensis*. The specimens collected from Pinjor of the Sar Dhok in Pabbi hills, Gujrat district are identified as belonging to *Rhinoceros sivalensis*, *Rhinoceros sondaicus* and *Rhinoceros unicornis*. The specimens from Pinjor of Jari Kas (33° 06.236N 73° 50.012E) in district Mirpur of Azad Jammu and Kashmir are identified as belonging to *Rhinoceros sondaicus* and *Punjabitherium platyrhinus*. The specimens of *Punjabitherium platyrhinus* in the present collection resemble morphologically and metrically to those known from the Pinjor of Gurha village near Chandigarh, India. *Punjabitherium platyrhinus* have hypsodont teeth with well developed large crochet and crista that may unite to enclose a medifossette. The characteristics shared by *Rhinoceros sondaicus* and *R. sivalensis* in the present collection include: a distinct crochet (more developed and rounded in *R. sivalensis*) that may unite with the protoloph to enclose a fossette, well-developed parastyle, no mesostyle and U-shaped anterior valley in the lower molars. However, *R. sondaicus* differs from the later species in having a well-developed paracone fold, development of crista in the premolars and complete absence of lingual cingulum (well developed in *R. sivalensis*). The protocone is constricted by anterior and posterior grooves in *R. sivalensis* whereas in *R. sondaicus* the protocone is unconstricted. Teeth dimensions of *R. sondaicus* are greater than those of the *R. sivalensis*. The upper D3 of *R. unicornis* is identical in occlusal morphology to the D3 in AMNH 39234 repository. The broken dentary and the molars contained therein show identical occlusal morphology and dimensions to those known from the upper Siwaliks of India. However, the fossil dentary and the dentition have slightly larger dimensions than the living *R. unicornis*. *Rhinoceros sivalensis* is well documented from the upper Siwalik Soan Formation from different localities in Chakwal, Jhelum and Gujrat districts of Punjab, Pakistan. However, the fossils of *Rhinoceros unicornis* and *Rhinoceros sondaicus* are reported for the first time from the upper Siwaliks of Pakistan and resulted in an extension of the known geographic range of these species into Pakistan. The collection of *Punjabitherium platyrhinus* from the upper Siwaliks of Pakistan however rejects Lydekker's opinion regarding the confined distribution of *P. platyrhinus* only in the typical Siwaliks of India near the Ganga and Jamuna rivers.

