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On *Tragocerus punjabicus* Pilgrim from Type Locality Dhok Pathan, Chakwal District (Pakistan)

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Abstract: A well-preserved right maxilla having P^2-M^3 is referred to *Tragocerus priniAbictis* Pilgrim from Dhok Pathan (Middle Siwaliks) Chakwal district, the Punjab Province, Pakistan. It differs from other species of the genus *Tragocerus browni* Pilgrim in having short upper premolar series, The material studied gives additional information on fossil remains of *Tragocertis purijabicus* Pilgrim.

Key words: *Twocgois*, dhok Pathan and middle siwaliks

Introduction

Gaudry (1861) named *Tragocerus* for *Capra amalthea* (Roth and Wagner, 1854). Many crania, horn-cores and dentitions were: collected from the various localities of Eurasia. Most of the material was referred to *Tragocerus ornalthea* (Roth and Wagner, 1854) and sonic to tine other species of the genus. Solounias (1981) reported the presence of *Tragocerus* in China by describing 4 new species, *T. spectabilis*, *T. gregadus*, *T. svivaticos* and *T. kokonli*. These species are based upon teeth only, which exhibit *Tragocerus* features. Bohlin (1935) described a fragmentary skull of the species *T. specabilis*. This is much larger than other Asian species *T. punjabicus* and *T. browrat* and is closer to *T. peritnensis* (Lydekker) Pilgrim. Khomeenko (1913) figured three teeth horn Rumania under the name *Tragocenis vaildus*. According to Pilgrim and Hopwood (1928) "the figure of the teeth is poor and the species is' unsatisfactory". In addition, these teeth are not diagnostic enough to serve as a type. Pavlow (1913) added a new species to the genus from the type locality Torlobroutchi, Bessarabia tinder the name *Tragocerus frolovi*. It is preserved in the Geological Cabinet of the University of Moscow. Borissiak (1914) described a new species of *Tragocerus* from the type locality Sebastopol under the name *Tragocerus leskewlischt*.

A damaged skull was described and figured by Lydekker (1878) under the name *Capra perimensis* from Perim Island, Gulf of Cambay (Bombay) and belongs to Dhok Pathanian of the Middle Siwaliks. It is preserved in the collection of G.S.I. in Calcutta registered No.8 244. Pilgrim (1939) referred this species to *Tragocerus*. Pilgrim and Hopwood (1928) reviewed the genus and tedesoribed 7 species, one sub-species, one variety and 5 races in 4. Pilgrim (1937, 1939) reported 2 new species from Pakistan (from Dhok Pathaitien of the Middle Siwaliksi *Tragocerus punjabicus* and *Tragocerus browni*. The former differs from the latter in having the smaller width at the. orbits and its larger width at the mastoid. The upper premolar species is rather short in *T. Punjabicus* than in *T. browni*. In regard to the size of these two Asian species from Pakistan, they are somewhat smaller than European species. They are, however, little larger than *T. parviclavls*. Solounias (1981) examined 268 well-preserved specimens of *Tragocerus* in 34 museums from Pikermi, Santos and Margheh. Most of the material consisted of isolated upper and lower dentitions, some horn-cores, frontlets, and brain-oases. Her referred *Tragocerus rugosifroris*, *Tragocerus curvicarrlis* and *T. reticornis* in *Tragoportax*. The specimen under study is referred to *Tragocerus* and species *Tragocerus puniabieus*. It is due to the

reason that the cranial and dental features of the referred specimens are quite typical of *T. Browni* and *T. punjabicus*.

Abbreviations

G.S.I.	Geological Survey of India, Calcutta.
H	Maximum preserved crown height.
L	Maximum preserved enteroposterior length.
P.U.P.C.	Punjab University Palaeontological Collection, stored in the Department of zoology.
W	Maximum preserved crown width.

Systematic Account

Order	Artiodactyla Owen
Suborder	nurninianlia Scopoli
Infraorder	Peccra Linnaeus
Subfamily	Bovoidea Simpson
Family	Bovidae Gray
Subfamily	Bovinae Gilt
Tribe	Boselaphini Simpson
Genus	<i>Tragorerus</i> Gaudry
Species	<i>Tragocerus puniabicos</i> by Pilgrim (1937) (Fig. 1)

Type: The skull, Geol, Surv. hid. No. 13 486.

Locality: Dhok Pathan, Chakwal district, the Punjab Province, Pakistan.

Horizon: Dlunk Pathan stage of the Siwaliks.

Known distribution: Asia (Pakistan)

Diagnosis: A species slightly smaller than *T. bruwili*; with relatively short upper premolar series; P^2 rather longer than P^1 ; upper molars with small median basal pillar; moderately developed styles and ribs; central cavities connect at mid-wear and enamel moderately rognose.

Discussion

A very distinct character of the maxillary teeth is in their size (Table 1). The P^2 exceeds P^3 and P^4 in length. The length/Width of P^{2-4} is the same as in the type specimen, given by Pilgrim (1939). The difference in the size of rue two specimens is minor. The main reason for this is that the type specimen is of a young individual while the specimen under study is of an old one. The difference in the age is evident from the fact that in the specimen under study the teeth are moderately worn down whereas in the type specimen are practically unworn, while the hinder teeth are in an early stage of wear; the central cavities exposed in them are very narrow arid not yet connected with each other. In the specimen under study, the

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Table 1: Comparative measiererrients (mm) of upper teeth referred to *Tragocerus puniabl'cus* Pilgrim

	P.U.P.C.. No. 97/10						*G.S.I. No. B 486					
	P ²	P ³	P ⁴	M ²	M ³	M ⁴	P ²	P ³	P ⁴	M ²	M ³	M ⁴
L	15.0	14.5	12.0	16.0	18.0	21	17	14.5	11.0	18.0	20	20.0
w	8.0	10.0	14.0	15.0	16.0	16	11	12.0	15.5	18.0	20	18.5
WIL index	40.0	69.0	117.0	89.0	87.0	76	65	83.0	141.0	100.0	100	90.0
H	12.4	14.0	13.2	13.2	11.8	11	15	16.0	16.0	14.0	17	19.0
H/W index	207.0	140.0	94.0	88.0	74.0	69	136	133.0	103.0	88.0	85	103.0
Length of molar series			53.5						57.0			
Length of premolar series			43.0						44.0			
Ratio of molar length to premolar length			01.24					1.29				

*Taken from Pilgrim (1937)

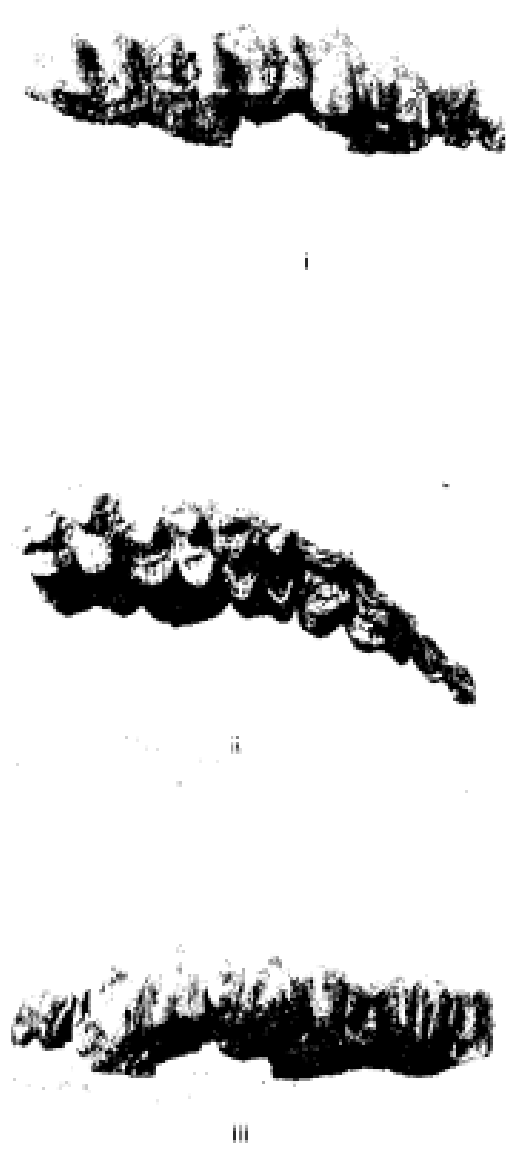


Fig. 1: *Tragocerus puniabicus* Pilgrim (P.U,P.C. No. 97110), a right maxilla bearing P²-M⁴. collected from Dhok Pathan, Chakwal districtt, the Punjab Province, Pakistan. i) Inner view, iii Crown view, ii) Outer view

central cavities are broad and connected with each other. Pilgrim (1939) stated that hi upper teeth the internal crescent series rises to a much lower level than the outer wall of the tooth", cannot be considered as a peculiarity of this species. As a rule this is true for most of the mammals because the upper jaw is broader than the lower jaw. Thus the inner side of the upper and outer side of the lower molars occlude, resulting in the aforesaid wear. P¹ is not only long but narrow as well. Among the premolars, P¹ is the broadest. The styles, as stated by Pilgrim (1939), are weak on the posterior side while the other two are long. The prominence of these styles diminishes gradually from P² to A common feature of these teeth is that the median basal pillars are extremely small and not located exactly in the middle of the tooth; they are attached to the anterior base of the hypocone-a feature indicated in Fig.1 of plate IV of Pilgrim (1939) and also mentioned by him.

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