indeed, the evidences, so far as they have been examined, appear to warrant the conclusion that the region of the western Tian-shan, from Lake Issyk-kul southwards, was in great part the scene of probably five successive glacial periods, each being less severe than the period which immediately preceded it. At the present day four or five large glaciers stream down the shoulders and embed them­selves in the hollow flanks of Khan-tengri—the Semenov at altitudes of 12,410-11,000 ft., the Mushketov at 11,910-10,920 ft., the Inylchik at 11,320-10,890 ft., and the Kaindy at 10,810-10,040 ft. The Inylchik glacier is computed to have a length of about 45 m. Glaciers occur also on Manas mount to the south of the town of Aulie-ata. In the Alai region there are other extensive glaciers, *e.g.* the Fedchenko and Shurovsky glaciers south of peak Kauffmann. Generally speaking, the snow-line runs at 11,500-12,800 ft. above sea-level, and all ranges the peaks of which shoot up above 12,000 ft. are snow-clad, and all ranges which are snow-clad rise to higher altitudes than 11,500 ft. A feature generally characteristic of the Tian-shan as a whole is that the absolute elevation of the ranges increases gradually from north to south, and from the centre decreases towards both the east and the west. At the same time the relative altitudes, or the heights of the mountain ranges above the valleys which flank them, decrease from north to south. For instance, in the Dzungarian Ala-tau, the valleys going south lie successively at altitudes of 4300 ft. in the Borotala, at 5600 ft. in the Urtaksaryk and at 6820 beside the Zairam-nor. Again, while the Ili (Kulja) valley lies at 1300 ft., the Issyk-kul has an altitude of 5300 ft., the Koshkar basin, in which the river Chu has its source, reaches 6070 ft., the Son-kul valley 9430 ft., the Ak-sai valley, farther east, 10,000 to 11,150 ft., and the Chatyr-kul on the north side of the Terek Mountains 11,200 ft. In the elevated regions of this part of the system, between the Kokshal-tau and the Pamir plateau, the snow-line runs at a higher level than is usual elsewhere, namely at 12,500 ft. and even at 13,000-13,800 ft. on the Kokiya Mountains.

*Climatic Conditions.—*As a rule on all the Tian-shan ranges the ascent from the north is steep and from the south relatively gentle. But the deep lateral indentations (*e.g*. Knlja) provide a more or less easy access up to the loftier tablelands and plateaus of the interior. Broadly speaking, the climate on the north and west of the main ranges is both milder and moister than on the south and east, and accordingly the precipitation in the former is relatively heavier, namely 10 to 20 in. annually. It used to be supposed that the Tian-shan confronted the basin of the Tarim with a steep, wall-like versant. But this is not the case. G. Merzbacher, speaking of the slopes of the Khalyk-tau and other neighbouring ranges of the central Tian-shan, says that “ nearly everywhere the Tian-shan slopes away gradually towards the high plain at its southern base, in places... subsiding gradually in ranges of trans­verse spurs, whose cape-like ends project far into the desert, or in other places in the step-like tailing off of longitudinal ranges.... In some places limestones appear as projections from the range; at others conglomerates and Tertiary clay marls form the outermost fold.”@@1 On the north versant of the ranges the rainfall increases from the foot of the mountains upwards, and at 9000-10,000 ft. the vegetation becomes luxuriant. According to P. P. Semenov, the following vegetable zones may be distinguished on the northern slopes: altitudes of 525-1575 ft. are steppe lands, of 1575-4300 ft. are the zone of cultivation, 4300-8100 ft. the zone of coniferous trees, 8100-9500 ft. alpine pastures, 9500-11,900 ft., the higher alpine regions, and above the last limit is the region of perpetual snow. The south versant, on the other hand, is barren and desolate below the 10,000 ft. limit and above that it is dotted with scanty patches of grass and bush vegetation. Its general aspect is that of rugged slopes of bare rock, seamed with the beds of dry torrents choked with gravel (see further Turkestan, West).

*Routes.*—The traditional routes between China on the one side and West Turkestan and Persia on the other have from time imme­morial crossed the Tian-shan system at some half a dozen points. After traversing the desert of Gobi from Sa-chou to Hami, the great northern route crossed over into the Dzungarian valley either by the Otun-koza depression or by the gap at Urumchi, or else it proceeded over the Muz-art pass on the east side of Khan-tengri or over the Bedel pass in the Kokshal-tau and so down into the valley of Kulja. The shortest route, though not the easiest, between Kashgar and East Turkestan in the east and Ferghana and West Turkestan in the west is over the Terek pass or the pass at the head of the Alai valley, a dangerous route in winter by reason of the vast quantity of snow which usually accumulates there.

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TIARA (Gr. τιάρα), also called *regnum, triregnum* and *corona,* the papal crown, a bee-hive shaped, somewhat bulging head­covering, ornamented with three crowns (whence t*riregnum* or “triple crown”). It has no sacral character, being solely the ensign of sovereign power (cf. Innocent III. Serm. vii. *in S. Silvest:* “ Pontifex romanus in signum imperii utitur regno”), and is therefore never worn at liturgical functions, when the pope always wears the mitre. The tiara is first mentioned, under the name of *camelaucum,* in the *Vila* of Pope Constantine (d. 715), and next under the name of *pileus phrygius* or *phrygium,* or the *Constitutum Conslantini,* the so-called “ Donation of Con­stantine.” In the 9th century it appears in the 9th *Ordo* of Mabillon in connexion with the description of the consecration of the pope. On papal coins it first appears on those of Sergius III. (d. 911) and then on those of Benedict VII. (d. 983). At

this period it was, according to the *Ordo* above mentioned, a sort of cap of white stuff, and helmet-shaped. Before the 9th century the tiara was certainly without any crown; any such ornament would not have been in keeping with the circum­stances of the time, and seems also to be excluded by the terms of the *Constitutum Conslantini.* It is quite uncertain when the crown was first added. It is true that Mabillon’s 9th *Ordo* calls this head-gear *regnum,* but it appears to know nothing of a crown. The papal coins and a few pictures of the 10th and 11th centuries leave it doubtful whether the ornamental band at the lower edge of the tiara is intended to represent a crown or merely a decorative orphrey (*aurifrisium*). At the beginning of the 12th century, however, the papal tiara was already decorated with a circlet, as the *Ordo* of Benedict (c. 1140) and statements made by Bruno of Segni and Suger, abbot of St Denys, prove; but it is only in representations of the tiara dating from the late 13th century that the circlet appears as a regular spiked crown. The two pendants at the back of the tiara *(caudae, infulae)* are like­wise only traceable to this period. The second circlet was added by Boniface VIII., as is proved by three statues executed during his lifetime (one in the Lateran church and two in the crypt of St Peter’s). Perhaps this was due only to the pope’s love of display, but possibly the two crowns were intended to symbolize Boniface’s views as to the twofold nature of the papal authority. In the inventory of the papal treasury made in 1316 the tiara is described as having three crowns; the third must therefore have been added under Benedict XI. or Clement V. The monumental effigy of Benedict XI. in S. Domenico at Perugia still has a tiara with one circlet in the antique fashion of the 13th century; that of John XXII. showed only two crowns. The earliest monumental effigy of a pope giving an example of a triple-crowned tiara is now, therefore,

@@@l G. Merzbacher, *The Central Tian-shan Mountains,* pp. 139-140 (London, 1905).