

whole has the appearance of a mountain mass formerly normally dissected above water and now flooded in the lower portions. These observations tend to show that when the normal dissection of the flooded part of the peninsula took place the lake stood far below where it is now, and possibly did not exist at all. It was then raised to the old high levels, and must have remained there a long time, for the shores, though now in many cases obliterated, are broad, even where cut in steep ledges. Then it fell again, and a relatively long time afterwards was raised to about the 150-foot level, where it remained some time and then gradually receded, leaving its fresh shores following in and out of the old peninsula valleys. The lake surface appears to have stood at its present height for but a relatively short time, for its shores show very little cutting from wave action (fig. 110).

Considering all facts about the Kara Kul basin, we see that, although there is no absolute proof for associating the old shorelines of the lake with the glacial advances, they naturally group themselves together by probability; for if Kara Kul exists as a result of moraine damming and if, as seems more than likely, ice epochs occurred during times of increased precipitation, the greater fluctuations of lake level were doubly controlled by glacial epochs. Moreover, the ancient 300 to 400-foot shorelines are in their imperfect state of preservation similar in antiquity to the old deeply clay-buried moraines, and the shorelines marked from about the 150-foot level down are similar in their freshness to the overriding moraines with their unaltered surface topography. As further evidence we have the fact that the overriding moraines are cut, where they extended sufficiently low down, by the 150-foot and lower shores, but not cut by the 200 to 320 foot and higher levels. It therefore seems proper to state that the lake surface appears to have risen to a height of 320 feet or more during the first glacial epoch established and to a height of about 150 feet during the second glacial epoch established.

GLACIAL EPOCHS.

It seems only reasonable to suppose that epochs of increased glacial conditions were coincident on both sides of the Trans Alai range and in neighboring regions. In the Great Alai Valley and on the Pamir we have one class of moraines of similar antiquity and extent, another of similar freshness and extent, and indications of a third still later class of little extent. Evidence thus places each class on the Pamir as contemporary with its respective similar class in the Great Alai Valley.

To distinguish the two definitely established glacial epochs we may name the older one the Alai Epoch and the later one the Kurumdi Epoch. It is therefore at present convenient to divide Quaternary time for the field in which I worked into five parts—

Quaternary.....	{	Post Kurumdi.
		Kurumdi Epoch.
		Orogenic Epoch.
		Alai Epoch.
		Pre-Alai.