Pliocene sea contemporaneous with the peneplain stage of its peripheral mountains, and the very shrunken early-Quaternary sea with the following high-uplifted stage of those mountains, still preglacial, the phenomena fall into organic accord; for the surface area of a landlocked sea is a direct function of the climate of its basin—the climate of its basin varies with the general continental geography and all mundane climatic change. Of the geographical factor, most important is variation in the shape of the basin; and, as shown in preceding sections, this shape changed through a series of erosion cycles with uplifts giving its periphery alternately low and high reliefs.

Assuming, then, that the great Pliocene Aralo-Caspian Sea belonged to the peneplain stage at the end of our first erosion cycle, and that the early Quaternary, low Aral, and Caspian shrunken survivals of that sea belonged to the high-relief stage of its uplifted periphery of mature mountains dissected during our second erosion cycle, we are next confronted by the later wide-expanded Aralo-Caspian Sea. Knowing that during the third and fourth erosion cycles this basin suffered a great mundane change of climate in the glacial period, it is natural to correlate phases of its high Quaternary sea with assumed increases of precipitation belonging to the glacial epochs. Although we do not, as yet, know how many phases there were to the high Quaternary sea, it might roughly be called a glacial sea, leaving the epochs to future exploration. It may be that Konshin's next lower Aralo-Caspian shores, when the Gulf of Kara Kum had dried out and only a strait running south of Ust-Urt connected the Aral and Caspian, were postglacial. This brings us into the third erosion cycle of its high eastern drainage; and the following uplift, ushering in our fourth erosion cycle, might account, in part at least, for the last historic shrinkage, severing the Aral and Caspian from their recent Usboi overflow connection to the two low seas of to-day—withered survivals of a glacial mediterranean.

RECENT DEVELOPMENTS IN THE ALLUVIAL AND FLYING-SANDS ZONES.

Turning to the other three lowland zones of deposition, we find additional data, especially on the more recent developments of this great basin. Glancing at a large-scale map we see most of that area from the Caspian to the high eastern peripheral ranges covered by dune-sand. Russian geologists have ascribed that of the Kara Kum to deflation of its Quaternary sea deposits. But, as we have shown, vast nuclei of flying sands inevitably accumulate from wind-work over the silted flood-plains of a desert basin, and all areas of its plains in the neighborhood of alluviation, whether or not far removed from ancient sea deposits, are characterized by them. We, therefore, differ by attributing much, if not most, of the Kara Kum sands to wind-work over the flood-plains of late Quaternary time. Some of it was undoubtedly derived from deflation of marine deposits, but those deposits are much more resistant than fresh-dried alluvium, especially than the sandspits of its distributary channels. In either case all the sand is ultimately of alluvial origin.

The wide-expanded zone of flying sands we find surrounded by an alluvial zone, narrow between it and the southern peripheral ranges, but widening east-