

A second reexcavation of the valley was followed by its third-epoch growth filling the last channel, and this growth was in process when Anau city was founded and the stream was probably wholly used for irrigation, and so the growth has continued till now in the form of irrigation sediments, raising the delta plain around our kurgans to a height of 20 feet above its ancient first-epoch surface on which the two kurgan oases were founded. In it there is more sand than in any of the preceding epochs and it is likewise more rapid in appearance.

SUMMARY OF THE MORE IMPORTANT FACTS OF THE PAST PHYSIOGRAPHY OF ANAU.

First cycle.

Pliocene, Kopet Dagh worn to low relief.
Immense deltas built.

Second and third cycles (Quaternary).

Two uplifts of Kopet Dagh and corresponding general sinking of plains, while the piedmont deltas of the first cycle are bent up along the base of the mountains. Valleys excavated and prolonged through old uptilted deltas to build new, smaller ones beyond.

Fourth cycle (Postglacial).

Mountains continue rising again and the new delta at Anau continues tilting, but so slowly that with sufficient alluviation it grows.
Reaction to dry and formation of delta valley.
Reaction to wet and alluviation of delta valley. North Kurgan founded.
During oscillations in precipitation over the mountains, alluviation twice again falls below rate of tilt and our buried delta valley thus twice again comes to be.
Precipitation now scarcely in excess of underground drainage.
Dunes desiccated of grass and set free to encroach on the delta plains.

OASES OF THE MURG-AB DELTA.

THE RIVER MURG-AB AND THE TYPE-PECULIARITIES OF THE MERV OASES, PAST AND PRESENT.

Rising in the mountains of Afghanistan and swollen by their melting snow and ice, the River Murg-ab issues north onto the plains of Transcaspia. There it splits over a large subaerial delta 100 miles from the mountains and inclosed by dunes of sand wind-sifted from its river silt. This far-expanded sea of drifting barchans merges into the desert of Kara Kum, making the great delta a seat of oases extreme in desert isolation. At one time the Murg-ab may have joined the Oxus, and in still more remote antiquity may have flowed direct into an Aralo-Caspian Sea. Its chief oases may, therefore, in the past have changed through type V, type II, and finally into type Ia; from lake shore to river bank, and at last the oases of an isolated delta. From the time when it failed to join either Oxus or Tedjend or reach a sea, the Murg-ab flowed to build an independent delta, and its oases were delta-oases; which, in the course of centuries, moved with the delta out and back; or perhaps always back if the river shortened with continuous desiccation. Here and there upon the clay surface, and beyond the limits now attained by water or even where the sand is drifting in, are seen mounds of clay and crumbled walls, the ruins of ancient towns and cities.