

possesses now, and the rivers must have carried incomparably greater volumes than they do now, and consequently their power of transporting solid materials towards the central parts of the basin, that is into that ancient »Mediterranean«, must have been in a corresponding degree greater. On the other hand, the wind's power of transporting the products of disintegration must have been far less. Owing to the proximity of that sea, the differences of temperature cannot have shown such continental extremes as obtain there at the present time. The greater amount of moisture in the air and the more plentiful supplies of water would nourish a richer vegetation; and by this means the products of disintegration would be more abundantly arrested, extracted from the winds, and retained. How far the disappearance of that great inland sea was a consequence of the inception of a more arid climatic period, or whether the relation of cause and effect was *vice versa*, I will not venture to discuss. It is sufficient that the two phenomena were coexistent, and the very first diminution in the area of the sea would be the signal for the sandy deserts to begin to form.

If now we fix our thoughts upon the processes which must anciently have taken place along the lines I have just indicated, and direct our attention to the aspect which that region presents at the present time, we may by way of a beginning answer the question I have posited in the following manner: the masses of sand which at the present time fill the basin of the Tarim were originally derived from the mountain-ranges which encircle that basin. Proceeding one step farther, I would add, that those masses of sand are derived from three separate sources, in part directly, in part indirectly: (1) the direct transportation by the wind of the products of disintegration from the adjacent mountains, whether sandstones or crystalline rocks; (2) through the activity of the wind operative amongst the arenaceous alluvia of the rivers and temporary lakes; (3) through the sand that was already present in the soil, and which became exposed in rings more or less concentric in proportion as the former sea dried up.

Of these three factors Bogdanovitsch looks upon the second as being the most important, indeed the only valid one, and, as we have seen, Walther agrees in so far as the Aralo-Caspian basin is concerned. In this basin there exist two rivers, each possessing a considerably greater volume of water than the Tarim, and consequently a much greater power of transporting silt and sand to the lowlands. Even without the help of arithmetical data, it is easy to see, as I have myself seen, that at the period of high water the Amu-darja and the Sir-darja carry incomparably greater quantities of sediment than the Tarim does. Further, the catchment-area of the Tarim is smaller than the desert that the river flows through without receiving any affluent. The catchment-area of the Amu-darja and Sir-darja is more than twice as extensive as that of the Tarim, and at the least equal to that part of the desert which this last subsequently flows through, and which is all that we are here called upon to consider. If now it is the river which in each of these cases has given occasion to the origination of the sandy desert, then the Amu-darja and Sir-darja, having a much wider catchment-area and a more plentiful supply of material to operate with, ought to have created a much more extensive desert than the Tarim has done. In reality however the opposite of this has taken place;