

What proportion of this 2.3 cub.m. inflow is lost by absorption and what proportion by evaporation I cannot now determine; for our present purpose it is sufficient to know, that both these sources of loss do exist. During the winter, when the evaporation is at its minimum, the water under the ice diminishes in volume, but after the ice breaks up and evaporation comes more actively into play, the fall is much more rapid. The water which is absorbed by the ground goes down by capillary attraction to the level of the natural ground-water, though this process is a very slow one, owing to the substratum consisting for the greater part of finely comminuted clay, and only to a small extent of intermingled sand. This fact alone explains why it is that these lakes, even when their inflow canals are closed, are nevertheless able to maintain themselves in their existing basins for years, in spite of the evaporation being so active that their water acquires a perceptible flavour of salinity, as in the Basch-köl. On the other hand it would be a mistake to say that, because the Karaunelik-köl contains a volume of 32.8 million cubic meters of water, the entire lake would, if the canal were to be kept closed, dry up by the middle of November. If the loss of volume continued to be what we have calculated it above, namely 13,115,000 cub.m. in 66 days, the lake on 5th August would have only about 19,703,500 cub.m. left, on 11th October only 6,588,500 cub.m., and on 14th November there would not be a single drop remaining. But in proportion as the surface area diminishes, the evaporation grows less, and in proportion as the substratum becomes saturated the loss by absorption likewise grows less. And yet the loss is very appreciable indeed, as we have seen from (2) and (5) in fig. 229. It may however be justly assumed, that if the lake were to remain without connection with the river for the space of two or three years, it would dry up completely, and enter the same stage as the Emin Achune-uktusu. And as we saw above, the Basch-köl, which is generally kept closed, has to be freshened up every year by an inflow from the river, otherwise its fish would die in the increasing salinity of the shrinking, stagnant water.

This circumstance affords an indication of the nature of the soil which underlies these lake-basins. If it were absolutely impermeable, that is if it consisted entirely of clay, these lakes would be far more tenacious of life than they are, and the only agency inimical to their persistence would be evaporation. This fact alone would justify the conclusion, that the lake-bottom cannot consist of clay alone, but must also be composed in part of sand, which does allow the water to filter through, though it may be very slowly. If on the other hand the lake-bottom consisted of nothing but sand, no canal would ever be able to fill the basin, but the water would be sucked up by the drouthy sand as fast as ever it poured in, and would sink down and down until it reached some layer that was impermeable. And yet this is not what really happens, greatly though one may at the first onset be tempted to make the assumption, for the bottom and sides of the Karaunelik-köl consist throughout of bare sand of precisely the same character as that of which the overhanging dunes are built up. But then it is only »secondary» sand. If we follow the first filling of a lake-basin such as the Karaunelik-köl, the order of events is as follows. According to what I have endeavoured to prove above, the underlying surface of the desert is to a very small extent undulating, so that everywhere throughout its extent there are