

whole south-east of Russia in Europe by such important rivers as the Volga and the Ural, but it has no outlet. So large is the mass of fresh water poured into it, that the greater part of the lake-water is less salt than that of the ocean, but the results of evaporation are seen in its being relatively more sulphatic. The amount of water supplied to the Caspian balances that lost by evaporation; nevertheless, along the shore in summer much evaporation goes on in lagoons, and the Gulf of Karaboghaz on the east shore may be regarded as a huge evaporating basin, 7500 square miles in area. It is no more than 50 feet in depth, and is connected with the main basin of the Caspian by a channel about 150 yards wide and 5 feet deep. It has been proposed to dam the strait in order to raise the level of the Caspian and to increase its salinity. The Gulf is situated in a warm region, and loses so much water by evaporation that its level is always lower than that of the Caspian. Consequently a current from the latter is continually flowing in, while there is no compensating under-current outwards. The salinity of the water is about 16 per cent., and Baer¹ estimated that 350,000 tons of salt were carried in daily; fish which enter the Karaboghaz from the Caspian are killed and naturally salted, and, it is said, supply food to the wandering tribes along its shores, who dig them out of the precipitated salt. The bottom of the Gulf is flat, and is covered in the central part over an area of about 1300 square miles by a bed of sodium sulphate (Glauber's salt), while in other parts calcium sulphate (gypsum) and mud are found.

It appears from the researches of Filippoff that during the years 1851-88 the level of the Caspian thrice stood at a maximum, the total range of the oscillations being $3\frac{1}{2}$ feet. Besides these changes, there are also the seasonal ones (lowest level in January, highest in summer). Observations were made in 1904 by means of the Ekman apparatus on the currents in the Caspian, and showed that in the northern part there is a surface current flowing along the west coast towards the south; in the central part the current takes the same direction; sweeping round the southern shore, the current returns to the north along the eastern coast, almost to the peninsula of Manguichlague, where it deviates to the west to join that on the Caucasian coast.

Life, with the exception of bacteria, is absent in the deepest parts of the Caspian Sea. An oligochæte worm was got at a depth of about 1300 feet, but below that is an abyssal area totally destitute of life. This is due, not as in the case of the Black Sea to the presence of hydrogen sulphide, but to the scarcity of oxygen in the deep layers arresting the development of life. About 64 per cent. of the fauna

¹ Cited by Geikie, *op. cit.*, p. 383.