

lake or marsh of Baskunchatski, nearer the Volga, thousands of tons of salt are annually obtained.

**Sea of Aral**, once united to the Caspian Sea, but now lying about 246 feet above it, fills another of the hollows in the vast depression between the European and Asiatic high grounds. It is a lake of brackish water lying about 160 feet above the level of the sea, and 265 miles long, 145 miles broad, and with an area of about 24,400 square miles; the maximum depth is 222 feet, the mean depth 52 feet, while the volume of water is estimated at 36,744,000 million cubic feet. On the south the Amudaria (Oxus) carries into it the drainage from the northern slopes of the Hindu Kush Mountains, and on the east the Syrdaria (Jaxartes) brings down supplies of water and mud from the Thian Shan Mountains, the two rivers together delivering on the average about 52,980 cubic feet per second. Most of the water is derived from the melting of mountain snows, the months of maximum flow being June, July, and August.

Berg's expedition<sup>1</sup> of 1899–1902 supplied details, drawn from a consideration of the various measurements that have been made since the first survey of the lake by Admiral Butakoff in 1848, as to the changes in its level, and he made investigations on the temperature of the waters and on the existing life.

In 1848 the level of the water was relatively high, but during the years 1848–1880 it was undoubtedly sinking. Thus Glukhowskoy showed that the level fell 71 centimetres ( $2\frac{1}{4}$  feet) between 1874 and 1880. From 1880 to 1899 no measurements were recorded, but in the latter year Berg found a rise of level in full progress, the water being higher than had ever previously been recorded; and the islands shown on Butakoff's map—which had become peninsulas in 1880—were submerged. Working from Tillo's bench-mark of 1874 at Karatamak, Berg found that the level in 1901 was 1.21 metres (4 feet) above that of 1874; in 1903, 2.75 metres (9 feet); and in 1908, 3 metres ( $9\frac{3}{4}$  feet). The lake being mostly shallow, this rise corresponds to a very considerable increase in area; the increment in volume of water between 1880 and 1908 is estimated at 20 per cent. Berg gives the mean salinity of the water as 10.75 per mille (1.075 per cent.). Compared with analyses made between 1870 and 1880, which yielded an average of over 12 per mille (1.2 per cent.), this shows a marked freshening, due to the increase in the volume of water. Professor Woeikoff showed in 1901<sup>2</sup> that the changes in level are very well explained by the variations in precipitation, as indicated by pluviometric observations made at Barnaul, in West Siberia, since 1838. The annual amount of rainfall diminished from 1838 till 1868, then

<sup>1</sup> See Schokalsky and Schmidt, *op. cit.*, p. 36; *Geogr. Journ.*, vol. xix. p. 503, 1902.

<sup>2</sup> *Petermann's Mitt.*, Bd. xlvii. p. 199, 1901.