

topography of the limestone region south of Lake Onega. These lakes are connected by natural channels, but as the basins are not filled and emptied simultaneously, the direction of flow in the channels changes from time to time. The largest of the lakes, Shimozero, discharges its waters into an underground abyss some 14 miles to the east, and is sometimes completely empty by November. The Dolgozero, at the other end of the system, is drained in a similar manner. These lakes and others in the vicinity, differ from the Lake of Zirknitz¹ (the classical example of an intermittent lake) in not being filled again by the same channel by which they are emptied, but by ordinary above-ground agencies, the process sometimes taking as long as seven years.

Lake Ilmen, which also belongs to the Neva system, is really nothing more than a permanent inundation formed by a large number of rivers which meet at a point whence the outlet is not large enough to carry off the whole of the water. The lake lies at an altitude of 107 feet, and has an area of 358 square miles, being 30 miles in length from east to west by 24 miles in maximum width, but the depth does not exceed 30 feet. Its waters are generally muddy, as are also those of the River Volkov, its outflow, which is the chief affluent of Lake Ladoga. The principal streams meeting in Lake Ilmen are the Shelon, the Lovat, and the Msta, which brings it into communication with the Volga.

River Narova.

Lake Peipus (or Chudskoye) is a triple lake, the northern part of which is Lake Peipus proper, the southern Lake Pskov, and the connecting channel, 40 miles long by 3 to 10 miles wide, Lake Teyloye. The area of the whole lake to the end of Lake Pskov is 1356 square miles,² and the area of the northern portion (Lake Peipus proper) is 1082 square miles. The maximum depth, which was found in Lake Teyloye, is 90 feet, and the altitude is 97 feet above sea-level. It receives the Rivers Velikaya and Embakh, and its outlet is by the Narova to the Gulf of Finland. The area of Lake Peipus has been considerably increased in consequence of the drainage of the surrounding country having been conveyed into it more abundantly, through the construction of 1200 miles of artificial cuttings.

¹ Lake Zirknitz is situated in the Karst region in Austria. For a number of seasons together the bed of the lake may remain quite dry and be used for cultivation, while at other times it is occupied by waters teeming with fish. The underground outlets for the superficial water are sometimes comparatively empty, sometimes overflowing. In the former case the fissures communicating with these periodical lakes serve as channels to lead away the water; in the latter they serve as vents to pour the water on the plain.

² Helmersen, cited by K. Peucker, "Europäische Seen nach Meereshöhe, Grösse und Tiefe," *Geogr. Zeitschr.*, Bd. ii. p. 612, Leipzig, 1896.