

or at a sufficiently high elevation to be out of the reach of the sea, although to this they plainly owe their origin. Some of the larger lakes were quite fresh and probably of glacial origin, but others, which must at one time have had connection with the sea, probably contained some salt or brackish water in their deeper parts although their surface water was quite fresh.

The shallow lagoon ponds owe their water content partly to melted snow but principally to the influx at high tide. The sandy or gravelly beach surrounding them is saturated with sea water; and the more shallow and smaller of them completely dry out by the end of summer. The presence of salt in the lagoon ponds is thus easily accounted for. The ponds are frozen solid for nine months of the year and thaw in summer at the same time as the ice along the seashore.

Of especial interest are two brackish ponds which belong to the second type mentioned above, viz.: (1) a tundra pond between a large lake and the sea at Teller, Alaska (Port Clarence bay), and (2) a more open pond situated at the end of the bay at Bernard harbour, N.W.T.

The tundra pond represents a remnant of the outlet which in earlier times at high tide connected the large lake nearby with Grantley harbour (Port Clarence bay). The bed of this outlet, except for a deep hole which is now the tundra pond, filled with sand and in the course of time became overgrown with a swamp vegetation. The locality was visited by the expedition for two weeks in August, 1913, and the pond was then quite free of ice. Its brackish nature was determined simply by tasting the water. In the collections from the pond, excluding diatoms, there were 14 species of freshwater algae.

The large lake, referred to in the previous paragraph, represents a former lagoon connected with Grantley harbour. Its surface and marginal waters were tested and found to be quite fresh, although its deeper parts were probably brackish. Marine diatoms were found in the deposits from the bottom of this lake.

The brackish pond at Bernard harbour is situated out of reach of the sea at an elevation of about 10 feet and about 25 yards inland from high-tide marks on the beach, and on a gravel flat. The pond proper is represented by a deeper hole, which is 3 to 4 feet deep in the middle and rises rather abruptly to a broad belt of shallow marginal water not exceeding one foot in depth. The bottom of the hole contains mud which smells strongly of sulphuretted hydrogen. The bottom of the shallower margin is composed of light brown mud and stones with many green thread algae (*Enteromorpha crinita* and *E. intestinalis*). When the melting of the pond begins, water is formed on the surface and the shallow marginal water becomes ice-free, whilst the deeper part (over 1 foot) is solid ice (May 5, 1916). By the middle of June (1916) the pond was completely ice-free and had considerably increased its expanse owing to the inflow of fresh water produced from the snow which had melted on the tundra slopes behind. The pond still overflowed into a nearby bay of the sea by means of a small creek. Toward the second week of July (1915), owing to evaporation, the horizontal expanse of the pond had diminished, and all that remained of the overflow were a few small waterholes in the creek bed. A month later, this evaporation had progressed still further and the pond was practically limited to the deeper hole in the centre, the rest being flats and swamps with a *Carex subspathacea* vegetation. At the end of September (1915), the ice had become more than 1 foot thick. At this time, therefore, the marginal water was completely frozen. The temperature of the water beneath the ice was found to be 30.2° F. at 2 p.m. September 23, 1915 (atmospheric temperature 26.8° F.).

It is an interesting fact that, in spite of the limited size of these two ponds (Teller, Alaska, and Bernard harbour) and of the great influx of melting fresh water in the early summer, the water in the ponds keeps distinctly brackish. Mr. Johansen gives the following reasons for this: (1) the ponds actually represent bays of the sea, isolated by an elevation of the beach line in comparatively recent times, so that the surrounding soil is impregnated more or less with saline matter; and (2) in the spring a large volume of melting water spreads out over