

and at a considerably lower elevation, reaching a maximum height of about 1700 feet above the sea. In the vicinity of Kamloops Lake and in the South Thompson and Okanagan valleys, it is well shown, generally forming the first terraces above the rivers. In origin it is probably, like that of the Nechaceo region, a deposit from the turbid waters flowing from glaciers at a time when these had a considerable extension from the various mountain-ranges. At this time, either from general depression of the land, or the damming of the valleys by ice or moraines, a system of winding water-ways, lakes or fiords, must have occupied the main valleys. The heads of these valleys in the Gold ranges still hold long and deep lakes, on the banks of which, where they have been examined (more particularly in the Shuswap region), drift deposits are comparatively unimportant, and the white silts are not found. The fine silty material must have been deposited in somewhat tranquil waters; but it appears difficult to explain its absence from the valleys on the flanks of the Gold ranges. It may be suggested that the currents in the upper parts of the valleys were so strong as to prevent the deposition of the silt; but, apart from the difficulty found in supposing such great bodies of water as the valleys must have held at this time to be in rapid motion, there is no such sudden widening in the valleys at the points at which the silt commences as might account for the slackening of the current.

It is perhaps on the whole most probable that the basins now occupied by the Shuswap lakes and others in a like position were filled with glacier-ice, from which the water flowed down the long valleys, while the abrasion of the rocky beds of the glaciers supplied in large quantity the material of the silt deposits. From the height at which the silts occur, their greater coarseness in the lower part of the Okanagan valley, and the evidence of current-action in that valley near Osoyoos Lake, it is probable that this depression has served as the main outflow of the white-silt lake or sound. At the last it would appear that the glaciers retreated with considerable rapidity, becoming extinct or dwindling to nearly their present size, and leaving the upper portions of the valleys which penetrate the Gold ranges almost free from debris and ready to form the basins of the lakes which now generally occupy them.

The explanation here adopted to account for the existence of these lakes will, I believe, be found applicable to many in other parts of British Columbia, and is again referred to on a subsequent page. It is the same advanced by A. Helland for Norwegian lakes*. Whether any of the lakes in the region now in question lie in rock basins of glacial formation has not been determined, as the valleys below their outlets are generally filled to an unknown depth with detrital materials.

Observations north of the 54th parallel in British Columbia.

An exploratory survey of the remote region lying between the 54th and 56th parallels in British Columbia and of part of the

* Quart. Journ. Geol. Soc. xxxiii. p. 165.