

1-1-1982

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## Recommended Citation

Miller, Sarah B., "The surficial geology of the Kezar Falls quadrangle" (1982). *Geology Documents*. 97.  
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Progress

THE SURFICIAL GEOLOGY OF THE KEZAR FALLS QUADRANGLE

SARAH B. MILLER 1982

The glacial deposits in the Kezar Falls Quad - till, sand and gravel, swamp, and alluvium - are considered to be Late Wisconsin to Holocene in age (Thompson 1979). The till, derived from granitic bedrock, is characteristically sandy with few striated stones. It is found on the tops and sides of hills, either buried by sand and gravel or removed by rivers in the valleys. The sand and gravel is derived from both the bedrock and the till and blankets most valley bottoms. It occurs as broad outwash plains (SE Fryeburg), hummocky kames and kettles (Wedgewood and Tenmile Brooks), beaded esker ridges (W Brownfield), or in small mountain pockets (W of Allen Mt.). The gravel in this area is voluminous and current indicators show that it came from ice retreating to the north. The swamps are low, flat areas where the water table intersects the topographic surface (SE Fryeburg) or where groundwater is discharged or perched (W Porterfield). The character of the swamps change with season and precipitation, becoming wetter in the spring thaw and after storms. Alluvium is deposited by rivers after the retreat of the ice, so it consists largely of reworked glacial drift. The Saco and Ossippee Rivers have <sup>used to be</sup> risen at least 25' above their present level and have <sup>since</sup> cut steep terraces in the softer sediments at their banks, especially between Kezar Falls and Cornish. In areas of thin drift, bedrock outcrops and occasionally, glacial striations can be seen (W of Denmark) which indicate an ice flow direction between S3°E and S45°E.

The glacial landscape of the Kezar Falls area is marked with some classic features. When the powerful ice sheet moved over the land, it abraded the granite peaks into "roche moutonnées" and streamlined till hills into "drumlins". Whalesback and Rattlesnake Mountains are good examples of roche moutonnées and the island SW of Lovewell Pond is a small drumlin. Where isolated blocks of

glacial ice melted from beneath outwashed sediment, "kettle holes" were left. Many of Maine's lakes are kettles, specifically Trafton and Spectacle Ponds. Within the remnant ice blocks, large crevasses filled in with drift and were left as small peninsulas like the ones on the west shore of Stanley Pond. An unusual feature .3 miles SW of W Brownfield is a "clastic dike". This formed when rapidly deposited gravel caused catastrophic dewatering of the underlying sand up through the gravel. The resulting dike looks like a sand chimney in a gravel wall and provides evidence for a very unstable proglacial sedimentary environment.

The gravel in the Kezar Falls Quad, as in most other glaciated areas, furnishes building material for local construction and is a major source of revenue. The kettle lakes and sandy rivers are beautiful vacation spots for both natives and tourists, providing both economic and aesthetic value for the State.