Maine Geological Survey
DEPARTMENT OF CONSERVATION
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OPEN-FILE NO. 79-21

Title: Preliminary Report on the Surficial Geology of the Sherman, Mattawamkeag Lake, and the Northern Half of the Mattawamkeag and Wytopitlock Quadrangles, Maine

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Date: 1979

Financial Support: Preparation of this report was supported by funds furnished by a 208 Water Quality Planning Grant from the Maine Department of Environmental Protection and the U.S. Environmental Protection Agency.

This report is preliminary and has not been edited or reviewed for conformity with Maine Geological Survey standards.

Contents: 3 page report

Topography. The study area with an available relief of approximately 600 feet constitutes a portion of a dissected upland plateau that extends through northern Maine and adjacent New Brunswick. To the southeast the land slopes gently to the Maine and New Brunswick coast. This portion of the plateau is underlain by steeply dipping northeastward trending Paleozoic formations of metamorphosed siltstone, shale, sandstone, graywacke, and conglomerate. The northern portions of Mattawamkeag Lake and adjacent ridges are underlain by granite. Northeastward trending ridges dominate the topography. Approximately one-third of the map area is underlain by swamp.

Glacial Till. A veneer of coarse, stony, glacial till blankets most of the area and fills or partly fills the river valleys. Most of the major rivers have downcut through this till and flow in large part over bedrock; however, the valley sides are still covered by glacial till and many of the minor tributaries flow entirely on till.

The glacial till contains primarily locally derived angular to subangular metasedimentary clasts with subordinate amounts of granite derived from plutons to the north-northwest. Northward toward Mattawamkeag Lake increasing amounts of granite are found in the till.

Along logging roads and stream valleys the till mantle is very thin, often less than four feet thick. The most continuous till exposure is along highway I-95 where till thicknesses range from two feet to greater than forty feet. Tills exposed below an elevation of 380 feet between Bancroft and Wytopitlock have a tendency to be sandy and often exhibit crude stratification.

A small moraine complex, ranging in height from 10 to 50 feet above the adjacent swampy lowland, extends northeastward across Macwahoc Stream approximately 1.7 miles south of the Lower Macwahoc Lake outlet. An other small northeastward trending moraine segment is located on the south side of a ridge approximately nine-tenths of a mile due north of Sherman Mills.

Stratified Drift. Well sorted, loosely packed, cobbly to bouldery gravel and crudely stratified, coarse sand and cobbly gravel is found to some amount in every valley of the investigated area. A major esker extends through the Thousand Acre Bog and down the Molunkus Stream Valley. Other notable esker systems trend down the Salmon Stream Valley and the East and West Branch of the Penobscot River Valleys. These eskers rise 30 to 40 feet above the adjacent terrain and contain folded and faulted lenses of cobbly to bouldery gravel interbedded with coarse to medium sand. One unnamed esker system extends southward across the trend of the Mattawamkeag River Valley approximately 1.7 miles northeast of Bancroft. Similar eskers extend southeastward along the valleys of the East and West Branches of the Mattawamkeag River. The Salmon River esker and the Molunkus Stream esker adjacent the Thousand Acre Bog have been excavated for construction along highway I-95. A small zone of outwash occurs north of Peasley Brook in Patten.

Along the Mattawamkeag River Valley are 10- to 20-foot thick, well sorted, cobbly gravel and interbedded sand terraces that occasionally reveal truncated foreset beds. This structure may be a kame terrace with included deltas or it may be a proglacial or marine beach deposit.

Interpretation. Striae, rock drumlins, and craig-and-tail structures indicate late Wisconsinan ice-flow was south-southeastward. Deglaciation was accomplished by stagnation and downwasting. Meltwater generally flowed along southeastward trending topographic valleys beneath the receding ice sheet and formed extensive esker

systems. A kame terrace origin may account for the gravel and sand terraces in the Mattawamkeag River Valley but it is also conceivable that similar structures could have formed along a proglacial lake or a marine shoreline.

Future Investigation. The gravel terrace along the Mattawamkeag River Valley may represent the upper marine limit in the Wytopitlock Quadrangle. Its elevation of approximately 350 feet is not in disagreement with the elevation of known marine sediments in the Millinocket Quadrangle. A detailed investigation along the Mattawamkeag River that would include an intense search for fossiliferous marine clays should be made to confirm or reject a marine origin for these sediments. The Sherman Quadrangle appears to be a transitional zone between an extensive moraine complex to the west and a region of few identifiable moraines to the east. This transitional zone should be mapped in greater detail in order to shed light on the nature of ice recession in north central Maine.