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Field Trips in West-Central Maine – Introduction

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GUIDEBOOK

for

THE FIFTY-SECOND ANNUAL MEETING

of the

NEW ENGLAND INTERCOLLEGIATE

GEOLOGICAL CONFERENCE

FIELD TRIPS IN WEST-CENTRAL MAINE

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Editors

Rumford, Maine

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FIELD TRIPS IN WEST-CENTRAL MAINE*

INTRODUCTION

By

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West-central Maine is underlain by metamorphosed and highly deformed Paleozoic sedimentary and volcanic rocks which are intruded by several Devonian plutons ranging in composition from granite to gabbro. Thick Pleistocene deposits cover much of the bedrock. Stratigraphic correlation of rock units is difficult as a result of: complex structure, sedimentary facies changes, metamorphic facies changes, and interruptions of continuity by the Devonian age plutons. The field trips which discuss these bedrock problems will traverse the following quadrangles in west-central Maine: Stratton (Trip A), Rangeley and Phillips (Trip B), and Old Speck Mountain (Trip D).

Structural interpretations are in some cases tentative where stratigraphic relationships are not completely worked out. Folding of all orders of magnitude is present and isoclinal folding is common. Wolfe (Trip B) considers faulting to be of major importance in the Rangeley and Phillips quadrangles.

In the area of trips A and B the metamorphosed sedimentary rocks range in metamorphic grade from chlorite to staurolite zone. Aureoles of higher grade metamorphism surround the Devonian plutons. In the area of Trip D the grade of regional metamorphism increases to the sillimanite zone. The plutons appear to be at least partly syntectonic in the high grade zones of regional metamorphism and are primarily post-tectonic in the low grade zones of regional metamorphism. The orogeny and metamorphism are primarily of Devonian age.

Trip A (Griscom) traverses the northern portion of the area in the Stratton quadrangle and demonstrates a sequence of rock units which can be correlated in a general way with the lower Paleozoic stratigraphy of the Moosehead Lake area (Boucot, Griscom, Allingham, and Dempsey, 1960). Trip D (Milton) traverses the Old Speck Mountain quadrangle. Milton informally extends the New Hampshire stratigraphy (Billings, 1956) northeastward from the fossil-dated rocks in the general locality of Littleton and Mt. Moosilauke. This approach involves a correlation over a distance of fifty miles along which intrusive rocks and structural complication preclude direct tracing of rock units. Trip B (Wolfe) traverses an area in between trips A and D. Here a tentative stratigraphic sequence has been established which as yet cannot be clearly related to either the New Hampshire or the Moosehead Lake sequences.

Pegmatite dikes cut the metamorphic and igneous rocks, being especially abundant in the Rumford area. Trip E. (Peacor) will visit the pegmatites

* Publication authorized by the Director, U.S. Geological Survey

The late Pleistocene and Recent events in west-central Maine are investigated in the Farmington area on trip C (Caldwell). This trip includes a visit to a pre-Wisconsin Pleistocene till which is believed to be unique in New England .

In both central New Hampshire and the Mooshead Lake area the lower Paleozoic stratigraphic column may be generalized as follows: a diverse assemblage of pre-Silurian sedimentary and volcanic rocks, calcareous sedimentary rocks being scarce; fossiliferous Silurian limey rocks and sandstone with occasional conglomerates, often resting unconformably upon the older rocks; dark gray slates and sandstones of Early Devonian age sometimes with interbedded volcanic rocks but rarely containing limey rocks. The rock units in the Stratton quadrangle (Trip A) fit into the above sequence. Possible correlations of certain rocks in the Rangeley and Phillips quadrangles (Trip B) with the generalized sequence are: arenaceous and calcareous rocks seen near Madrid, Maine, with the Silurian limey rocks; gray siltstones and sandstones seen near Dyer Hill, Maine with the Early Devonian gray slates. The lack of volcanic rocks in the area of trip B may indicate that an incomplete section of pre-Silurian rocks is exposed, because there is a considerable thickness of pre-Silurian volcanic rocks to the north (Trip A) and southwest (Trip D). The Silurian calcareous units are apparently absent in the area of Trip D, but the various metamorphosed sedimentary and volcanic formations can be provisionally assigned an Ordovician to Devonian age. It is presently impossible to correlate clearly with each other all the rock units in the areas traversed by Trips A, B, and D but a few possibilities have been suggested above.

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