



Geologic map of Lower Matanuska Valley, Alaska, showing various geological formations, faults, and topographic features. The map includes an index map, a section along line A-A, and an explanation of symbols and colors used on the map.

**INTRODUCTION**

The first detailed geologic mapping in the lower Matanuska Valley of south-central Alaska was done in 1910 by Martin and Katz (1912), who recognized the principal structural features and stratigraphic units and described and sampled many coal beds. Since that time much new information has become available as a result of mine development and detailed geologic investigations of the more promising coal deposits. A report by Capps (1927) extended detailed geologic mapping from the Chickaloon River eastward to the limits of the Matanuska coal field and also covered the southern margin of the field east of Kings Mountain. In 1925-26 a reconnaissance of the area between the Knik and Matanuska rivers by Landes (1927) revealed the presence of a belt of Tertiary rocks containing some coal along the south side of the Matanuska Valley northeast of Wolverine Creek. An investigation of the coal deposits of the Wishbone Hill district by Barnes and Payne (1956) resulted in a large-scale detailed map of the area between Moose and Eeka Creeks, and later work by Barnes in 1956 and 1958 extended the mapping eastward to include the Knob Creek area. Detailed mapping of the Little Sustina district in 1952-53 (Barnes and Sokol, 1959) extended into the northwest corner of the present map area.

The present map was prepared in order to present, on a modern topographic base, the latest and most complete information on the character, distribution, structure, and relations of the coal-bearing Chickaloon formation and associated rocks of the Matanuska coal field. As many parts of the field were known only from brief geologic reconnaissance, the writer, assisted by N. C. Blake, spent about 5 weeks in 1960 mapping these little-known areas and field checking critical localities in other parts of the coal field. Helicopters, available on charter from Anchorage, were used to reach many widely scattered and remote localities and for aerial reconnaissance. The resulting map, together with maps of the upper Matanuska Valley to the east (Capps, 1927, pl. 2; Waring, 1926, pls. 7, 8) and of the Little Sustina district to the west (Barnes and Sokol, 1959, pl. 7) provides detailed (1:63,360) geologic map coverage of the entire Matanuska coal field.

Compilation of the present map involved in large part the transfer, with some revisions, of geologic data from the older maps to the new base maps (U. S. Geol. Survey 1:63,360 series, 1951, 1952). The principal revision of earlier mapping consisted of showing as bedrock only those areas where the structure of the underlying formation could be reliably inferred either from outcrops or from surface expression. Consequently several areas, such as the lowlands between the Kings and Chickaloon rivers, which appear as bedrock on the older maps (Martin and Katz, 1912, p. 5) but which aerial reconnaissance and study of aerial photographs show to be deeply covered with glacial deposits, are shown as Quaternary on the present map. As it was not feasible to attempt to trace the boundaries between stream, terrace, and glacial deposits in all parts of the area, they are shown as a single unit.

**INDEX TO MAPPING**

- 1. Geology by F. F. Barnes, 1962
- 2. Geology by F. F. Barnes, 1959
- 3. Geology by C. C. Martin and F. J. Katz, 1912, modified by F. F. Barnes, 1962
- 4. Geology by F. F. Barnes, 1956 and 1958
- 5. Geology by F. F. Barnes and C. C. Martin, 1954-55
- 6. Geology by F. F. Barnes, 1960

**INDEX MAP OF ANCHORAGE DISTRICT, SHOWING EXTENT OF GEOLOGIC MAPS OF THE MATANUSKA COAL FIELD, LITTLE SUSTINA DISTRICT (U.S.), LOWER MATANUSKA VALLEY (U.S.), AND UPPER MATANUSKA VALLEY (U.S.)**

INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE

**INDEX TO MAPPING**

- 1. Geology by F. F. Barnes, 1962
- 2. Geology by F. F. Barnes, 1959
- 3. Geology by C. C. Martin and F. J. Katz, 1912, modified by F. F. Barnes, 1962
- 4. Geology by F. F. Barnes, 1956 and 1958
- 5. Geology by F. F. Barnes and C. C. Martin, 1954-55
- 6. Geology by F. F. Barnes, 1960

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**SECTION ALONG LINE A-A'**



**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**UNMAPPED AREAS**

UNMAPPED AREAS

**INDEX TO MAPPING**

- 1. Geology by F. F. Barnes, 1962
- 2. Geology by F. F. Barnes, 1959
- 3. Geology by C. C. Martin and F. J. Katz, 1912, modified by F. F. Barnes, 1962
- 4. Geology by F. F. Barnes, 1956 and 1958
- 5. Geology by F. F. Barnes and C. C. Martin, 1954-55
- 6. Geology by F. F. Barnes, 1960

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX TO MAPPING**

- 1. Geology by F. F. Barnes, 1962
- 2. Geology by F. F. Barnes, 1959
- 3. Geology by C. C. Martin and F. J. Katz, 1912, modified by F. F. Barnes, 1962
- 4. Geology by F. F. Barnes, 1956 and 1958
- 5. Geology by F. F. Barnes and C. C. Martin, 1954-55
- 6. Geology by F. F. Barnes, 1960

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX TO MAPPING**

- 1. Geology by F. F. Barnes, 1962
- 2. Geology by F. F. Barnes, 1959
- 3. Geology by C. C. Martin and F. J. Katz, 1912, modified by F. F. Barnes, 1962
- 4. Geology by F. F. Barnes, 1956 and 1958
- 5. Geology by F. F. Barnes and C. C. Martin, 1954-55
- 6. Geology by F. F. Barnes, 1960

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX TO MAPPING**

- 1. Geology by F. F. Barnes, 1962
- 2. Geology by F. F. Barnes, 1959
- 3. Geology by C. C. Martin and F. J. Katz, 1912, modified by F. F. Barnes, 1962
- 4. Geology by F. F. Barnes, 1956 and 1958
- 5. Geology by F. F. Barnes and C. C. Martin, 1954-55
- 6. Geology by F. F. Barnes, 1960

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX TO MAPPING**

- 1. Geology by F. F. Barnes, 1962
- 2. Geology by F. F. Barnes, 1959
- 3. Geology by C. C. Martin and F. J. Katz, 1912, modified by F. F. Barnes, 1962
- 4. Geology by F. F. Barnes, 1956 and 1958
- 5. Geology by F. F. Barnes and C. C. Martin, 1954-55
- 6. Geology by F. F. Barnes, 1960

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX TO MAPPING**

- 1. Geology by F. F. Barnes, 1962
- 2. Geology by F. F. Barnes, 1959
- 3. Geology by C. C. Martin and F. J. Katz, 1912, modified by F. F. Barnes, 1962
- 4. Geology by F. F. Barnes, 1956 and 1958
- 5. Geology by F. F. Barnes and C. C. Martin, 1954-55
- 6. Geology by F. F. Barnes, 1960

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX TO MAPPING**

- 1. Geology by F. F. Barnes, 1962
- 2. Geology by F. F. Barnes, 1959
- 3. Geology by C. C. Martin and F. J. Katz, 1912, modified by F. F. Barnes, 1962
- 4. Geology by F. F. Barnes, 1956 and 1958
- 5. Geology by F. F. Barnes and C. C. Martin, 1954-55
- 6. Geology by F. F. Barnes, 1960

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX TO MAPPING**

- 1. Geology by F. F. Barnes, 1962
- 2. Geology by F. F. Barnes, 1959
- 3. Geology by C. C. Martin and F. J. Katz, 1912, modified by F. F. Barnes, 1962
- 4. Geology by F. F. Barnes, 1956 and 1958
- 5. Geology by F. F. Barnes and C. C. Martin, 1954-55
- 6. Geology by F. F. Barnes, 1960

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX TO MAPPING**

- 1. Geology by F. F. Barnes, 1962
- 2. Geology by F. F. Barnes, 1959
- 3. Geology by C. C. Martin and F. J. Katz, 1912, modified by F. F. Barnes, 1962
- 4. Geology by F. F. Barnes, 1956 and 1958
- 5. Geology by F. F. Barnes and C. C. Martin, 1954-55
- 6. Geology by F. F. Barnes, 1960

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX TO MAPPING**

- 1. Geology by F. F. Barnes, 1962
- 2. Geology by F. F. Barnes, 1959
- 3. Geology by C. C. Martin and F. J. Katz, 1912, modified by F. F. Barnes, 1962
- 4. Geology by F. F. Barnes, 1956 and 1958
- 5. Geology by F. F. Barnes and C. C. Martin, 1954-55
- 6. Geology by F. F. Barnes, 1960

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX TO MAPPING**

- 1. Geology by F. F. Barnes, 1962
- 2. Geology by F. F. Barnes, 1959
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- 4. Geology by F. F. Barnes, 1956 and 1958
- 5. Geology by F. F. Barnes and C. C. Martin, 1954-55
- 6. Geology by F. F. Barnes, 1960

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX TO MAPPING**

- 1. Geology by F. F. Barnes, 1962
- 2. Geology by F. F. Barnes, 1959
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- 4. Geology by F. F. Barnes, 1956 and 1958
- 5. Geology by F. F. Barnes and C. C. Martin, 1954-55
- 6. Geology by F. F. Barnes, 1960

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX TO MAPPING**

- 1. Geology by F. F. Barnes, 1962
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- 5. Geology by F. F. Barnes and C. C. Martin, 1954-55
- 6. Geology by F. F. Barnes, 1960

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOWING LOCATION OF ANCHORAGE QUADRANGLE**

**INDEX MAP OF ALASKA, SHOW**