

EXPLANATORY NOTE:
The U. S. Geological Survey (Geological and structural studies in the southern part of the Koyukuk-Cretaceous basin in 1946-1948, July and August, 1948, the lower Yukon River was traversed by Lake between Ruby and Malina. All outcrop exposures were examined in detail.

Stratigraphy
The rocks of Cretaceous age which are exposed along the Yukon River have been subdivided into the Malina, Cretaceous and the Malina, Malina, and Ruby formations by G. W. Martin (U.S.G.S., Bull. Geol. Surv., 1911, p. 77). In the present report, two different sequences of Cretaceous rocks are recognized: a lower facies and an interior facies. Each facies is tentatively subdivided into unmetamorphosed units. The lower facies occurs along the subaquatic margin of the Koyukuk-Cretaceous basin. It crops out on the north bank of the Yukon River between the Malina and Ruby rivers and also six to ten miles below the Ruby River. The interior facies crops out below the south of the Yukon River in the central part of the basin. The lower facies is believed to grade into the Malina facies but a precise correlation is not yet possible because the two facies apparently are in fault contact.

Marine mollusks
Marine mollusks from the lower and middle units of the interior facies have been assigned a late Early Cretaceous age by R. W. Taylor based principally on the occurrence of *Thracia* and *Urosalpinx* and *Succinea* sp. That mollusks from the upper unit of the interior facies are of late Cretaceous age according to R. W. Brown.

Structure
The Cretaceous rocks trend north-southward and, in places, are completely folded and faulted. The structure sections along the north and west banks of the Yukon River between A and K were plotted in the field at a scale of 1:10,000. They have been generalized and reduced to the present scale, and smaller faults and folds, which were found at many of the outcrops, have not been shown. Only a few of the strikes and dips that were recorded in the field are used in preparing the structure sections. The sections are shown on the geologic map.

EXPLANATION

- Unconsolidated deposits
Silt, sand, and gravel
- igneous rock
Porphyry intrusive
- CONTACT
Strike and dip of beds
Interpretation of aerial photographs
- Strike and dip of overturned beds
Field observation
- Strike and dip of beds
Field observation

BORDER FACIES
Includes most of the rocks exposed along the north bank of the Yukon River between the Malina and Ruby rivers and the southern margin of the Koyukuk-Cretaceous basin.

Upper and Lower undifferentiated
Kb Upper unit
Vesicular, blocky, to massive, siliceous, and gray, ferruginous, in places calcareous, mica, siltstone, sandstone, and conglomerate. Sandstone is fine to coarse grained, rarely pebbly in places. Ferruginous, subordinate and dark-gray siltstone, conglomerate, and sandstone. Thought to be chiefly nonmarine in origin.

Lower unit
Kbl
Mostly greenish-gray, graywacke conglomerate and sandstone. Siltstone, calcareous sandstone, and mica and quartzite. Contains abundant rounded pebbles and chert. Some quartzite, gneiss, slate, and shale. In places, subordinate sandstone and siltstone, dark-gray and locally calcareous. Subangular pebbles of chert, quartz, and siltstone in a heavy, shaly matrix. Contains pebbles of siltstone, sandstone, and mica. Probably largely of marine origin.

Upper, Middle, and Lower units undifferentiated
Ki
Mostly sandstone, near top dominantly calcareous to medium gray, fine to medium-grained, tight-bedded, cross-bedded, and shaly. In places, calcareous, mica, and siltstone. Subordinate dark-gray siltstone and sandstone. Grades into upper Malina. Marine mollusks abundant. Distal marine origin.

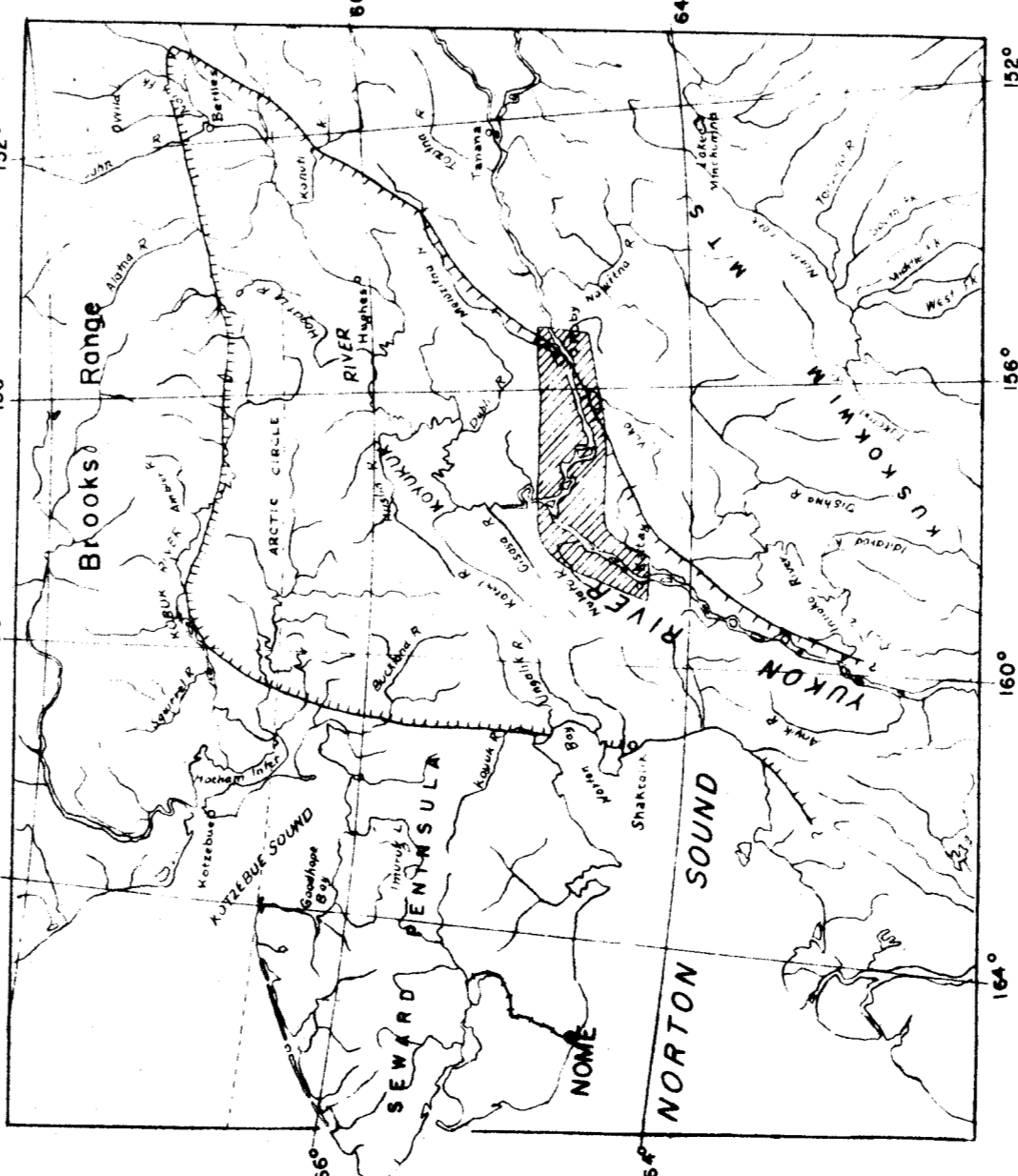
Upper unit
Kiu
Mostly calcareous, siliceous, and siltstone. Siltstone is calcareous, near top, fine to coarse-grained, tight-bedded, locally friable, tight-bedded, and shaly. In places, calcareous, mica, and siltstone. Subordinate dark-gray siltstone and sandstone. Contains pebbles of siltstone, sandstone, and mica. Thought to be chiefly nonmarine in origin.

Lower unit
Kil
Mostly calcareous, siliceous, and siltstone. Siltstone is calcareous, near top, fine to medium-grained, tight-bedded, and shaly. In places, calcareous, mica, and siltstone. Subordinate dark-gray siltstone and sandstone. Grades into middle unit. Marine mollusks abundant. Distal marine origin.

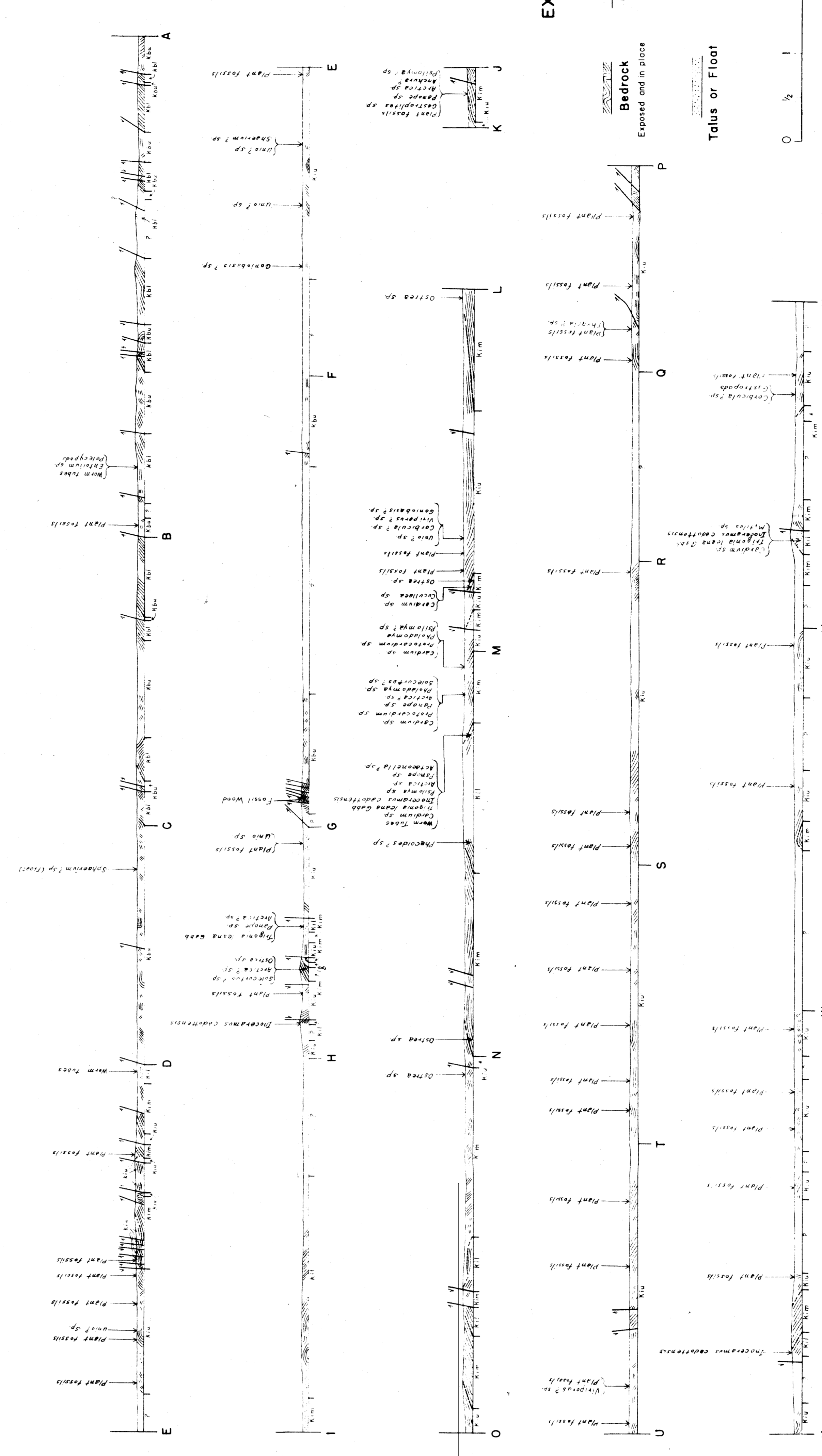
INTERIOR FACIES
Includes most of the rocks exposed along the north and west bank of the Koyukuk-Cretaceous basin.

Upper unit
Kim
Mostly calcareous, siliceous, and siltstone. Siltstone is calcareous, near top, fine to medium-grained, tight-bedded, and shaly. In places, calcareous, mica, and siltstone. Subordinate dark-gray siltstone and sandstone. Grades into upper Malina. Marine mollusks abundant. Distal marine origin.

Lower unit
Kil
Mostly calcareous, siliceous, and siltstone. Siltstone is calcareous, near top, fine to medium-grained, tight-bedded, and shaly. In places, calcareous, mica, and siltstone. Subordinate dark-gray siltstone and sandstone. Grades into middle unit. Marine mollusks abundant. Distal marine origin.



INDEX MAP
approximate border of Koyukuk-Cretaceous basin
area covered by this report



STRUCTURE SECTIONS ALONG NORTH AND WEST BANKS OF YUKON RIVER

PRELIMINARY GEOLOGIC MAP AND STRUCTURE SECTIONS
ALONG A PART OF THE
LOWER YUKON RIVER, ALASKA

by
William W. Patton, Jr. and Robert S. Bickel
1955

