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✓ UNITED STATES
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✓ GEOLOGICAL SURVEY

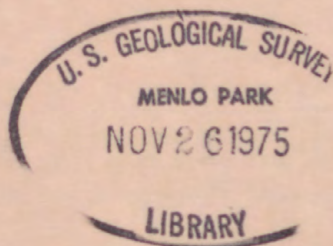
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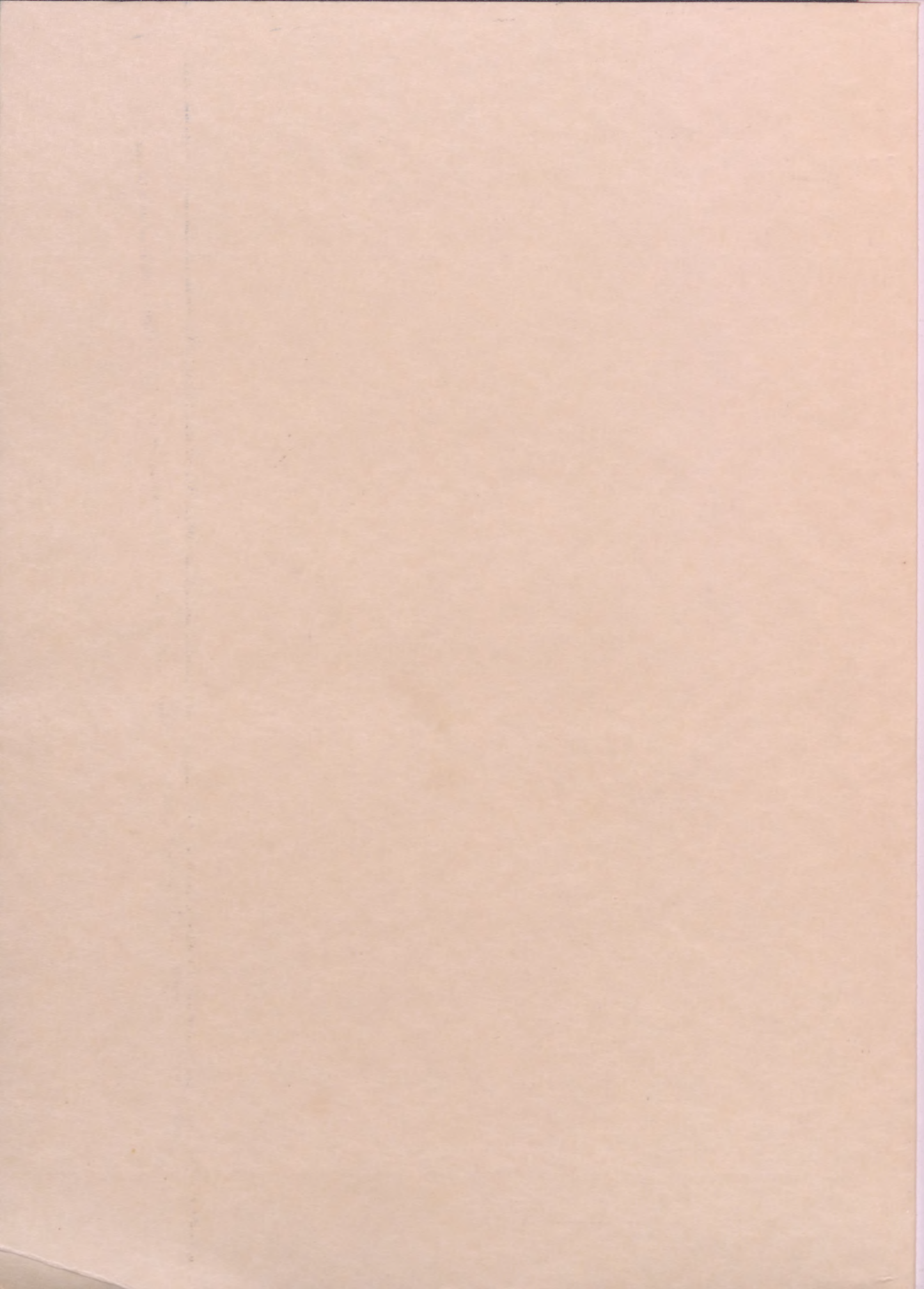
EXPLANATION AND SOURCES OF DATA FOR
PRELIMINARY GEOLOGIC MAP OF EAST
HALF OF VERNAL 1° X 2° QUADRANGLE,
COLORADO

by

Ogden Tweto

1975





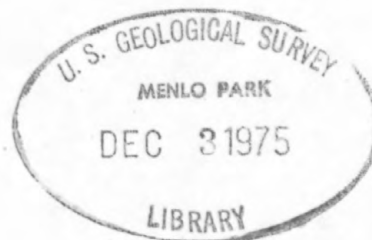
UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

(200)
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Explanation and Sources of Data for
Preliminary Geologic Map of East
Half of Vernal 1°x2° Quadrangle,
Colorado

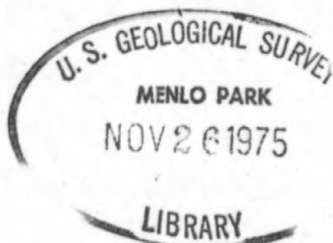
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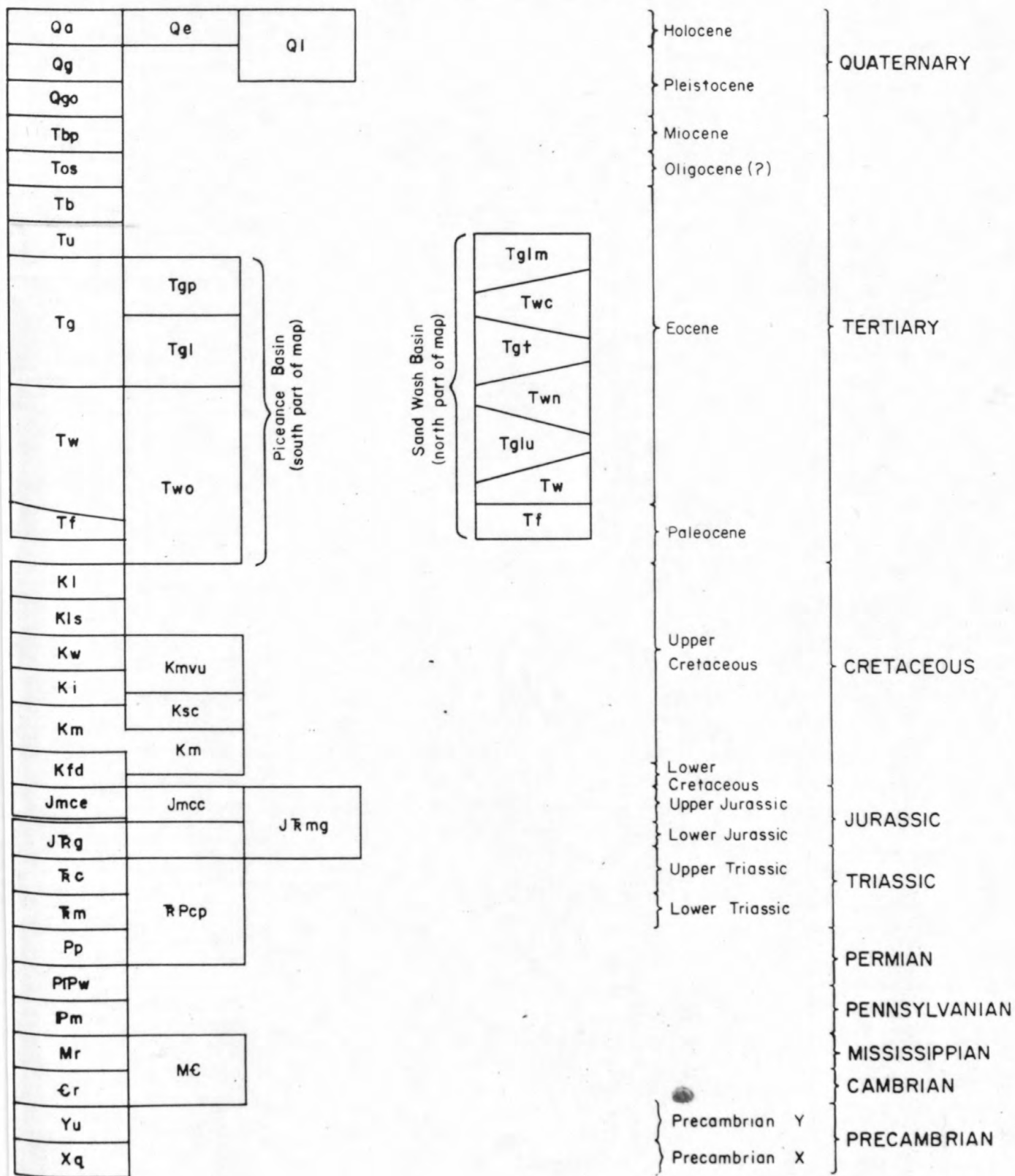
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1975

Released: 11/75

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



CORRELATION OF MAP UNITS



DESCRIPTION OF MAP UNITS

(Formations for which no symbols are shown are grouped with other stratigraphic units to form map units)

UNCONSOLIDATED HOLOCENE DEPOSITS

Qa Alluvium--Gravel, sand, and silt in stream valleys

Qe Eolian deposits--Windblown sand and silt

Ql LANDSLIDE DEPOSITS (HOLOCENE AND PLEISTOCENE)--Mixtures derived from various bedrock and surficial units

UNCONSOLIDATED PLEISTOCENE DEPOSITS

Qg Young gravels (Bull Lake and younger)--Terrace gravels

Qgo Old gravels and alluviums (pre-Bull Lake)--High-level terrace and pediment gravels

Tbp BROWNS PARK FORMATION (MIOCENE)--Loosely consolidated sandstone, siltstone, and volcanic ash

Tos OLIGOCENE(?) SEDIMENTARY ROCKS--Includes Bishop Conglomerate and Duchesne River Formation (sandstone and shale)

Tb BRIDGER FORMATION (EOCENE)--Sandstone and claystone; conglomerate at base

Tu UINTA FORMATION (EOCENE)--Sandstone and claystone

Tg GREEN RIVER FORMATION (EOCENE)
Green River units distinguished only in south part of map (Piceance Basin)

Tgp Parachute Creek Member--Marlstone and oil shale

Tgl Lower part--Shale, siltstone, and sandstone
Green River units distinguished in north part of map (Sand Wash Basin):

Tglm Laney Member--Claystone, oil shale, and sandstone

Tgt Tipton Tongue--Claystone, oil shale, and sandstone.
Includes wedge of overlying Wilkins Peak Member in northwest corner of map

Tglu Luman Tongue--Siltstone, sandstone, and oil shale

Tw WASATCH FORMATION (EOCENE IN SAND WASH BASIN; EOCENE AND
PALEOCENE IN PICEANCE BASIN)--Shale, mudstone, sandstone,
and conglomerate

Twc Cathedral Bluffs Tongue

TwN Niland Tongue

Tf FORT UNION FORMATION (PALEOCENE)--Shale, sandstone, and coal

OHIO CREEK FORMATION (PALEOCENE)--Sandstone and conglomerate

Two Wasatch Formation (including a thin Fort Union equivalent
at base) and Ohio Creek Formation

Kl LANCE FORMATION (UPPER CRETACEOUS)--Shale and sandstone;
minor coal

Kls LEWIS SHALE (UPPER CRETACEOUS)--Marine shale and minor
sandstone

MESAVERDE GROUP (UPPER CRETACEOUS)

Kw Williams Fork Formation--Sandstone, shale, and coal

Ki Iles Formation--Sandstone and minor shale and coal.
Trout Creek Sandstone Member at top

Kmvu Upper part--Sandstone, shale, and coal lying above Sego
Sandstone

Sego Sandstone--Marine sandstone

Castlegate Sandstone--Marine sandstone separated from
Sego Sandstone by Buck Tongue of Mancos Shale

Ksc Sego Sandstone, Buck Tongue of Mancos Shale, and
Castlegate Sandstone

Km MANCOS SHALE (UPPER AND LOWER CRETACEOUS)--Marine shale
and minor siltstone and sandstone

Buck Tongue--Shale tongue in upper part of Mancos separated
from main body by Castlegate Sandstone. Merges with main
body near eastern edge of map. Contains Loyd Sandstone Bed

Frontier Sandstone Member (Upper Cretaceous)--Calcareous
sandstone in lower part of Mancos

Mowry Shale Member (Lower Cretaceous)--Siliceous shale at
base of Mancos Shale

DAKOTA SANDSTONE (LOWER CRETACEOUS)--Sandstone and minor shale and conglomerate. Near U.S. Highway 40 at west edge of map, includes rocks of Lower Cretaceous Cedar Mountain Formation

Kfd Frontier and Mowry Members of Mancos Shale and Dakota Sandstone

MORRISON FORMATION (UPPER JURASSIC)--Shale, mudstone, sandstone, and minor limestone

CURTIS FORMATION (UPPER JURASSIC)--Glaucconitic sandstone, shale, and limestone

ENTRADA SANDSTONE (UPPER JURASSIC)--Crossbedded sandstone

CARMEL FORMATION (UPPER JURASSIC)--Siltstone, shale, and minor limestone. Present only near west edge of map

Jmce Morrison, Curtis, and Entrada Formations

Jmcc Morrison, Curtis, Entrada, and Carmel Formations

JR g GLEN CANYON SANDSTONE (LOWER JURASSIC AND UPPER TRIASSIC)--Crossbedded sandstone separated from Entrada Sandstone by subtle unconformity marked by chert granules. Unit is called Navajo or Nugget by some geologists

JR mg Morrison, Curtis, Entrada, and Glen Canyon Formations

R c CHINLE FORMATION (UPPER TRIASSIC)--Mudstone, siltstone, and sandstone

R m MOENKOPI FORMATION (LOWER TRIASSIC)--Shale and mudstone

Pp PARK CITY FORMATION (PERMIAN)--Shale, mudstone, and sandstone

R Pcp Chinle, Moenkopi, and Park City Formations

PIPw WEBER SANDSTONE (PERMIAN AND PENNSYLVANIAN)--Crossbedded sandstone

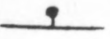



IpM MORGAN FORMATION (PENNSYLVANIAN)--Limestone, shale and sandstone

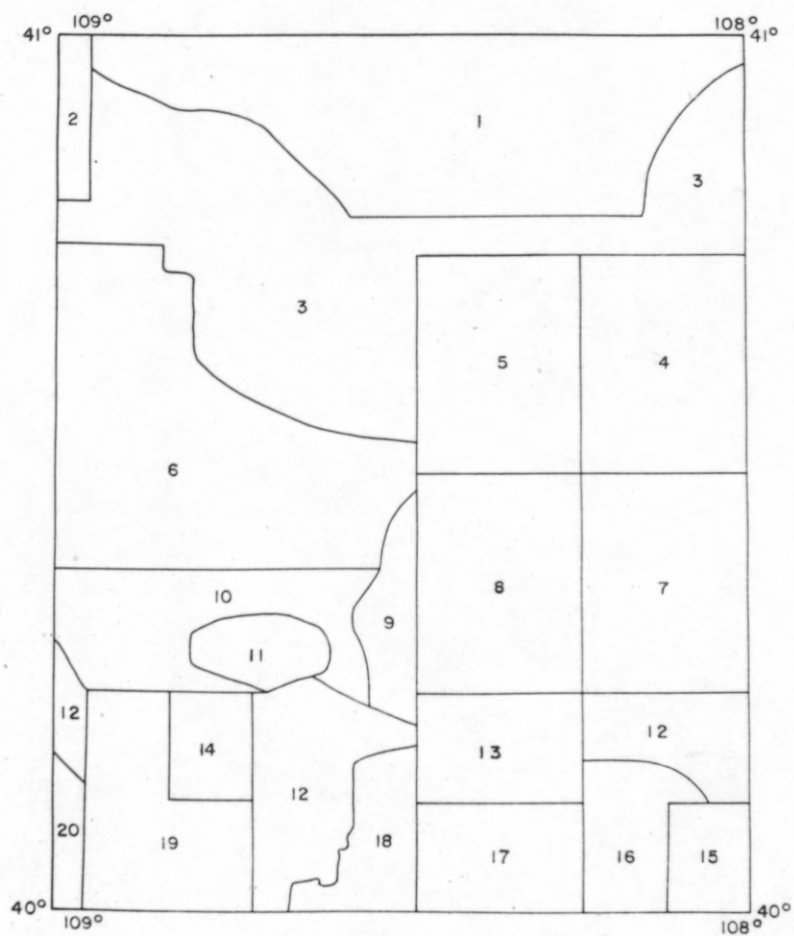
Mr MISSISSIPPIAN ROCKS--Limestone referable either to Madison or Leadville Limestone

-Cr CAMBRIAN ROCKS--Quartzite and minor shale referable either to Lodore Formation or Sawatch Quartzite

MC Mississippian and Cambrian rocks

- Yu UINTA MOUNTAIN GROUP (PRECAMBRIAN Y)--Sandstone or quartzite;
 minor siltstone and conglomerate
- Xq PRECAMBRIAN X QUARTZITE--Quartzite, amphibolite, and mica
 schist of Red Creek Quartzite

- Contact
-  Fault--Dotted where concealed. Bar and ball on downthrown
 side
-  Crest of anticline
-  Trough of syncline
-  Concealed monocline



INDEX SHOWING SOURCES OF
GEOLOGIC INFORMATION

SOURCES OF GEOLOGIC INFORMATION

1. Bradley, W. H., 1964, Geology of Green River Formation and associated Eocene rocks in southwestern Wyoming and adjacent parts of Colorado and Utah: U.S. Geol. Survey Prof. Paper 496-A, 86 p.
2. Hansen, W. R., 1965, Geology of the Flaming Gorge area, Utah-Colorado-Wyoming: U.S. Geol. Survey Prof. Paper 490, 196 p.
3. Sears, J. D., 1924, Geology and oil and gas prospects of part of Moffat County, Colorado, and southern Sweetwater County, Wyoming: U.S. Geol. Survey Bull. 751-G, p. 269-319.
Hansen, W. R., Kinney, D. M., and Good, J. M., 1960, Distribution and physiographic significance of the Browns Park Formation, Flaming Gorge and Red Canyon areas, Utah-Colorado: U.S. Geol. Survey Prof. Paper 400-B, p. 257-259. (Contacts of Browns Park Formation in western area.)
4. McKay, E. J., and Bergin, M. J., 1974, Geologic map of the Maybell quadrangle, Moffat County, Colorado: U.S. Geol. Survey Geol. Quad. Map GQ-1145.
5. McKay, E. J., 1974, Geologic map of the Lone Mountain quadrangle, Moffat County, Colorado: U.S. Geol. Survey Geol. Quad. Map GQ-1144.
6. Untermann, G. E., and Untermann, B. R., 1965, Geologic map of the Dinosaur National Monument, Colorado-Utah: Vernal, Utah, Dinosaur Nature Association.
7. Izett, G. A., U.S. Geol. Survey unpub. map.
Gale, H. S., 1910 (item 12).
Sears, J. D., 1924 (item 3).
8. Dyni, J. R., 1968, Geologic map of the Elk Springs quadrangle, Moffat County, Colorado: U.S. Geol. Survey Geol. Quad. Map GQ-702.
9. Dyni, J. R., U.S. Geol. Survey annotated aerial photographs.
10. Tweto, Ogden, U.S. Geol. Survey unpub. recon. maps



11. Cadigan, R. A., 1972, Geochemical anomalies and alteration in the Moenkopi Formation, Skull Creek, Moffat County, Colorado: U.S. Geol. Survey Prof. Paper 761, 21 p.
12. Gale, H. S., 1910, Coal fields of northwestern Colorado and northeastern Utah: U.S. Geol. Survey Bull. 415, 265 p.
13. Hail, W. J., Jr., U.S. Geol. Survey Geol. Quad. Maps: 1973, Smizer Gulch, GQ-1131; 1974, Rough Gulch, GQ-1195, Rio Blanco and Moffat Counties, Colorado.
14. Cullins, H. L., U.S. Geol. Survey unpub. map.
15. Pipiringos, G. N., 1975, Preliminary geologic map of the Buckskin Point quadrangle, Rio Blanco County, Colorado: U.S. Geol. Survey Misc. Field Studies Map MF-651.
16. Pipiringos, G. N., U.S. Geol. Survey unpub. maps.
17. Hail, W. J., Jr., U.S. Geol. Survey Misc. Field Studies Maps: 1972, Barcus Creek SE, MF-347; 1974, Barcus Creek, MF-619, Rio Blanco County, Colorado.
18. Donnell, J. R., 1961, Tertiary geology and oil-shale resources of the Piceance Creek basin between the Colorado and White Rivers, northwestern Colorado: U.S. Geol. Survey Bull. 1082-L, p. 835-891.
19. Cullins, H. R., U.S. Geol. Survey Geol. Quad. Maps: 1968, Banty Point, GQ-703; 1969, Mellen Hill, GQ-835; 1971, Rangely, GQ-903, Rio Blanco County, Colorado.
20. Cashion, W. B., 1967, Geology and fuel resources of the Green River Formation, southeastern Uinta basin, Utah and Colorado: U.S. Geol. Survey Prof. Paper 548, 48 p.

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