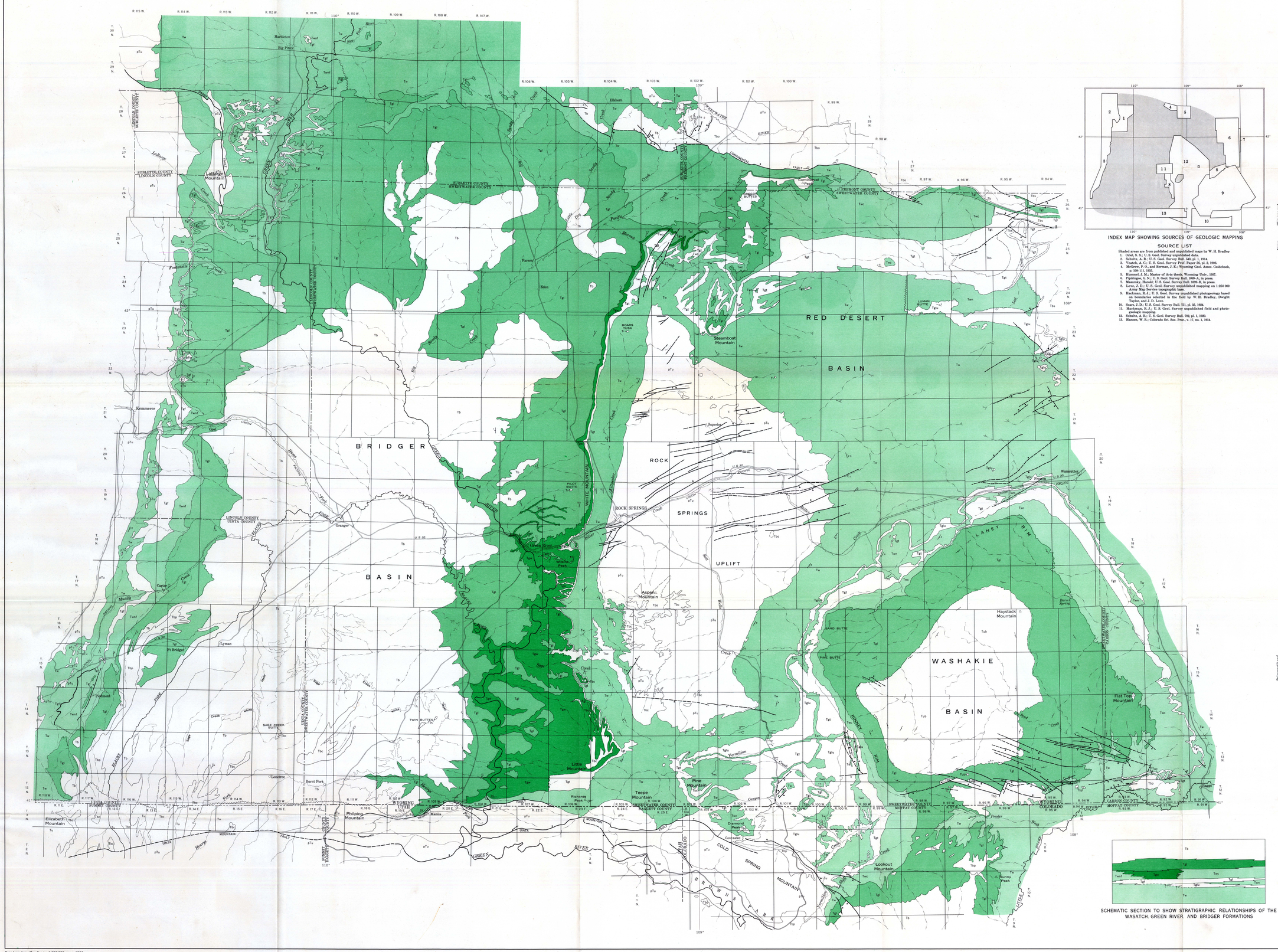
DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

MISCELLANEOUS GEOLOGIC INVESTIGATIONS
MAP I-332



Base from Army Map Service 1:250 000 maps, 1953

GEOLOGIC MAP OF A PART OF SOUTHWESTERN WYOMING AND ADJACENT STATES

By
W. H. Bradley

SCALE 1:250 000

5 0 5 10 15 20 25 MILES

1961

MISCELLANEOUS GEOLOGIC INVESTIGATIONS
MAP I-332

INDEX MAP SHOWING SOURCES OF GEOLOGIC MAPPING

SOURCE LIST

Shaded areas are from published and unpublished maps by W. H. Bradley

1. Oriel, S. S.; U. S. Geol. Survey unpublished data.
2. Schultz, A. R.; U. S. Geol. Survey Bull. 543, pl. 1, 1914.
3. Veatch, A. C.; U. S. Geol. Survey Prof. Paper 56, pl. 2, 1906.
4. McGrew, P. O., and Berman, J. E.; Wyoming Geol. Assoc. Guidebook, p. 106-111, 1955.
5. Hummel, J. M.; Master of Arts thesis, Wyoming Univ., 1907.
6. Pipiringos, G. N.; U. S. Geol. Survey Bull. 1099-A, in press.
7. Masursky, Harold; U. S. Geol. Survey Bull. 1099-B, in press.
8. Love, J. D.; U. S. Geol. Survey unpublished mapping on 1:250 000 Army Map Service topographic base.
9. Hackman, R. J.; U. S. Geol. Survey unpublished photogeology based on boundaries selected in the field by W. H. Bradley, Dwight Taylor, and J. D. Love.
10. Sears, J. D.; U. S. Geol. Survey Bull. 751, pl. 35, 1924.
11. Hackman, R. J.; U. S. Geol. Survey unpublished field and photogeologic mapping.
12. Schultz, A. R.; U. S. Geol. Survey Bull. 702, pl. 1, 1920.
13. Hansen, W. R.; Colorado Sci. Soc. Proc., v. 17, no. 1, 1954.

EXPLANATION

Ti — Pliocene

Wyomingite lava flows and plugs
Potassium-argon age determinations indicate an age of 1.25 million years or less [1]

Tbp — Miocene(?)

Browns Park formation
White or light-gray tuff, tuffaceous sandstone, and conglomerate, commonly quartzitic; massive to thin-bedded, eolian-type crossbedding common; basal conglomerate extensive; locally mapped areas include some Oligocene rocks; maximum measured thickness 1200 feet but may be much thicker

Tbc

Bishop conglomerate
Well-rounded boulders and cobbles of Precambrian quartzite and schist from the Uinta Mountains. Maximum thickness at least 200 feet. May prove to be of Oligocene age

Tbo — Oligocene and Eocene(?)

Browns Park formation and underlying Oligocene rocks undivided
Lithology of the Oligocene beds closely similar to that of the Browns Park though generally somewhat finer grained. Thickness unknown; probably more than 3000 feet.

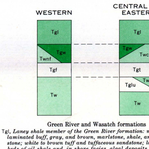
Tub — Upper Eocene

Uinta (upper Eocene) and Bridger formations
Gray, pink, and greenish tuffaceous mudstone and tuffaceous and muddy, lenticular sandstone beds that weather into badlands. Restricted to the Washakie basin

Tb — Middle and upper(?) Eocene

Bridger formation
Gray, drab, greenish, and pink mudstone and tuffaceous mudstone and sandstone; white tuff layers and white to buff cherty limestone layers. The outcrop of the Sage Creek white layer (marlstone) in the southern part of the Bridger basin is shown by dotted line. Formation weathers into badlands. Maximum thickness nearly 3000 feet

WESTERN / **CENTRAL AND EASTERN**



Green River and Wasatch formations

Tgl, *Laney shale member of the Green River formation:* massive to thinly laminated buff, gray, and brown, marlstone, shale, and muddy sandstone; contains many beds of tuff and tuffaceous sandstone; has grades at the base of oil shale zone, in short fronts, algal deposits and oolitic beds. *Ranges from 0 to about 1000 feet*

Tgw, *Wilkins Peak member of the Green River formation:* thin and regularly bedded greenish gray, drab, to nearly white dolomitic mudstone, marlstone, and oil shale; white to brown tuff and tuffaceous sandstone and marlstone beds; contains a thick saline facies and several extensive oil shale beds, restricted to the Bridger basin. *Maximum thickness about 1500 feet*

Twc, *Cathedral Bluffs tongue of the Wasatch formation:* gray and greenish gray sandy mudstone banded with pink and red layers; contains massive lenses and beds of brown to yellowish muddy sandstone; makes badland slopes; *ranges in thickness from 0 to 1750 feet.*

Twnt, *New Fork tongue of the Wasatch formation:* a correlative of the Cathedral Bluffs tongue exposed only along east side of the Rock Springs basin; gray to greenish gray sandy mudstone banded with red to maroon layers; contains many lenses and irregular beds of coarse grained and pebbly sandstone; *ranges in thickness from 0 to more than 1000 feet.*

Tgf, *Tipton tongue and Tipton shale member of the Green River formation:* soft brown to buff shale and organic marlstone in lower half—upper half chippy to flaky, light bluish gray organic marlstone or limestone; contains many thin beds of tuff and tuffaceous sandstone; lenticular and shore facies. *Tipton shale member differs from Tipton tongue chiefly in containing more, and richer, oil shale in the upper part. The Tipton tongue ranges from 0 to 350 feet thick; the Tipton shale member is about 150 feet thick.*

Tgf, *Fontenelle tongue of the Green River formation:* a correlative of the Tipton tongue and Tipton shale member exposed only along east side of the Rock Springs basin; buff to light gray, flaky marlstone and shale; generally sandy near base and top; contains some algal layers; *ranges from 0 to about 250 feet thick.*

Twn, *Niland tongue of the Wasatch formation:* restricted to the vicinity of Washakie basin; gray mudstone and grey to nearly white lenticular sandstone; contains local conglomerate and subbituminous coal beds; *ranges from 0 to about 500 feet thick*

Tgu, *Laman tongue of the Green River formation:* restricted to the Washakie, Great Divide, and Hiawatha basins; series of brown, flaky shale, oil shale, marlstone, carbonaceous shale, and limy sandstone beds that locally contain a few thin beds of coal. *In the Hiawatha basin consists chiefly of carbonaceous shale and shell marl; ranges in thickness from 0 to about 1000 feet*

Tw, *Wasatch formation:* sandy gray mudstone containing lenses and irregular beds of muddy sandstone; locally mudstone contains bands of red and locally the sandstone is red; upper part contains carbonaceous shale and beds of subbituminous coal; near mountain ranges formation contains much conglomerate; in areas mapped, contains locally at the base an undetermined thickness of the Fort Union formation (Paleocene); measured sections that may include some Fort Union range from 1700 to approximately 7000 feet in thickness

Lower and middle Eocene

Tbs — Paleocene(?) and Eocene

Battle Spring formation
Light gray to brown, coarse-grained to pebbly arkosic sandstone with a few lenses of light gray to drab gray sandy clay and mudstone. Sandstone lenses large sheetsheld conformous; interfingers with the Wasatch and Green River formations; tapered thickness in northeastern part of the area 3200 feet or more

Tu

Tertiary formations, undifferentiated
Mostly Bridger, Green River, and Wasatch formations but locally may include some Fort Union formation (Paleocene); conglomerate and sandstone beds of Eocene(?) age; in Washakie basin includes a few units of finer grained, more regularly bedded rocks that resemble one or another of the Eocene formations mentioned above; restricted to belt along the north flank of the Uinta Mountains; thickness unknown but probably several thousand feet

pTu — PRE-TERTIARY

Formations older than Tertiary, undifferentiated
Includes sedimentary rocks ranging in age from Paleozoic to Precambrian and igneous and metamorphic rocks of unknown age

Contact
Dashed where approximately located

Scratch boundary
Marks change of formation or rock unit name along the outcrop belt

Fault
Dashed where approximately located; ball on downthrown side

Strike and dip of beds

Strike and direction of dip taken from air photos

SCHEMATIC SECTION TO SHOW STRATIGRAPHIC RELATIONSHIPS OF THE WASATCH, GREEN RIVER AND BRIDGER FORMATIONS

[1] The lava specimens were collected by Richard Johnston of the University of Wyoming. Mineral separations were made in the U. S. Geological Survey, and the age determination was made by William A. Bassett of the Brookhaven National Laboratory

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