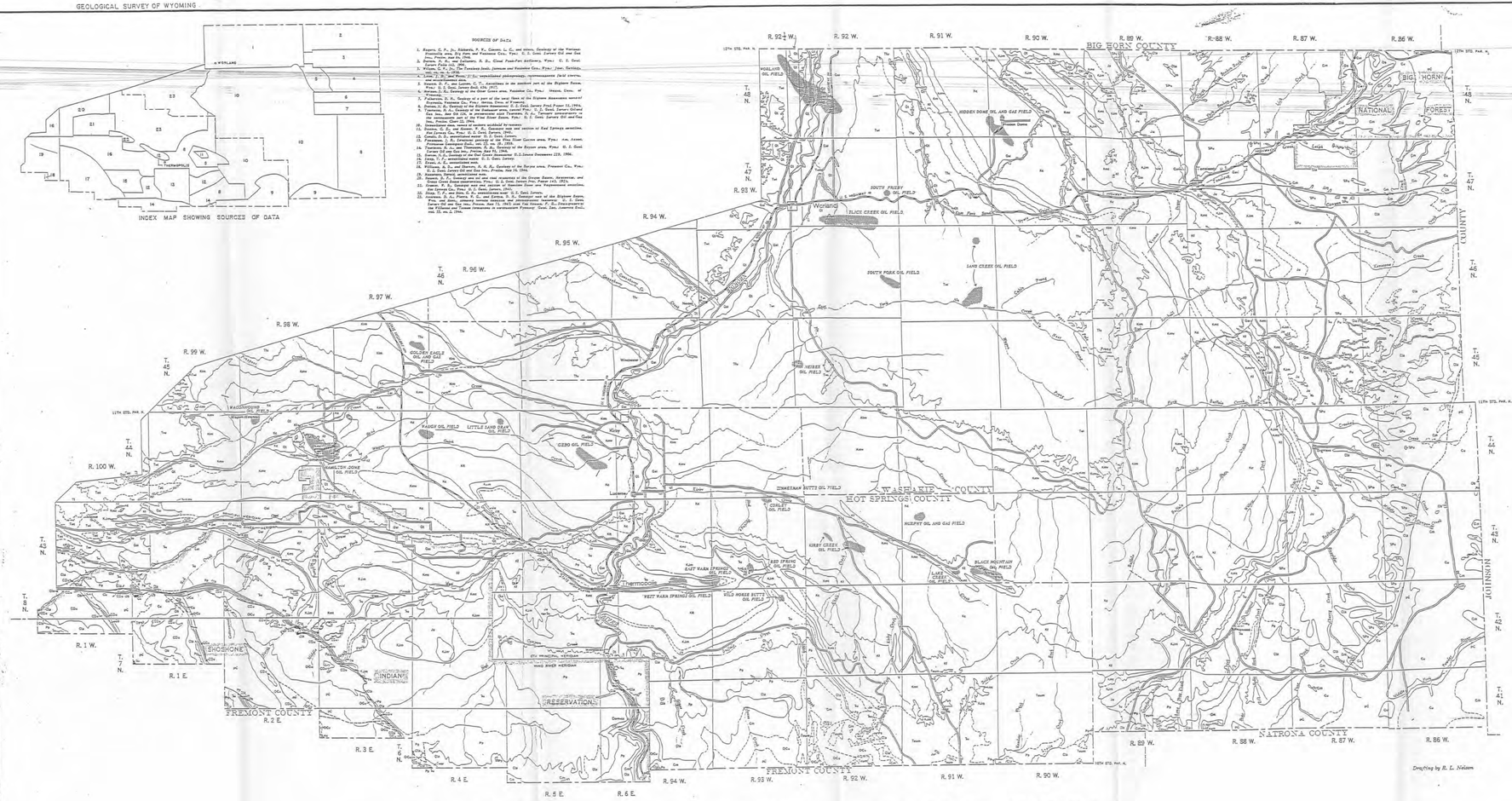

GEOLOGIC MAP OF THE SOUTHERN BIGHORN BASIN, WYOMING

BY J. L. WEITZ AND J. D. LOVE

GEOLOGISTS, U. S. GEOLOGICAL SURVEY

0 1 2 3 4 8 12 16 20 Miles

1952

EXPLANATION

SURFICIAL DEPOSITS

Qa — Alluvium
(unconsolidated and poorly consolidated silt, sand, and gravel, mainly in floodplains and fans)

Qt — Terrace deposits
(mainly gravel and cobbles in valleys and terraces)

SEDIMENTARY ROCKS

Oligocene — Tw — White River formation
(white to pale green thinly indurated siltstone, fine-grained tuffaceous, and lenticular sandstone conglomerate)

Eocene — Tl — Tepee Trail formation
(green and chocolate-brown conglomerate, sandstone, and siltstone)

Tw — Wasatch formation
(brightly variegated indurated siltstone and sandstone grading locally into greenish-gray sandstone and shale)

Tc — Tatman formation
(variegated claystone, shale, and sandstone; some lenticular conglomerate)

Paleocene — Tfc — Fort Union formation
(gray and black shale and brown-black partial conglomerate and sandstone in lower part)

Upper Cretaceous — Kl — Lance formation
(gray and brown sandstone, gray shale, and fluvial marine siltstone with brown and yellow sandstone at base or top)

Kn — Hanna formation
(light-gray indurated sandstone, yellow bentonite, and dark shale and black or gray lignite beds)

Kmv — Meeteetse formation
(gray to tan sandstone and varied brown shale and black bentonite beds)

Kc — Cody shale
(gray, pale brown shale with many bentonite stringers and some bentonite beds)

Kf — Frontier formation
(lenticular sandstone and gray to brown shale; some fine bentonite and tuff beds)

Kmt — Mowry and Thermopolis shales
(dark-gray shale to black and gray, brittle, siliceous shale; some bentonite beds and siliceous fish scales; marine in part; Thermopolis shale and dark-gray bentonite member 120 to 170 feet below base)

Lower Cretaceous — Kcm — Cloverly and Cloverly formations
(Cloverly formation in Bighorn basin consists of lenticular lower pebble conglomerate locally with subangular basement fragments; the overlying Cloverly formation consists of dark-gray siliceous siltstone and minor limestone and gray silty sandstone beds)

Jurassic — Jr — Jurassic rocks, undivided
(Sundance formation in greenish-gray glauconitic sandstone and shale underlain by sandy glauconitic conglomerate; Sundance Lower Cretaceous is conformable to disconformable and Jurassic, Triassic, and Permian rocks, and Jurassic rocks are in part)

Triassic — Tr — Triassic rocks, undivided
(In descending order: red siltstone, purple shale, and thin beds of lime pebble conglomerate; siliceous to white-mottled red and gray sandstone; gray limestone; limestone; limestone pebble conglomerate; red siltstone and shale; gypsum and anhydrite; and red siltstone and sandstone; greenish-gray siliceous siltstone interbedded with white anhydrite and gypsum)

Permian — Pc — Phosphoria formation
(dark-gray dolomite underlain by gray shale, siltstone, and limestone, and phosphorite beds)

Pennsylvanian — Ctt — Tensleep sandstone and Amsden formation
(gray sandstone and thin limestone and dolomite beds; lower part includes red and green shale; Amsden includes marine at base)

Mississippian — Cm — Madison limestone
(blue-gray massive limestone limestone)

Devonian — Db — Bighorn dolomite
(gray massive siliceous dolomite, and white fine-grained light dolomite resistant at top and thin limestone at base)

Ordovician — Ce — Cambrian rocks, undivided
(In descending order: Gallatin limestone, Snowy Range sandstone, and Flathead sandstone)

IGNEOUS AND METAMORPHIC ROCKS

pC — Pre-Cambrian rocks, undivided
(mostly gneiss, with lesser amounts of metasedimentary rocks and minor rock types)

Fault
(dashed where approximately located and dotted where concealed)

Formation boundary
(dashed where approximately located)

Qal — Alluvium
Qt — Terrace deposits
Tw — Wasatch formation
Tc — Tatman formation
Tfc — Fort Union formation
Kl — Lance formation
Kn — Hanna formation
Kmv — Meeteetse formation
Kc — Cody shale
Kf — Frontier formation
Kmt — Mowry and Thermopolis shales
Kcm — Cloverly and Cloverly formations
Jr — Jurassic rocks, undivided
Tr — Triassic rocks, undivided
Pc — Phosphoria formation
Ctt — Tensleep sandstone and Amsden formation
Cm — Madison limestone
Db — Bighorn dolomite
Ce — Cambrian rocks, undivided
pC — Pre-Cambrian rocks, undivided

Tmvt — Upper and middle Eocene rocks, undivided
(green and gray tuffaceous siltstone, sandstone, and conglomerate; lime mud and oil shale beds)

Twr — Wind River formation
(red, green, and gray siltstone and thin lenticular gray sandstone beds)

Kmn — Lance and Hanna formations

Kfs — Frontier formation, Mowry, and Thermopolis shales

Mzu — Triassic and Permian rocks, undivided

Pu — Permian rocks, undivided
(red shale, sandy gray and tan siltstone and limestone; conglomerate, sandstone clasts, and sandstone and gypsum beds)

DSm — Madison limestone and Darby formation

DOu — Bighorn dolomite and Cambrian rocks, undivided

QUATERNARY
TERTIARY
CRETACEOUS
JURASSIC
TRIASSIC
PERMIAN
CARBONIFEROUS
DEVONIAN
ORDOVICIAN
CAMBRIAN
PRE-CAMBRIAN

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