EXPLANATION

Upper

Qal

Alluvium

Gray poorly sorted stony sand and silt forming floodplain and low terraces. Mapped only along major streams where it does not obscure bedrock contacts

Qds

Dune Sand

Yellowish-gray medium sand forming widespread dunes. Calichified layer locally exposed in blowouts

Qb

Broadway Alluvium

Yellowish-gray stony coarse sand along Timpas Creek

Louviers Alluvium

Yellowish-gray stony coarse sand along Timpas Creek

Qs

Slocum Alluvium

Yellowish-brown pebbly gravel 90 feet above Arkansas

River (a few miles north of quadrangle boundary)

Orf

Rocky Flats Alluvium

Yellowish-brown cobbly gravel 220 feet above Arkansas River

Qu Undifferentiated deposits

Yellowish-grow silt and sand of fluvial, eolian, and masswasting origin in northwest part of area. Sandy pediment gravel composed largely of volcanic rocks in southern part of area, and remnants of gravel terraces along Rule Creek and Purgatoire River

Qn

Nussbaum Alluvium Yellowish-brown bouldery gravel 400 feet above Arkansas River

Extrusive rocks

on

Nebraskan Aftonian

Pleistocene

Pliocene

and

Miocene(?)

Miocene(?)

30 S.

32 5

34 S.

35 S.

7°00'

Dark-gray finely crystalline flows of olivine basalt containing upper scoriaceous parts and forming composite tabular bodies that locally are overlain by low broad cone-shaped flows at volcanic centers. x indicates volcanic center

Intrusive rocks

Dark-gray finely crystalline dikes and plugs of olivine basalt that form ridges and knobs chiefly in the southwest part of the quadrangle

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To

Ogallala Formation

Chiefly sandy gravel composed of granitic rocks and sedimentary rocks; generally lacks volcanic rocks. Contains thin hard algal limestone at top. Firmly cemented by caliche. Gravel of Meade Group of Pleistocene age locally included at top of unit except beneath basalt flows. Volcanic rocks locally common in gravel of Meade Group

Syenitic lamprophyre

Laccolith and dikes: TI, dark greenish-gray finely crystalline syenitic lamprophyre and minor coarsely crystalline facies constituting a central mass at Two Buttes

Tld, dikes radiating from the central mass UNCONFORMITY

> Kns Knf

Niobrara Formation

Kns, Smoky Hill Shale Member: yellowish-gray fossiliferous calcareous shale, platy limestone, and, in uppermost exposures, sandy shale Knf, Fort Hays Limestone Member: yellowish-gray

ledge-forming thick beds of fossiliferous limestone

Kcgg

Carlile Shale, Greenhorn Limestone, and Graneros Shale

Carlile Shale: yellowish-brown fossiliferous calcarenite, black shale containing large septarian concretions, and yellowish-brown soft bentonitic platy shale Greenhorn Limestone: gray shaly weathering ledgeforming fossiliferous limestone, dark-gray calcareous platy shale, and yellowish-gray fossiliferous ledge-

forming beds of calcarenite and limestone Graneros Shale: dark-gray noncalcareous shale containing orange hard Thatcher Limestone Member

Kdp

Dakota Sandstone and Purgatoire Formation Dakota Sandstone: yellowish-brown cross-laminated

cliff-forming sandstone

below middle

Purgatoire Formation: fossiliferous marine dark-gray claystone, siltstone, and sandstone of Glencairn Shale Member (laterally equivalent to Kiowa Shale Member) and underlying yellowish-brown cross-laminated sandstone of Lytle Sandstone Member (laterally equivalent to Cheyenne Sandstone Member)

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Jmre

Morrison and Ralston Creek Formations Entrada Sandstone

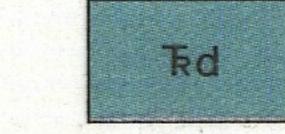
Morrison Formation: varicolored claystone, brownweathering sandstone, and gray limestone

Ralston Creek Formation: greenish-gray claystone, gray limestone, red jasper, blue and pink agate; and lower local sandy beds containing pink alabaster and white gypsum

Entrada Sandstone: white massive cross-laminated sandstone; contains minor copper deposits in southwest Baca County

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TIME OF INJECTION OF CLASTIC PLUGS AND DIKES



Dockum Group

Moderate-reddish-brown medium-grained sandstone, moderate-reddish-brown and grayish-yellow-green siltstone, and local gray limestone

Pbdw

Big Basin Formation of Cragin (1896), Day Creek Dolomite, and Whitehorse Sandstone equivalent Big Basin Formation: pale reddish-brown platy siltstone and fine-grained sandstone

Day Creek Dolomite: grayish-orange-pink finely crystalline cross-laminated dolomite locally in two or more beds separated by calcareous red siltstone Whitehorse Sandstone equivalent: yellowish-gray to red fine-grained sandstone and shale

Contact

Dashed where approximately located

Fault

Dashed where approximately located; short dashed where inferred; dotted where concealed; U, upthrown side; D, downthrown side. Arrows show relative horizontal movement

Fault along axis of monocline Dashed where approximately located; dotted where concealed. U, upthrown side; D, downthrown side

Monocline

Dashed where approximately located; dotted where concealed. Axis drawn along crest

Anticline

Showing plunge of axis PRAIRIE DOG

Syncline

Approximately located. From Parker (1961)

Gas field

Formational limit

Line southeast of which formation is absent as a result of erosion. From McLaughlin (1954, p. 91)

Structure contours

Drawn on base of Purgatoire Formation. Solid where vertical accuracy is within 50 feet; long dashed where vertical accuracy between 50 and 100 feet; short dashed where projected above ground or contoured horizon is under extensive cover and accuracy is not within 100 feet. Structure contours constructed from geologic-topographic map and data from selected logs of oil, gas, and water wells from American Stratigraphic Co. and from Branch of Groundwater, U.S. Geological Survey. Contour interval 100 feet except at Two Buttes, where it is 200 feet above 4,400 feet

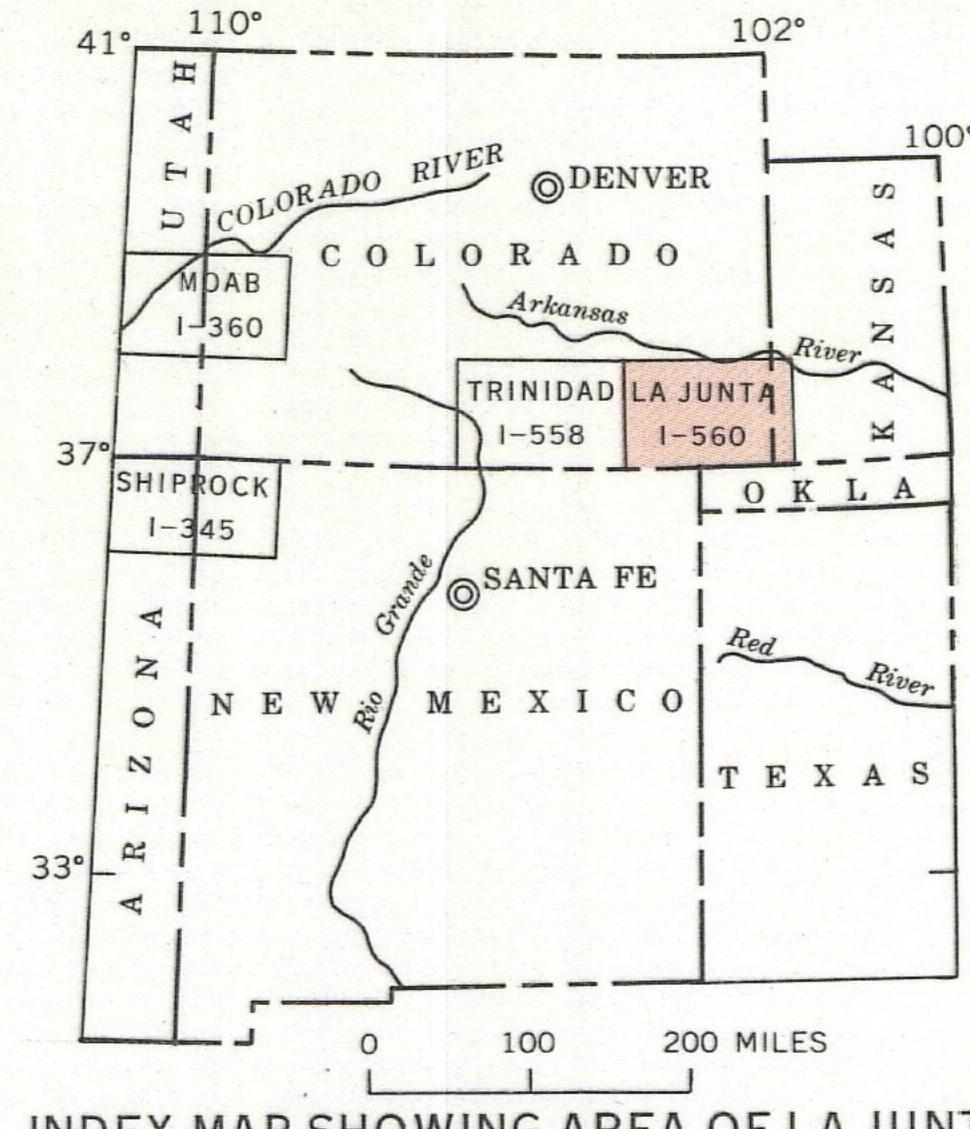
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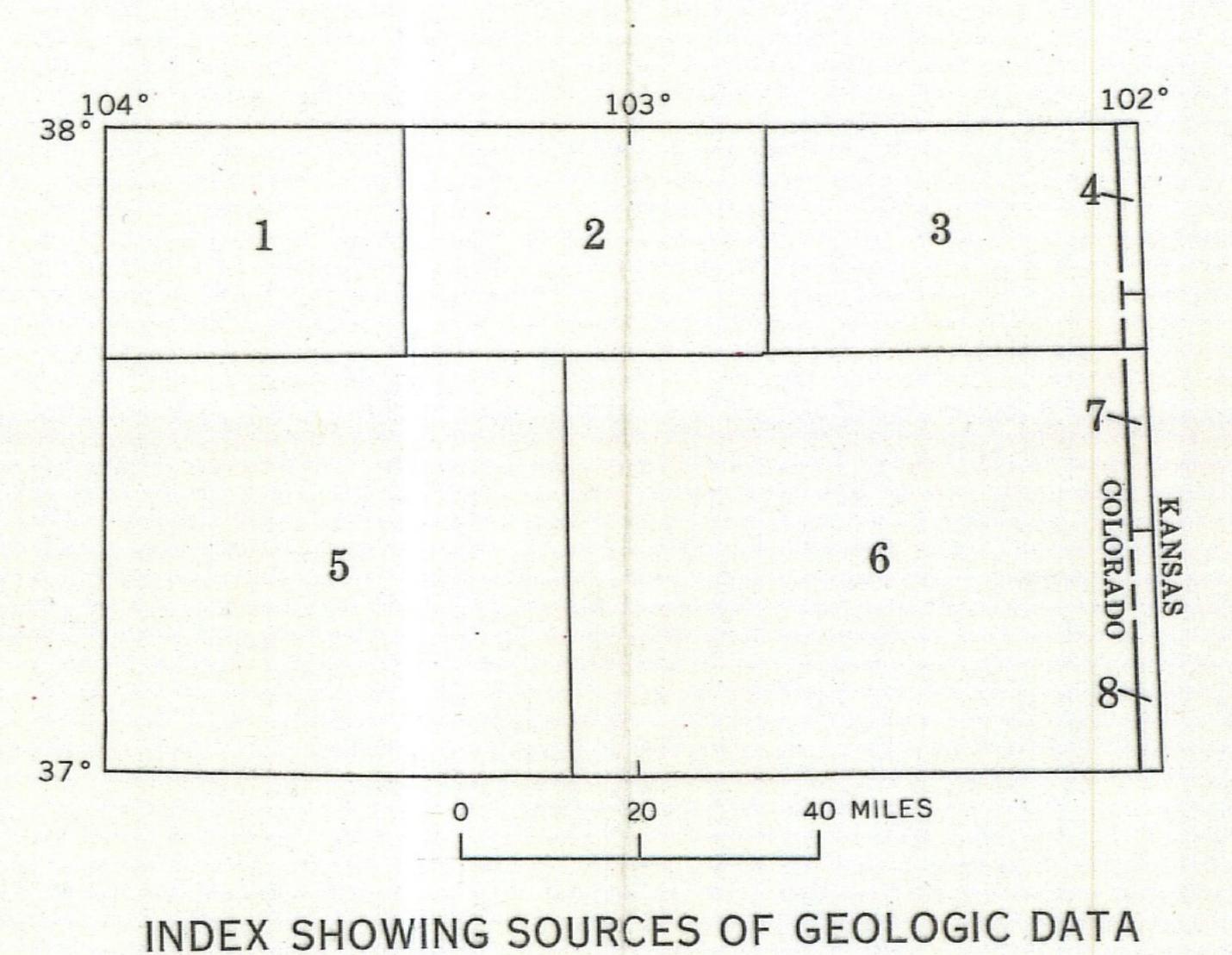
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Parker, J. M., editor, 1961, Colorado-Nebraska oil and gas field volume: Rocky Mountain Assoc. Geologists [1962].



INDEX MAP SHOWING AREA OF LAJUNTA QUADRANGLE (PATTERNED) AND OF OTHER PUBLISHED QUADRANGLES



- Asterisk (\*) indicates modified in part by reconnaissance mapping by G. R. Scott.
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- ground water in Otero County and the southern part of Crowley County, Colo., with sections on Hydrology of the Arkansas River Valley in the project area, by W. G. Weist, Jr., and E. D. Jenkins; Hydrologic properties of the water-bearing materials, by E. D. Jenkins; and Quality of the ground water, by C. A. Horr: U.S. Geol. Survey Water-Supply Paper 1799, 90 p. (\*)
- 2. Irwin, J. H., U.S. Geol. Survey unpublished mapping. (\*)
- 3. Voegeli, P. T., Sr., and Hershey, L. A., 1965, Geology and ground-water resources of Prowers County, Colorado: U.S. Geol. Survey Water-Supply Paper 1772, 101 p. (\*)
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- Survey Water-Supply Paper 1256, 232 p. (\*) 7. Latta, B. F., 1941, Geology and ground-water resources of Stanton County, Kansas: Kansas State Geol. Survey Bull. 37, 119 p. (\*)
- 8. McLaughlin, T. G., 1942, Geology and ground-water resources of Morton County, Kansas: Kansas State Geol. Survey Bull. 40, 126 p.