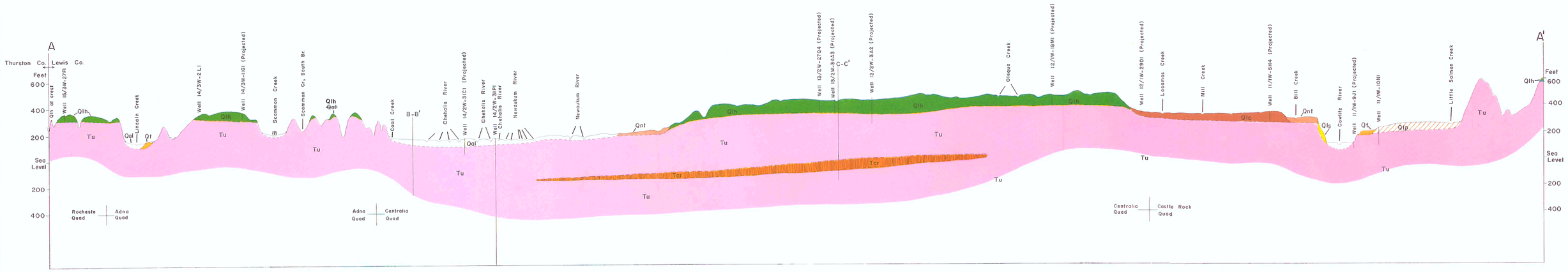
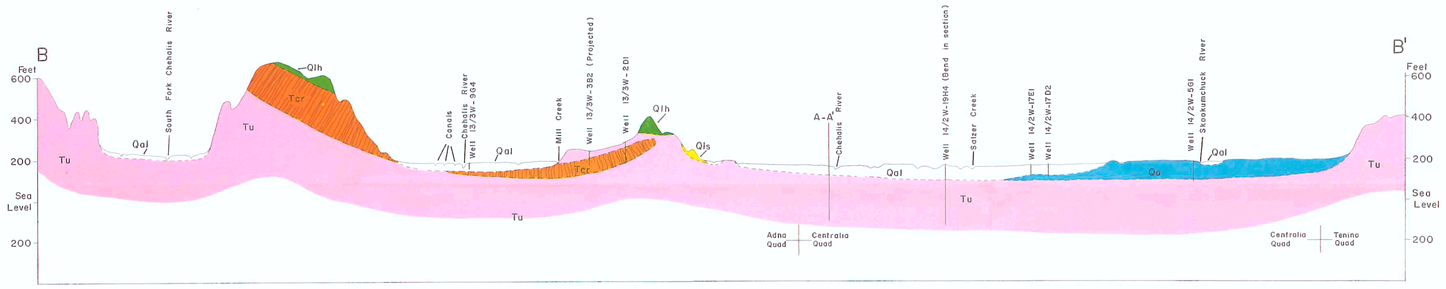
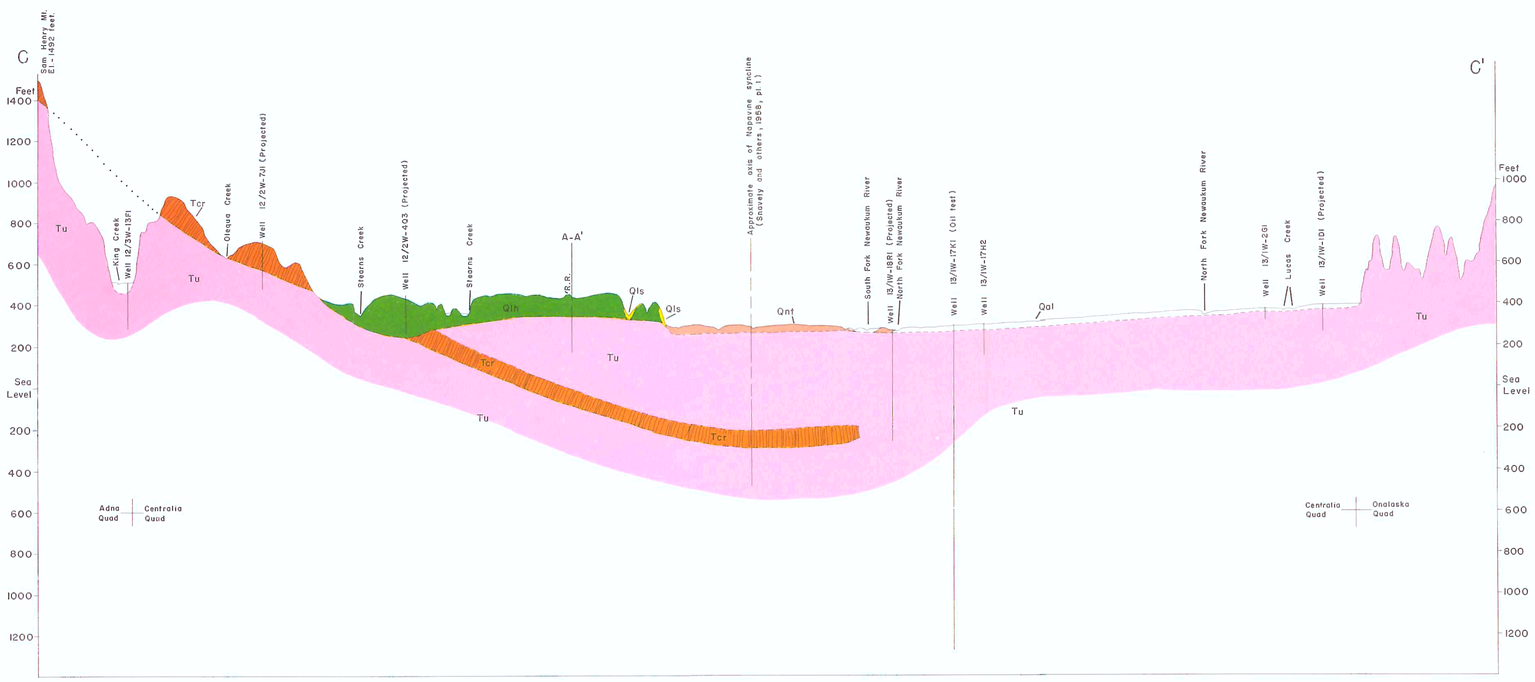






Geology by J.M. Weigle 1952-57
Field checking and minor revisions
by B.L. Foxworthy, 1958-59.

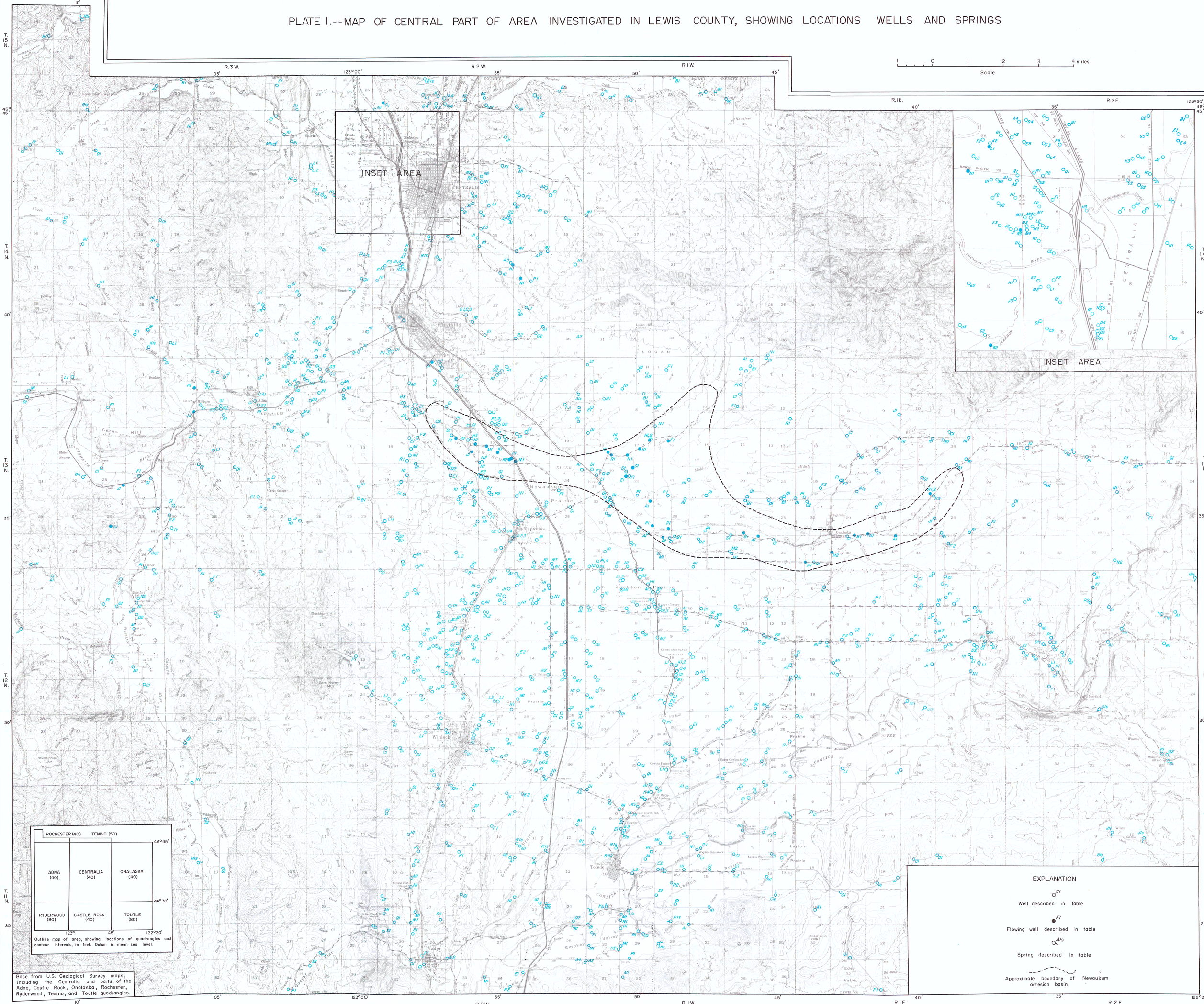
EXPLANATION

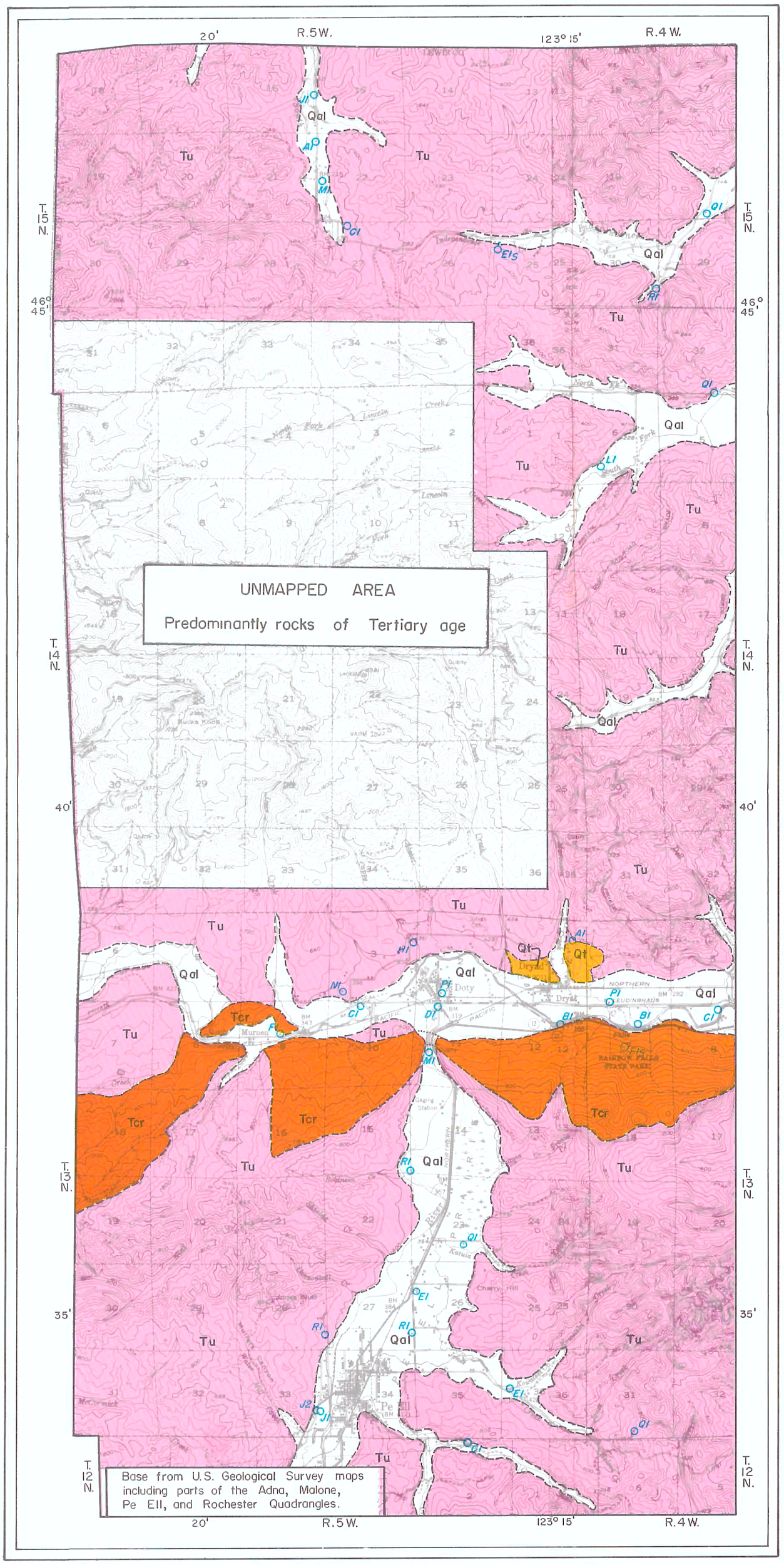
Recent	Qal — Alluvium	QUATERNARY
	Qls — Landslide deposits	
	Qt — Terrace deposits, undifferentiated	
	Qo — Outwash from Vashon glacier	
Pleistocene	Qlp — Layton Prairie unit	
	Qnt — Newaukum terrace unit	
	Qlc — Lacamas Creek unit	
	Qlh — Logan Hill formation	
Eocene to Pliocene (?)	Tu, Tcr, Tu — Columbia River (?) basalt and undivided rocks	TERTIARY

Scale
0 1 2 3 4 Miles

PLATE 4.--GEOLOGIC CROSS SECTIONS, CENTRAL LEWIS COUNTY, WASH.

PLATE I.--MAP OF CENTRAL PART OF AREA INVESTIGATED IN LEWIS COUNTY, SHOWING LOCATIONS WELLS AND SPRINGS





1 0 1 2 3 4 miles

Scale

EXPLANATION

QUATERNARY

Recent

Qal

Alluvium

Gravel, sand, and silt. Generally yields small to moderate supplies of ground water

Pleistocene

Qt

Terrace deposits

Glaciofluvial gravel and sand. Yields small to moderate supplies of ground water.

TERTIARY

Eocene to Pliocene (?)

Tu / Tcr / Tu

Sedimentary and igneous rocks

Tu, mostly shale, siltstone, sandstone, mafic lava, pyroclastic rocks, and conglomerate, undifferentiated; more than 10,000 feet thick.

Tcr, Columbia River(?) basalt, fine-grained dark basalt of middle(?) Miocene age; occurs usually as a single flow, locally more than 125 feet thick, interbedded with sedimentary materials of Miocene and Pliocene(?) age.

Yield generally small, locally moderate supplies of ground water, often of poor chemical quality.

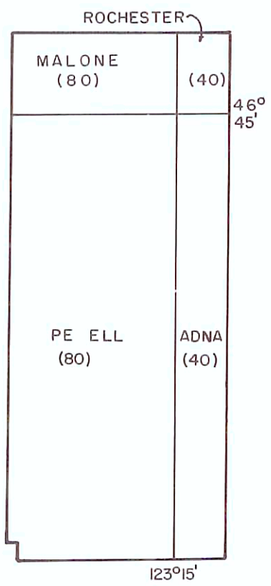
Dashed where indefinite or inferred, dotted where concealed.

A1

Well described in table 1

E1s

Spring described in table 2



Outline map of area showing locations of quadrangles, and contour intervals, in feet. Datum is mean sea level.

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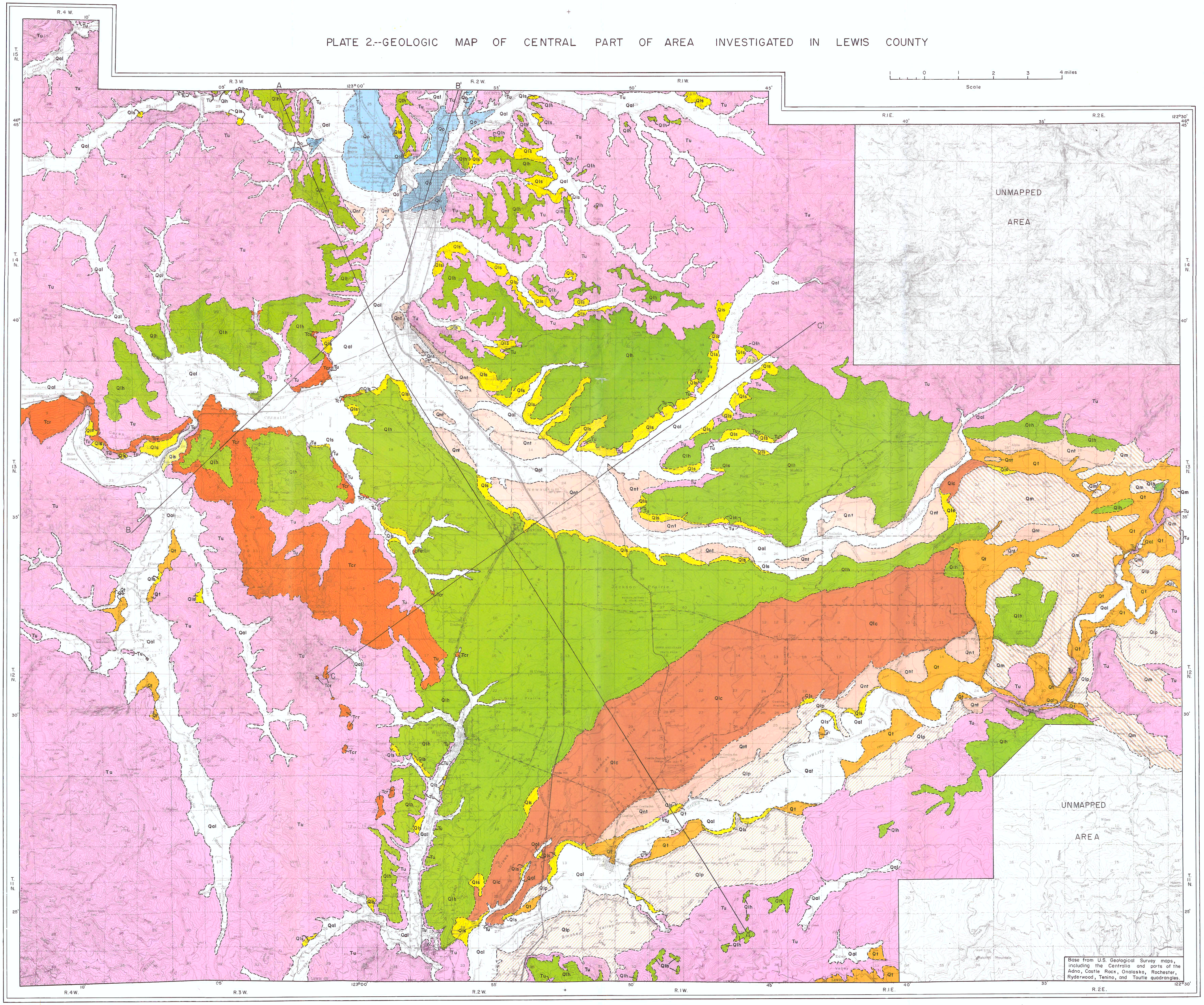
PLATE 3.--MAP OF WESTERN PART OF AREA INVESTIGATED IN LEWIS COUNTY, SHOWING GENERALIZED GEOLOGY AND LOCATIONS OF WELLS AND SPRINGS.

PLATE 2.--GEOLOGIC MAP OF CENTRAL PART OF AREA INVESTIGATED IN LEWIS COUNTY



EXPLANATION

Qal — Alluvium

Flood-plain deposits of gravel, sand, and silt. Generally yield small to moderate supplies of ground water; locally yield large supplies.

Qls — Landslide deposits

Principally landslide debris and colluvium involving rocks of Tertiary and Quaternary ages; include alluvial-fan deposits locally. Water-bearing character unknown.

Qt — Terrace deposits, undifferentiated

Terrace deposits chiefly fluvial and glaciofluvial gravel and sand, as much as 40 feet thick, not relatable to older, more extensive terrace units. Of late Pleistocene age. Saturated thickness usually not great enough to yield large perennial supplies of ground water.

Qo — Outwash

Outwash from Vashon glacier; unconsolidated, poorly sorted, rudely stratified gravel and sand, as much as 90 feet thick. Yields moderate to large supplies of ground water.

Qm — Morainal deposits

Principally morainal deposits from alpine glaciers. Include ground moraine, till, and ice-contact deposits. Generally yield only small supplies of ground water.

Qlp — Layton Prairie unit

Principally glaciofluvial gravel and sand, as much as 100 feet thick. Upper few feet moderately weathered. Interstices often incompletely filled with rock flour. Lower part of unit yields moderately large supplies of ground water.

Qnt — Newaukum terrace unit

Glaciofluvial sand and gravel in matrix of clay and silt. Forms well-defined terrace along Cowlitz and Newaukum Rivers. Thickness ranges from 10 to 50 feet or more. Pebbles and cobbles less rounded and less weathered than in older, higher terraces. Yields moderately large supplies of ground water.

Qlc — Lacamas Creek unit

Principally glaciofluvial terrace deposits of gravel and sand, at places partly indurated by clay matrix. Average thickness 40 to 60 feet, locally may exceed 250 feet. Much of upper part badly weathered; weathered zone usually less than half as thick as in Logan Hill formation. Weathered and cemented portions yield small supplies of ground water; unconsolidated gravel and sand yield moderate to large supplies.

Qlh — Logan Hill formation

Principally glaciofluvial deposits of poorly sorted gravel and sand with minor amounts of silt and clay, but containing lenses of clay, sand, gravel, and till. Thickness exceeds 150 feet, upper 20-50 feet greatly weathered. Weathered zone yields small supplies of ground water; unweathered sand and gravel yield moderate to large supplies.

Recent — *Pleistocene* — QUATERNARY

Tcr, Tu — Sedimentary and igneous rocks

Tu, mostly shale, siltstone, sandstone, mafic lava, pyroclastic rocks, and conglomerate, undifferentiated; more than 10,000 feet thick.

Tcr, Columbia River(?) basalt, fine-grained dark basalt of middle(?) Miocene age; occurs usually as a single flow, locally more than 125 feet thick, interbedded with sedimentary materials of Miocene and Pliocene(?) age.

Rocks of Tertiary age generally yield only small amounts of ground water, often of poor quality; sands of late Tertiary age yield moderate to large yields of water suitable for most uses.

Eocene to Pliocene (?) — TERTIARY

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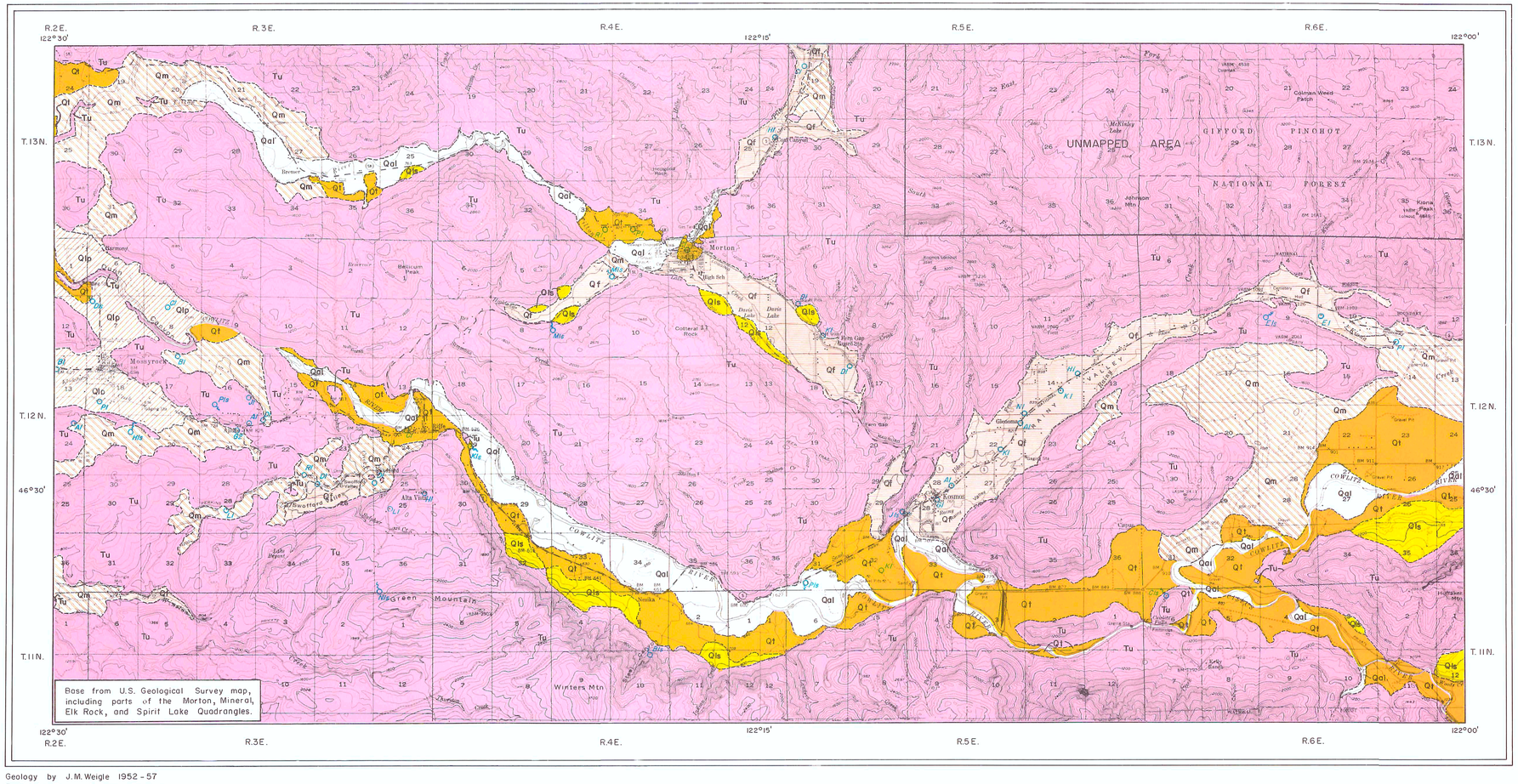

Geology by J.M. Weigle 1952-57
Field checking and minor revisions
by B.L. Foxworthy, 1958-59.

EXPLANATION

Qal — Alluvium

Principally gravel, sand, and silt; locally includes water-laid pumice. Not widely developed as a source of ground water in eastern Lewis County.

Qls — Landslide deposits

Debris of landslides involving rocks of Tertiary age. Water-bearing character unknown.

Qf — Valley fill, undifferentiated

Principally gravel and sand deposited as alluvium, alluvial fans, and drift from alpine glaciers; locally includes glaciolacustrine clays, pumice, and peat. Yields small to moderately large supplies of ground water.

Qt — Terrace deposits, undifferentiated

Chiefly glaciofluvial deposits of gravel and sand, not relatable to more extensive terrace deposits. Yield small to moderately large supplies of ground water.

Qm — Morainal deposits

Chiefly morainal deposits from alpine glaciers, including ground moraine and some ice-contact deposits. Generally yield only small supplies of ground water; locally yield moderately large supplies.

Qlp — Layton Prairie unit

Semiconsolidated and unconsolidated beds of gravel, sand, silt, and clay, with minor amounts of till from alpine glaciers. Yields small to moderately large supplies of ground water.

Recent — Pleistocene — QUATERNARY

Tu — Sedimentary and igneous rocks, undivided

Principally mafic lavas, tuffs, agglomerates, sandstones, and shales. Yield only small supplies of ground water, much of poor quality.

Eocene and Oligocene (?) — TERTIARY

Formation contact
Dashed where indefinite or inferred, dotted where concealed.

Well described in table 1

Spring described in table 2

PLATE 5.-- MAP OF EASTERN PART OF AREA INVESTIGATED IN LEWIS COUNTY SHOWING GENERALIZED GEOLOGY AND LOCATIONS OF WELLS AND SPRINGS.

1 0 1 2 3 4 miles

Scale

Contour interval 80 feet

Datum is mean sea level