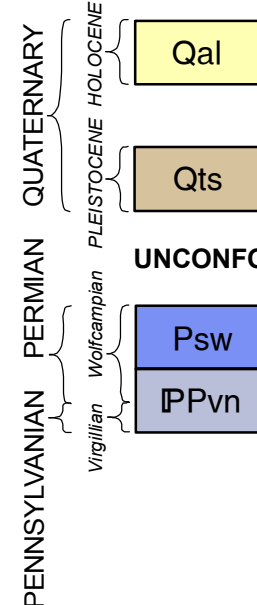


CORRELATION OF MAP UNITS



DESCRIPTION OF UNITS*

- Qal** ALLUVIUM (Holocene)—Clay, silt, sand, and gravel in channels and on flood plains of modern streams. Includes terrace deposits of similar composition located directly above and adjacent to modern channels and flood plains. Thickness: 0 to about 30 ft.
- Qts** TERRACE SANDS (Pleistocene)—Mapped as the Gurtie sand by Morgan (1924). Consists of unconsolidated locally and distally(?) derived, light colored, fine- to very fine-grained sand, mixed with some silt-sized sediment. Basal 5 to 15 feet of unit composed of a medium- to coarse-grained pebbly sand; granule- to pebble- to rarely cobble-sized material makes up roughly 10 to 15 percent deposit; composition of gravel mostly light gray chert and medium to dark gray limestone, but pink granite and white, vein quartz also present. Thickness: 0 ft to as much as 50 ft.
- Psw** STILLWATER FORMATION (Permian, Wolfcampian)—Poorly exposed in the Vanoss Quad. Consists primarily of deeply weathered, moderate reddish brown (10 R 4/6) to moderate red (5 R 5/4) mudstone to silty claystone; local interbeds of grayish yellow (5 Y 8/4) to very pale orange (10 YR 8/2), medium- to coarse-grained, laminated to thin, trough-cross-bedded, sandstone occur near top of formation. Base of formation mapped at base of Hart Limestone, mostly a grayish orange pink (5 YR 7/2), pinkish gray (5 YR 8/1) and dark yellowish orange (10 YR 6/6), sandy, unfossiliferous carbonate mudstone; sand-sized material constitutes approximately 2 to 3 percent of matrix; karst brecciation and fracturing, with clear calcite infilling of fractures common; locally, and to the south part of quad, float of a yellow- to yellowish brown-weathering, calcareous arkose is observed at the stratigraphic horizon of the Hart Limestone, and contains calcite stringers and veins similar to those of karstic infilling noted above, and giving arkose a honeycomb texture. Only the lower 50 to 60 feet of formation exposed in quad.
- PPvn** VANOSS FORMATION (Upper Pennsylvanian - Lower Permian, Virgilian - Wolfcampian) — Composed predominantly of intercalated indurated to moderately indurated calcareous arkoses, pebbly lithic arkoses, friable clayshales and mudshales; thin carbonate beds are observed in a few localities. In general, coarse-grained and pebbly arkoses are more prevalent in the southern part of the quadrangle and decrease to the north; also, arkoses become finer-grained and less conglomeratic northward. They also appear to become less feldspathic and more quartz-rich northward, approximating close to a subarkose composition. Rocks with higher feldspar content are generally tanner in color, whereas rocks with higher quartz content are grayer. Coarse-grained arkoses are very pale orange (10 YR 8/2), grayish orange (10 YR 7/4), moderate yellowish brown (10 YR 5/4), dark yellowish brown (10 YR 4/2), pale yellowish brown (10 YR 6/2), yellowish gray (5 Y 7/2), dark yellowish orange (10 YR 6/6), dusky yellow (5 Y 6/4). Fine- to medium-grained arkoses tend to be grayer and less red than coarser-grained equivalents, varying in color from yellowish gray (5 Y 8/1, 5 Y 7/2), very light gray (N8), light gray (N7), pale greenish yellow (10 Y 8/2), and pale olive (10 Y 6/2); overall, the arkoses are generally poorly sorted and heterogeneous, range from subrounded to subangular, very fine-grained to coarse-grained, as well as pebbly, and composed of 55 to 75% gray quartz, 25 to 35 % pink K-feldspar, 1 to 4% white plagioclase feldspar, and trace amounts of weathered biotite and rare muscovite. Conglomeratic clasts are subrounded to subangular, pebble, to locally cobble, size, and included lithic compositions ranging from pink to light brown K-feldspar, milky quartz, pink granite, white to gray chert, and gray limestone. Bedding, wavy to discontinuous, with alternating coarser- and finer-grained beds, ranging from laminated to medium-bedded; parting lineations and cross-bedding is observed in some arkoses, as well as scour channel, locally, asymmetric ripples and cross bedding indicate a southwest paleoflow direction. Shales vary compositionally and texturally from clayshale to mudstone. When moist, the clayshales are light olive gray (5 Y 5/2) to pale olive (10 Y 6/2). In one area, a mottled maroon and green clayshale is observed. When moist, the green clayshale is dark yellowish brown (10 YR 4/2) on the fresh inside surface. The maroon clayshale is moderate brown (5 YR 4/4). This mottled clayshale contains a few white calcareous limestone nodules. The silty to sandy shale is dusky yellow (5 Y 6/4), with nodules of calcareous yellowish gray (5 Y 8/1) clay. Both contain abundant muscovite and black organic material, with zones of thin coal in some areas. The shales may or may not be calcareous. Thin, discontinuous carbonates are present at a couple of levels within the Vanoss Formation; where present, limestones vary from 1 to 5 ft. thick, are yellowish gray (5 Y 7/2); upon weathering, the rock becomes mottled light olive gray (5 Y 6/1), olive gray (5 Y 4/1), grayish orange (10 YR 7/4), and pale reddish brown (10 R 5/4); the limestones are unfossiliferous, carbonate mudstones, commonly containing brecciated textures with calcite stringer-filling fractures, suggesting karst alteration. Total thickness of Vanoss Formation 270 feet.
- Ppad** ADA FORMATION (Upper Pennsylvanian, Virgilian(?))—Interbedded shale, sandstone, and local limestone-pebble conglomerates. Seen only in the subsurface.
- Pzun** UNDIFFERENTIATED PALEOZOIC ROCKS—Sandstones, shales, carbonate rocks of Upper Pennsylvanian, and older, ages. Seen only in the subsurface.

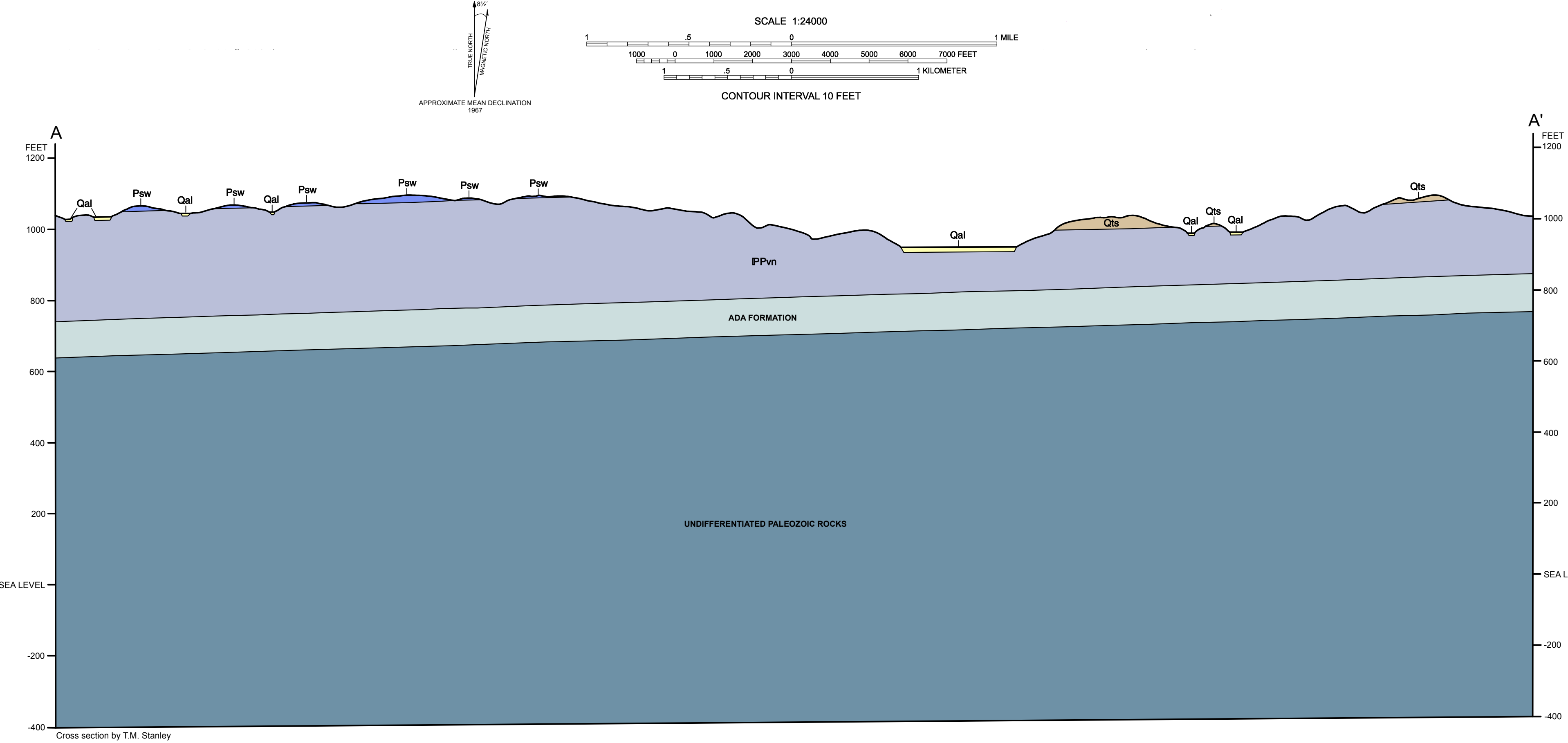
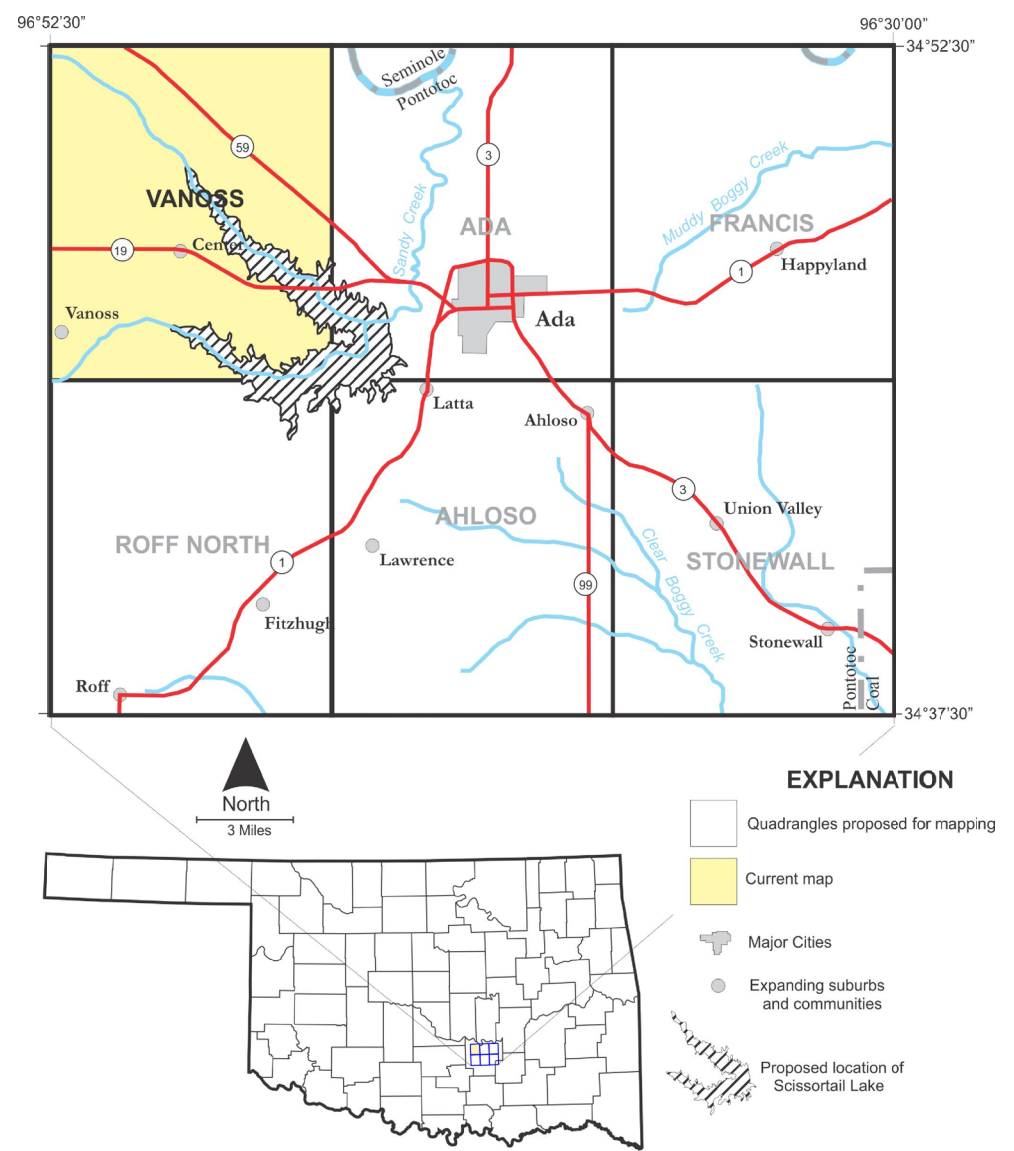
REFERENCES CITED:

Morgan, G.D., 1924, Geology of the Stonewall Quadrangle, Oklahoma: Bureau of Geology Bulletin, 2, 248 p.

*Detailed descriptions only include mappable units observed in the field. Formal member and bed names are indicated by capitalization (i.e., Stillwater Formation), while informal names are given in lowercase (i.e., Gurtie sand). Color of units based on fresh surfaces, unless stated otherwise.

SYMBOLS

- Unit contact; dashed where approximate
- Petroleum well. Includes oil, gas, oil and gas, dry service (water supply or injection), junked and abandoned, and unknown. Modified from Natural Resources Information System database.



GEOLOGIC MAP OF THE VANOSS 7.5' QUADRANGLE, PONTOTOC COUNTY, OKLAHOMA

Julie M. Chang and Thomas M. Stanley
2014