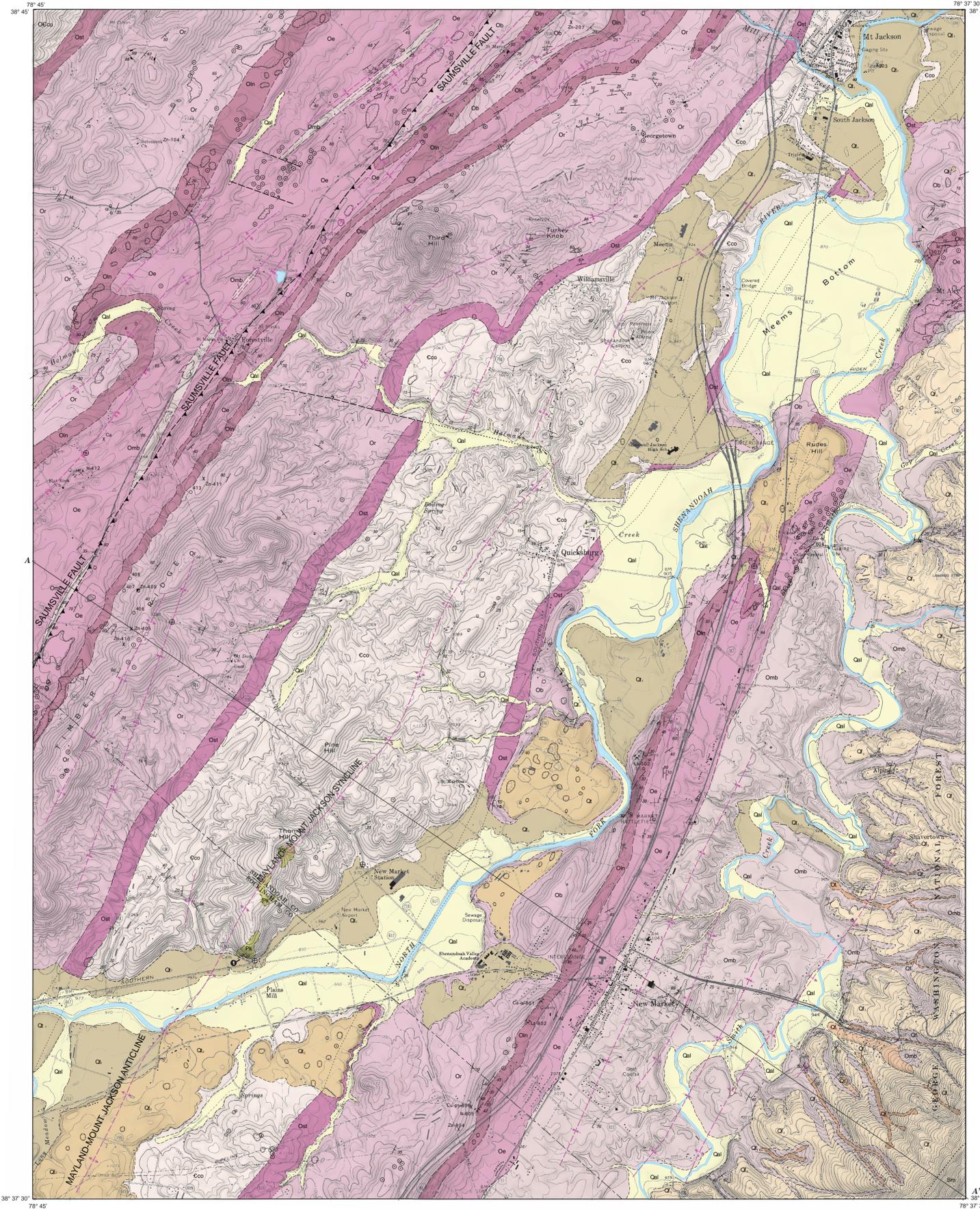


# GEOLOGIC MAP OF THE NEW MARKET QUADRANGLE, VIRGINIA

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with additional data compiled from Charles, P. Thornton (1953)  
2014



## DESCRIPTION OF MAP UNITS

- SURFICIAL DEPOSITS**
- Qal** Alluvial channel and flood-plain deposits – alluvial channel deposits: unconsolidated clay, silt, sand, gravel, and cobbles. Composition, color, grain size, rounding, and sorting are variable. Alluvial flood plain deposits: overbank deposits of clay, silt, sand, and minor cobbles within active flood plains.
  - Qt1** Younger terrace deposits – unconsolidated clay, silt, sand, gravel, and cobbles. These deposits are located adjacent to the modern alluvial floodplain of the North Fork of the Shenandoah River.
  - Qt2** Older terrace deposits – clay, silt, sand, gravel, and cobbles. Some small hills are capped by a thin layer of well-rounded, well-sorted sandstone cobbles. Older terrace deposits sit at higher elevations and are characterized by moderate sinkhole distribution.
  - Qt3** Youngest debris fan and associated deposits – blocks, boulders, and cobbles of quartz sandstone. Clasts of other bedrock may also be present. Very poorly sorted, can be supported in a tan to brown loamy sand matrix. Deposits occur along the margins of active stream channels draining steep, mountainous terrain and as small fans at the base of slopes.
  - Qt4** Younger debris fan and associated deposits – blocks, boulders, and cobbles of quartz sandstone. Weathered clasts of other bedrock may also be present. Very poorly sorted, can be supported in a tan to red-brown sandy loam to clay loam matrix. Deposits occur as discontinuous terraces above active stream channels, and as small fans at the base of slopes. Highest terraces could be equivalent to Qt1 deposits.
  - Qt5** Older debris fan and associated deposits – blocks, boulders, and cobbles of quartz sandstone; some clasts are friable. Very poorly sorted and supported in a red-brown clay loam matrix. Deposits are commonly dissected and occur on ridges and hill tops. Some deposits are erosional remnants.
  - Pk** Paleokarst – Zones underlain by thicker limestone beds are prone to karst development large blocks of unconsolidated, chaotic blocks in a matrix (see figure 1), thickness unknown.
- SEDIMENTARY ROCKS OF THE VALLEY AND RIDGE PROVINCE**
- Sm** Massanutten Sandstone (in cross-section only) – well-cemented, indurated quartz sandstone and orthoquartzite. The Massanutten to Martinsburg contact was not observed as it is covered by Qt1 deposits. Approximately 500 feet (150 meters) thick.
  - Omb** Martinsburg Formation – black to dark-gray shale and calcareous shale, olive-gray to blue-gray siltstone that weathers readily to brown, and dark-gray graywacke that weathers to gray. The lower contact is conformable with the underlying Edinburg Formation and gradational through an interval of at least 30 feet (9 meters) of interbedded Martinsburg and Edinburg lithologies known as the Stickle Run Member (Epstein and others, 1995); lower contact is placed at the base of the lowest calcareous shale or shaly limestone that overlies thicker-bedded, cobbly limestone of the Edinburg; the unconformable upper contact is placed at the top of the uppermost platy limestone underlying noncalcareous shale and graywacke of the Martinsburg. Martinsburg thickness variable due to folding and faulting.
  - Oe** Edinburg Formation – dark-gray to black limestone, weathers gray to orange-tan, very fine grained, thin to thick-bedded, commonly contains calcite-filled fractures; lower part is poorly exposed and consists of calcareous shale and impure lime mudstone; upper part is well exposed and consists of thin to very thick beds of lime mudstone and cobbly weathering limestone; prone to karst development. Approximately 1,200 feet (365 meters) thick.
  - On** Lincolnshire and New Market Formations, undivided – Lincolnshire Formation: light-gray to dark-gray, fine to coarse-grained, thin to very thick bedded, black chert-bearing limestone consisting of graptolite, fossiliferous packstone, and limestone with small calcite crystals and lesser lime mudstone; prone to karst development; upper contact is conformable, lower contact is disconformable. New Market Formation: light-gray to gray, micro-crystalline to fine-grained, medium-bedded to massive limestone consisting of limestone with calcite crystals, lime mudstone and lesser boundstone. The New Market Formation is a high purity limestone prone to karst development. Both upper and lower contacts are unconformable where observed. Approximately 200 to 400 feet (60 to 120 meters) thick.
  - Or** Beekmantown Group
  - Ost** Rockdale Run Formation – light to medium-gray, weathers light-gray, very fine grained, thin to very thick bedded, laminated to massive-bedded dolostone consisting of dolomitized algal boundstone, lime mudstone and wackestone; lesser limestone consisting of lime mudstone and micrite, dark gray, weathers blue-gray, may contain silty laminae; bedded white chert in middle portion; dark-gray, medium- to coarse-grained, thick-bedded dolostone in lower portion; lower contact is conformable; crushed stone resources; areas underlain by thicker limestone beds are prone to karst development, especially on ridges. Approximately 2,000 feet (610 meters) thick.
  - Coo** Stonehenge Limestone – medium to dark gray, fine- to medium grained limestone; thin beds of fossiliferous packstone are common; thin crinkly partings of sandy laminae; lower contact is conformable; approximately 500 to 700 feet (150-210 meters) thick.
  - Ceo** Conococheague Formation – limestone, dolostone, sandstone, and flat-pebble conglomerate. Limestone consists mostly of dark gray and pink-tan lime mudstone with common silty or dolomitic laminae that weathers gray and tan, dolostone consists mostly of light-gray, and medium- to thick-bedded dolomitized lime mudstone and wackestone with lesser algal boundstone; lesser gray orange-tan weathering medium-grained, and thin- to thick-bedded cross-laminated quartz sandstone and flat pebble conglomerate; sandstone forms ridges; lower contact is not present at the surface; approximately 2,500 feet (760 meters) thick.
  - Ce** Elbrook Formation (in cross-section only) – gray, fine-grained, shaly to thick-bedded, commonly laminated dolostone consisting of dolomitized lime mudstone, wackestone, and lesser algal boundstone; lesser gray to dark-gray, medium-bedded, limestone with thin dolomitic or red silty partings occurs in cycles. Ranges from 2,000 to 2,500 feet (610-760 meters) thick.

## CORRELATION OF MAP UNITS

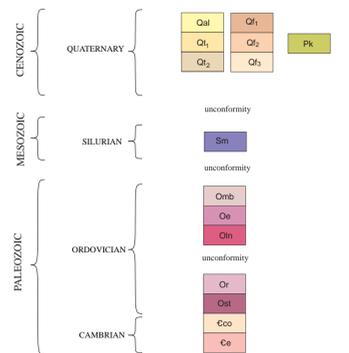


Figure 1. Block of paleokarst from outcrop in the Conococheague Formation, block height is one meter.

## ACKNOWLEDGEMENTS

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Coiner, L.V., and Rader, E.K., 2014. Bedrock geologic map of the New Market quadrangle, Virginia. Virginia Division of Geology and Mineral Resources Open File Report 2014-2.

## MAP SYMBOLS

- For all contact and fold symbols: lines are solid where the location is exact, long-dashed where the location is approximate; short-dashed where the location is inferred; dotted where the location is concealed. Queries added where identity or existence may be questionable. For geologic observation symbols, observation sites are centered on the strike bar or at the intersection point of multiple symbols.
- Contacts
  - Fault Contacts
    - Reverse - sawtooth on upthrown block
    - High angle Cross Fault with unknown displacement
  - Folds - showing direction of plunge where appropriate
    - Anticline
    - Syncline
  - Geologic Observations
    - Strike and dip of inclined beds
    - Strike and dip of overturned beds
    - Strike of vertical beds
    - Horizontal beds
    - Strike and dip of inclined cleavage
    - Inclined foliation - Showing strike and dip
    - Vertical foliation - Showing strike
    - Strike and dip of inclined joint
    - Direction and angle of plunge of minor syncline
    - Breccia
  - Mineral Resources - identification numbers are preceded by "199-B" in Mineral Resources of Virginia database
    - x Prospect
    - × Sand and gravel pit
    - ⊗ Mine or quarry (cs-crushed stone, ls-limestone, Zn-zinc, py-pyrite, Cu-copper)
    - ⊗ Abandoned mine or quarry (cs-crushed stone, ls-limestone, Zn-zinc, py-pyrite, Cu-copper)
    - o Drillhole
  - Water Resources - observed during mapping or interpreted from digital elevation model and LIDAR
    - o Sinkhole
    - o Karst area - large area of subsidence or area with multiple sinkholes
    - o Location described in explanation

