Orton Memorial Library of Geology
180 Orton Hall, 155 S. Oval Mall
The Ohio State University
Columbus, OH 43210

GEO
QE75
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c. 2

32/4

QUARRIES AND PITS

STONE (LIMESTONE)

7. Hipple quarry, Penn Limestone & Cement Co.
9. H. K. Landis Stone-meal Co. (also fertilizer)
10. Strickler & Hinkle (also cement blocks)
14. J. E. Baker, Northwest Billmeyer quarry (also roasted dolomite)
16. J. E. Baker, Mount Wolf quarry, Saginaw (also lime and burned dolomite)
21. Susquehanna Stone Co.

STONE (BAKED SHALE)

4. E. M. Keener
5. Heisey Brothers

LIME

13. J. E. Baker, Princess quarry, Billmeyer (also stone)

LIME (INACTIVE)

8. H. L. Heisey
11. Sam Meckley
12. Rowenna
15. Kennedy
20. Stacey-Wilton Co.
23. Wrightsville Stone & Lime Co.
25. Emigsville Limestone Co.
44. Haldeman (also flux)
45. Chickies (also flux)
46. Beard Lime Co.

BUILDING STONE

2. Hummelstown Brownstone Co.

ORNAMENTAL STONE (RHYOLITE)

40. Henry Billet

SAND

6. Heisey Brothers
17. Fred Doll
19. Harry & Charles Shenk
24. Bertha Buntin
41. Marietta Sand Co.
47. ?

BRICK CLAY

1. Hummelstown Brownstone Co.
3. Royalton Face Brick Co.
18. Manchester Shale Brick Co.

WHITE CLAY

22. Cooper quarry

IRON ORE

26. Gohn bank
27. Benj. Strickler
28. Stoner
29. Dr. Rudy
30. Keller
31. Heistand
32. Blessing
33. Norse
34. Miller
35. Smyser
36. Cottrel
37. Benson
38. Small
39. Grubb bank
42. Duffys
43. Cooper

EXPLANATION

SEDIMENTARY ROCKS

Stream deposits of Susquehanna River

Pleistocene and Recent — QUATERNARY

Altitude: Qlt³ 340′–400′; Qlt² 300′–340′; Qlt¹ 240′–300′

Lower terrace and recent flood-plain deposits

(Sand, gravel, and scattered large boulders, chiefly of quartzite, on nearly continuous terraces bordering the river; Qlt, Talbot (?), 0 to 30 feet above the river; Qlt, Wicomico (?), 60 to 70 feet above the river; Qlt, Sunderland (?) 80 to 100 feet above the river)

Eocene (?) to Pliocene (?) — TERTIARY

Tht³ 750′; Tht² 620′; Tht¹ 500′–520′

Higher terrace deposits

(Small remnants of gravel and sand; Tht¹, Bryn Mawr (?), 270 feet above the river on the Harrisburg (?) peneplain; Tht², 400 feet above the river; Tht³, 500 feet above the river)

UNCONFORMITY

Upper Triassic (Newark group) — TRIASSIC

Ꞧgc Ꞧg

Gettysburg shale

(Chiefly soft red sandstone and shale and crumbly conglomerate; baked to hard sandstone and purplish-black porcelanite adjacent to intrusive diabase, shown by red ruling; thick beds of coarse conglomerate, Ꞧgc, near western edge of the Triassic)

Ꞧno Ꞧqc Ꞧlc

New Oxford formation

(Red to purplish shale and sandstone interbedded with light-gray to yellow arkosic sandstone and crumbly conglomerate; baked to hard purplish-black porcelanite and light-gray sandstone adjacent to intrusive diabase, shown by red ruling; beds of quartzose conglomerate, Ꞧqc, and limestone conglomerate, Ꞧlc, locally at base)

UNCONFORMITY

Lower (?), Middle, and Upper (?) Ordovician — ORDOVICIAN

Oc

Cocalico shale

(North of Hellam Hills-Chickies Ridge uplift; dark-gray to bluish-black shale; Trenton and probably younger)

UNCONFORMITY

Ocs Ocss

Conestoga limestone

(South of Hellam Hills-Chickies Ridge uplift; thin-bedded blue limestone with argillaceous partings, closely folded and veined with calcite, and coarse limestone conglomerate; lower part possibly of Chazy or Black River age; light and dark gray banded earthy sandstone and dark-blue shale, Ocss, at base)

MARKED UNCONFORMITY
(Overlaps down to Vintage dolomite)

Lower Ordovician

Ob

Beekmantown limestone

(Pure blue limestone, laminated light-blue magnesian limestone, and lenticular gray dolomite veined by calcite and quartz; contains some black chert and coarse white marble; sparsely fossiliferous)

Upper Cambrian — CAMBRIAN

Ꞓcg

Conococheague limestone*

(Light-gray limestone banded with siliceous and argillaceous layers, dark and light gray dolomite, and cream-colored to white fine-grained marble with impure laminations; contains reefs of Cryptozoa in pure limestone; weathers to fine light-yellow sandy soil with shale fragments)

Lower Cambrian

Ꞓl

Ledger dolomite

(Pure granular light-gray dolomite mottled with dark gray, extensively quarried for dolomite and crushed stone; weathers to deep-red granular clay soil)

Ꞓkl Ꞓk

Kinzers formation

(Not present north of Hellam Hills uplift; lower part dark fissile to blue hackly shale; upper part blue limestone banded with dark impure layers and white marble spotted with irregular dolomite lenses, Ꞓkl, mapped south of Emigsville)

Ꞓv

Vintage dolomite

(Glistening dark-blue dolomite with irregular knotty argillaceous impurities and fine earthy white marble at base; weathers to deep-red clay soil)

Ꞓa

Antietam quartzite

(Light-gray to rusty-brown finely banded quartzite, fine quartz schist, and at top hard blocky granular ferruginous, calcareous quartzite with fossiliferous layers)

Ꞓh

Harpers phyllite

(Grayish green phyllite and dark and white banded sericitic slate)

NORTH OF VALLEY — Ꞓcq Ꞓc Ꞓch Ꞓhs

Chickies quartzite

Massive beds of hard white scolithus-bearing quartzite and quartz schist; thin-bedded sericitic granular quartzite with thin beds of dark slate at top; heavy quartzite, Ꞓcq, mapped locally to show structure; Hellam conglomerate member, Ꞓch, at base; dark slate beds in Hellam, Ꞓhs, locally mapped)

SOUTH OF VALLEY — Ꞓq Ꞓcs Ꞓch

Chickies slate

(Chiefly dark sericitic slate with many thin quartzite layers and some thicker quartzite beds, Ꞓq; Hellam conglomerate member, Ꞓch, at base)

**Part of Ozarkian system of E. O. Ulrich*

METAMORPHIC ROCKS

PRE-CAMBRIAN (ALGONKIAN ?)

mb

Metabasalt

(Altered basalt lava flows)

vs

Volcanic slate

(Blue and dark-purple sericitic slate, in part amygdaloidal)

ar arb

Aporhyolite

(Altered rhyolitic lava flows; arb, zone of brecciated pink rhyolite cemented by clear blue quartz containing some ilmenite)

IGNEOUS ROCKS

Late Upper Triassic — TRIASSIC

Ꞧd

Diabase

(Large sills and crosscutting bodies of coarse-grained dark crystalline rock and narrow dikes and thin sheets of fine-grained to aphanitic diabase called "ironstone")

Normal fault
(U, up side; D, down side)

Thrust fault
(T, overthrust side)

45° Strike and dip of rocks

80° Strike and dip of overturned beds

Strike of vertical beds

Horizontal beds

Active quarry

Abandoned iron-ore pit or quarry

PRODUCT

B, brick
Bs, building stone
Cb, cement block
F, flux
Fz, fertilizer
I, iron
L, limestone
S, stone
Os, ornamental stone
Sd, sand
D, dolomite
Wc, white clay

ECONOMIC NOTE

Gettysburg shale
(Thick red sandstone beds quarried for building stone; red shale beds suitable for brick and tile manufacture)

New Oxford formation
(Disintegrated sandy beds dug for building sand and gravel)

Cocalico shale
(Suitable for brick clay)

Conestoga limestone
(Extensively quarried for broken stone, road material, concrete, and building stone; formerly burned for lime; residual clay used for brick and tile)

Beekmantown limestone
(Extensively quarried for building stone and broken stone and formerly burned for field lime)

Conococheague limestone
(Quarried for broken stone and road material)

Ledger dolomite
(Extensively quarried for dead-burned dolomite for furnace lining and for flux and broken stone)

Kinzers formation
(Limestone beds quarried in places for foundation stone and broken stone)

Vintage dolomite
(Quarried for broken stone and burned for lime)

Antietam quartzite
(Quarried for foundation stone, road material, and ballast; source of iron-ore deposits)

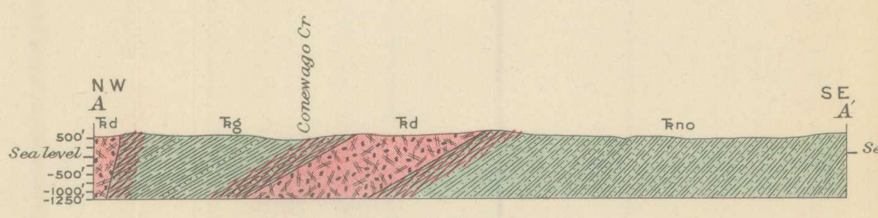
Harpers phyllite
(Used locally for road material)

Chickies quartzite
(Quarried for building sand, foundation stone, and quartz sand; residual white sericitic clay used in molding compound)

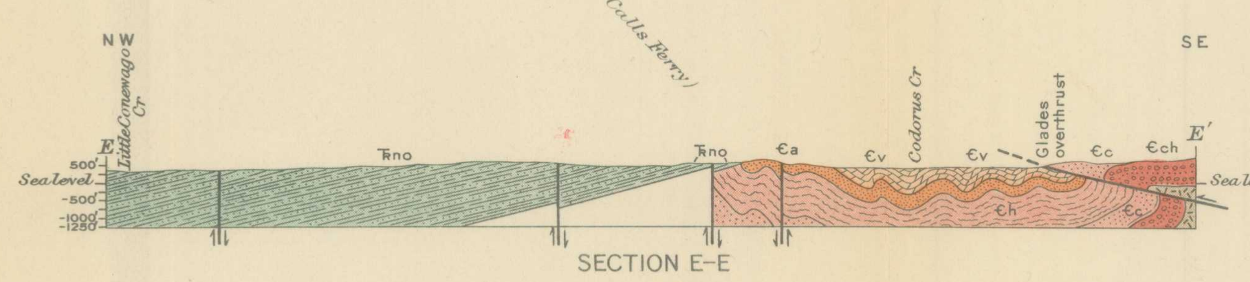
Aporhyolite
(Quarried for ornamental stone and building stone)

Diabase
(Quarried for road material, building stone, and retaining walls)

Iron ore
(Formerly extensively mined at contact of Antietam quartzite and Vintage dolomite and at fault contacts)



SECTION A–A



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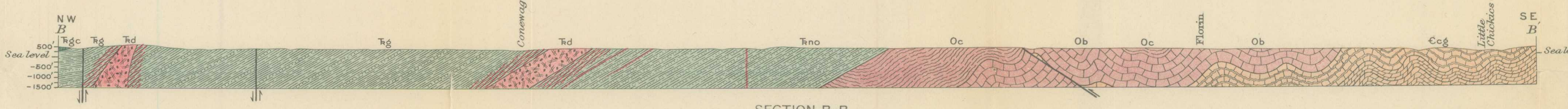

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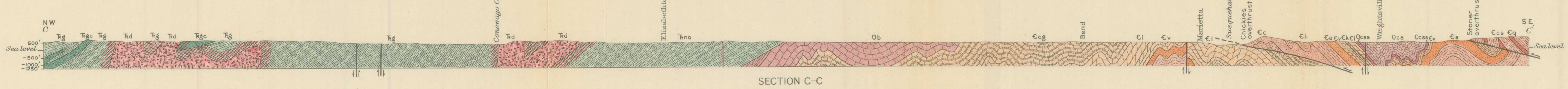

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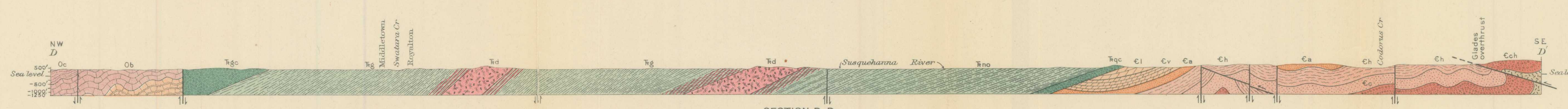

SECTION D–D

GEOLOGIC MAP AND SECTIONS OF THE MIDDLETOWN QUADRANGLE, PENNSYLVANIA

Base by U. S. Geological Survey, surveyed in cooperation with the State of Pennsylvania

TRUE NORTH — MAGNETIC NORTH — 8½°
APPROXIMATE MEAN DECLINATION 1932

Scale $\frac{1}{62500}$

1 ½ 0 1 2 3 4 Miles

1 ½ 0 1 2 3 4 5 Kilometers

Contour interval 20 feet.
Datum is mean sea level.
1932

Geology by George W. Stose and Anna I. Jonas
Surveyed in 1926–1929 in cooperation with the State of Pennsylvania