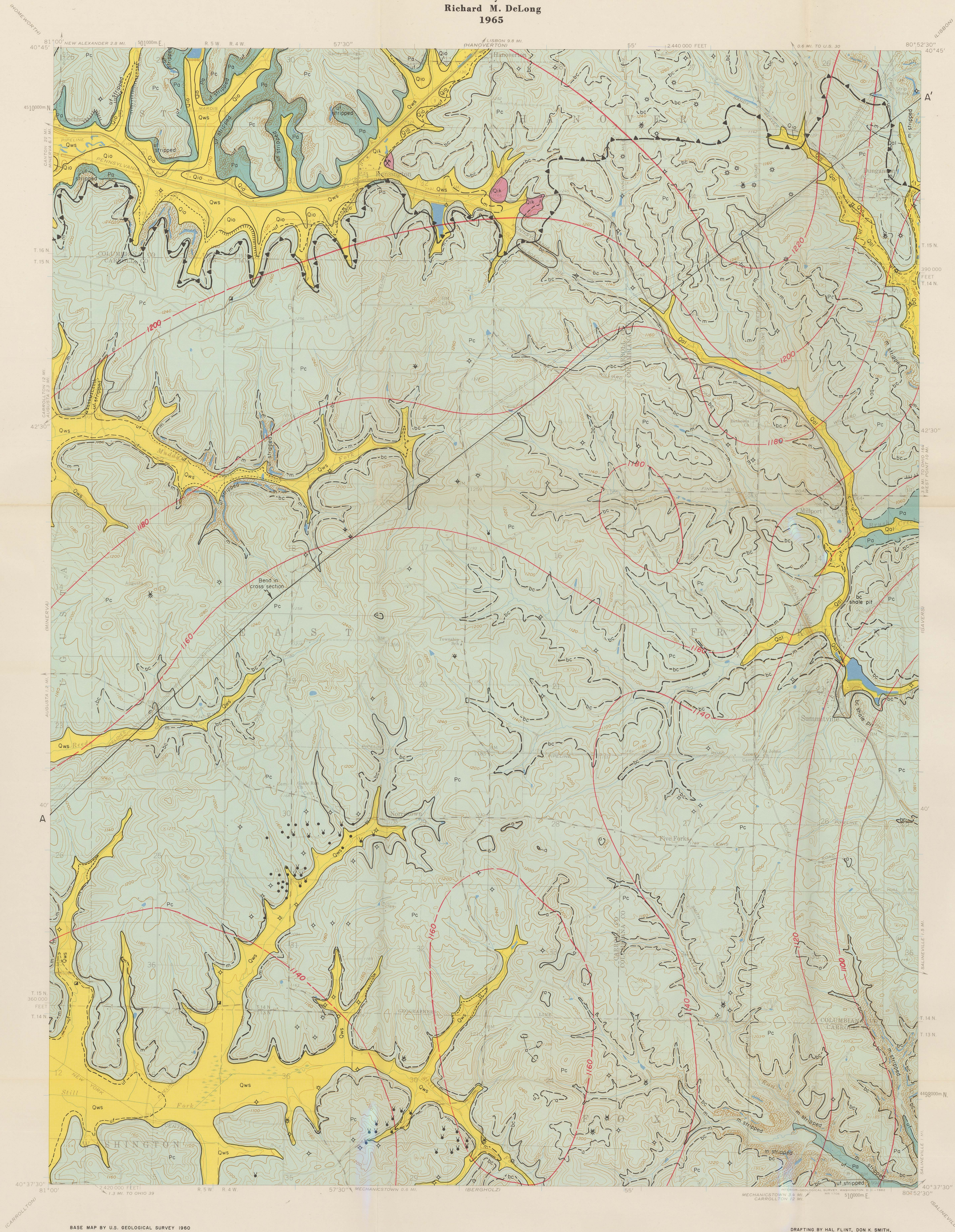


GEOLOGY OF THE KENSINGTON QUADRANGLE, OHIO

By
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DIVISION OF GEOLOGICAL SURVEY
GEOLOGY OF THE
KENSINGTON QUADRANGLE, OHIO
REPORT OF INVESTIGATIONS NO. 55

SYSTEM	GROUP	FORMATION, MEMBER, OR BED	LITHOLOGY	THICKNESS IN FEET	DESCRIPTION
QUATERNARY	Recent alluvium	Slackwater silt		0-100	Alluvium, restricted to shallow deposits along stream channels. Slackwater silt present along all westward-flowing streams, probably mostly of Wisconsin age at the surface. In the valley of Sandy Creek, the silt is possibly underlain in places by Illinoian gravel or drift.
		Illinoian gravel outwash		0-100	Gravel outwash forming low, sloping terraces with a silt cap that grades into thick clay up tributary valleys from the south. Some composed of deeply weathered gravel and sand, capped by silt.
	Undifferentiated			70±	Shales, the ones above the Ames Limestone are not exposed but may include the Duquesne Coal and Shaly Limestone which measure only a few inches thick and lie about 20 feet above the Ames Limestone.
		Ames Limestone		3	Limestone, light gray, coarsely crystalline, abundant marine fossils, particularly corals which are so conspicuous that this bed was first called the "coral limestone". This unit occurs as a massive bed of uniform thickness.
		Round Knob Clay		40-55	Clay, red, silty, with occasional limestone nodules or stringers. This unit is soft, weathers readily and is subject to slumping which normally results in poor exposures.
PENNSYLVANIAN	CONEMAUGH GROUP	Barton Coal		0-0.2	Coal, thin, rarely exposed, probably nonpersistent.
		Cow Run Shale		80	Shale, tan, thin bedded, with some red nonbedded clay in the upper part. This unit weathers readily and forms gentle slopes and rounded hillsides.
	WILGUS GROUP	Cambridge Limestone		0-0.1	Limestone, very highly weathered, bluish, 1/2 to 1 inch thick, containing marine fossils. This unit is apparently present only along the southern edge of the quadrangle and is continuous southward into the Bergholz quadrangle area.
		Wilgus Coal and Shale		0-16	Coal, discontinuous, varies from a smut to a zone of 2 to 3 benches separated by clay and shale partings up to 6 feet thick, and totaling as much as 16 feet.
	MASON GROUP	Buffalo Shale and Sandstone		72-88	Shale, tan to brown, thin bedded, sandy upward, and sandstone, light gray, fine grained and of conspicuous thickness only in section 1 of East Twp.
		Brush Creek Shale and Limestone		0-14	Shale and limestone; dark gray flinty shale, marine, discontinuous, highly variable in thickness, locally grades into very carbonaceous, micaceous and fossiliferous sandstone. Locally coal stringers are interbedded with the shale. The limestone occurs as nodules imbedded in the shale. The shale grades vertically into the Buffalo Shale except in sec. 1, East Twp. where it is replaced by sandstone.
	MASON GROUP	Brush Creek Coal		0-14	Coal, discontinuous, generally a smut streak.
		Mason Coal		51-78	Shale, tan, silty, thin bedded, with fine-grained sandstone interbeds. Locally, overlying the Mason coal, it is a medium-gray shale that contains sparse beach-horn water fossils and nonfossiliferous limestone nodules. The upper part of this unit grades from tan shale to gray, pale-red or light maroon clay up to 20 feet thick.
	MASON GROUP	Upper Mahoning Shale and Sandstone		0-3.5	Coal, varies from a thin smut to a mottled bed of coal. It is absent locally due to nondeposition or erosion.
		Mahoning Coal		1-2	Clay, light-gray to bluish-gray, plastic.
MASON GROUP	Mahoning Limestone		0-3	Limestone, light-gray, discontinuous, nodular, imbedded in brown to gray non-bedded clay.	
	Lower Mahoning Shale and Sandstone		43-52	Shale and sandstone; shale, tan to brown, silty to sandy, and thin to medium bedded generally constitute the lower and upper parts of this unit; sandstone varies from thin irregular-bedded sands with shale lenses to a disconformable channel sandstone or much as 30 feet thick, the base of which locally rests on the Upper Freeport Coal. Roof shale, black, hard, and thin bedded with fossiliferous is locally present. A thin coal smut occurs twenty feet above the Upper Freeport Coal in the northeastern corner of the quadrangle.	
ALLEGHENY	Upper Freeport	Upper Freeport (No. 7) Coal		2.0-3.5	Coal, generally occurs in a single block, variable in thickness.
		Upper Freeport Clay		1-7	Clay, plastic, light gray.
ALLEGHENY	Upper Freeport	Upper Freeport Shale and Sandstone		20+	Shale and sandstone, gray shale to light gray sandstone, varies from fine- to medium grained; occurs near stream level in the western and southeastern parts of the quadrangle.



EXPLANATION

- QUATERNARY**
- Qol, Recent alluvium
 - Qws, Slackwater silt
 - Qio, Illinoian outwash
- CONEMAUGH GROUP**
- Pc, Ames Limestone
 - bc, Brush Creek Shale and Limestone
 - m, Mahoning Coal
- ALLEGHENY GROUP**
- uf, Upper Freeport Coal

Contact, long dashes where approximate, short dashes where concealed by Quaternary deposits

Coal or limestone outcrop, long dashes where approximate, short dashes where concealed by Quaternary deposits

Structure contours drawn on Brush Creek Shale and Limestone. Contour interval is 20 feet, datum is mean sea level

Southern limit of glaciation (after Goldswait, et al)

- Operating quarry
- Abandoned slope or shaft mine
- Coal strip mine post-1960
- Oil well
- Oil well with a show of gas
- Gas well
- Oil and gas well
- Gas well with a show of oil
- Dry hole
- Dry hole with a show of oil
- Dry hole with a show of gas
- Dry hole with a show of oil and gas
- Symbol to show abandonment of well

ECONOMIC GEOLOGY

Coal

Two coal beds, the Upper Freeport and the Mahoning, are mined in this quadrangle. The Upper Freeport Coal ranges from 2 feet to 4 feet 8 inches in thickness and is extensively strip mined north of Sandy Creek. On the south side of Sandy Creek and along Muddy Fork this coal lies very close to drainage and has not been stripped as extensively. Along Still Fork this coal has been reached by slope and shaft. Along River Run in the southeastern part of the quadrangle the Upper Freeport is close to stream level and was formerly opened in one small stripping operation.

The Mahoning Coal has been strip mined in the northeastern part of the quadrangle where it measures 2 to 3 feet thick; it is apparently continuous westward to Still Fork where it has been mined by drifting. In the northeastern corner of the quadrangle a coal bed that has been stripped is identified by the author as the Mahoning; this same coal is considered by Stout (1924, p. 274) to be the Upper Freeport Coal, and the coal reserve estimate for this area by Boat (1956, p. 29) is based on this correlation. In this area the coal is 2 to 3 feet thick but this westward. The Mahoning Coal is less than a foot thick along Sandy Creek, Muddy Fork and River Run.

Clay

None of the clays in this quadrangle have been utilized by the ceramic industry. The Thomson Clay is the most persistent but it is thin, generally not more than 1 to 2 feet thick. The thicker deposits found in the Cow Run Shale and the Round Knob Clay have not been tested for ceramic properties.

Shale

The Brush Creek and Buffalo Shales are used at Summitville in the manufacture of brick. These units are widely distributed throughout this area and are of uniform character.

Other shale units are also present in the Conemaugh Group, but their ceramic characteristics are untested, and at only a very few localities in Ohio have they been utilized by industry.

Limestone

The Ames Limestone is the only source of limestone in this quadrangle. Its thickness is approximately 3 feet but reserves are small because it is restricted to the hills in the southeastern part of the quadrangle. It has been quarried for agricultural lime in the past.

Sandstone

The most abundant sandstones are the Upper and Lower Mahoning. These beds are lenticular and discontinuous, and therefore unsuitable for development as sources of sand or building stone.

Oil and Gas

Two oil pools lie within this quadrangle, the Norristown pool and Mechanicstown pool (Calvert, 1964). These pools produced from the Berea and Cussewago Sandstones respectively, and were discovered in the early 1900's. They are no longer active; in recent years recovery of oil by a water-drive program was instituted in the Norristown pool, but this has now been abandoned. Numerous other holes scattered throughout the quadrangle have tested these formations but have yielded only minor amounts of oil and gas. The Berea lies at approximately 200 feet above sea level.

One deeper test was drilled in the SE 1/4 of sec. 8, East Township and the Cussewago Limestone was reached at a depth of 3975 feet, or approximately 2715 feet below sea level. The well, drilled to 4110 feet, was abandoned before the "Clasco sand" was reached; the Cussewago Sandstone was reported as missing.

Salt

Salt deposits that aggregate 200 to 300 feet thick underlie the Kensington quadrangle at an elevation of 300 to 3000 feet below sea level (Pepper, 1947). These deposits are of Silurian age.

Sand and Gravel

Sand and gravel were deposited by Illinoian glacial meltwater in the valley of Sandy Creek in the form of scattered lenses and low-lying terraces capped by silt. Terraces in the small tributaries from the south are composed entirely of silt, as are all the valley bottom deposits farther south in this quadrangle. Active quarrying is limited to an open pit in a lease just westward of Kensington, in the NW 1/4 of sec. 12, Hanover Township.

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