AREAL GEOLOGY

STATE OF NEW JERSEY
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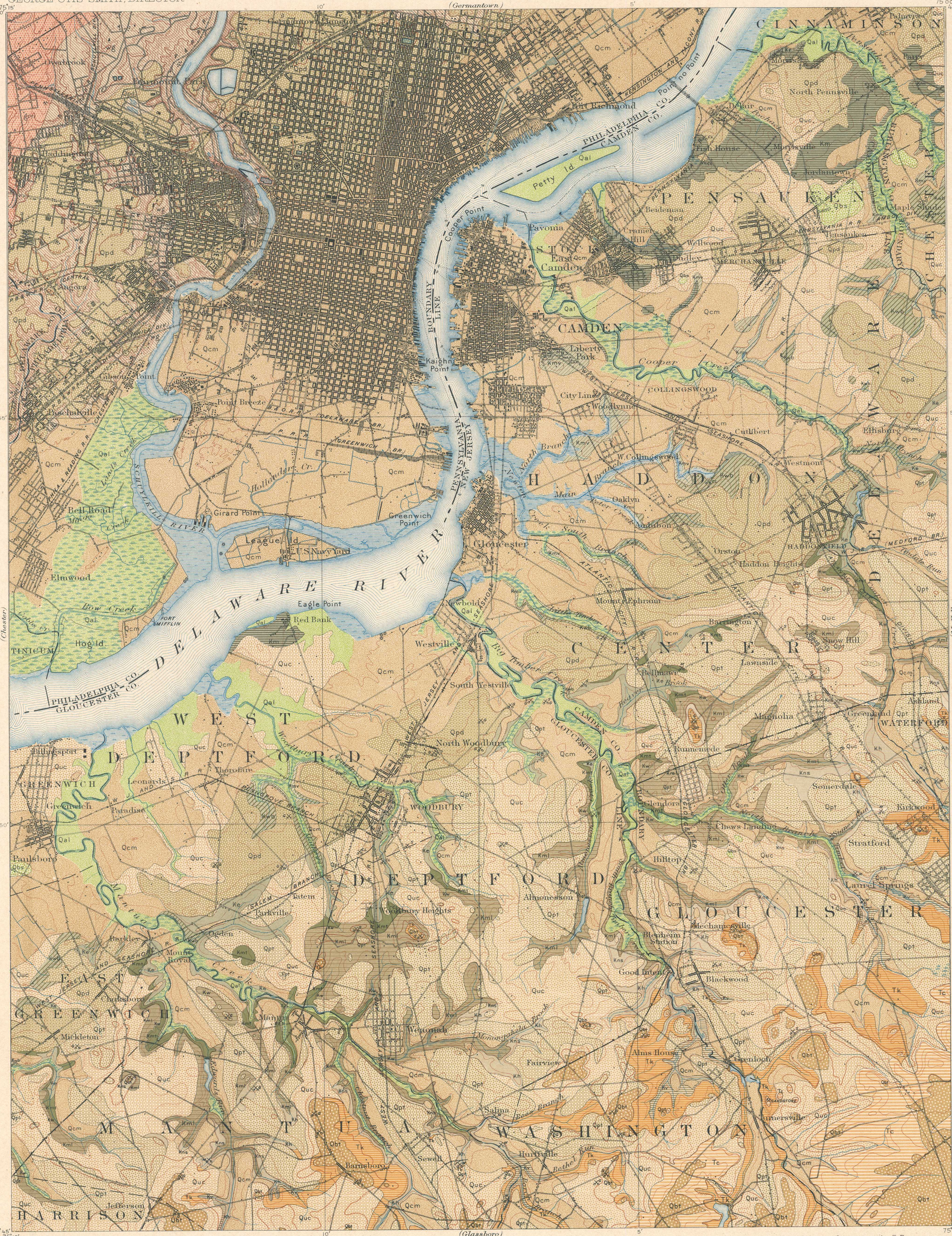
PENNSYLVANIA—NEW JERSEY
PHILADELPHIA QUADRANGLE



LEGEND

SEDIMENTARY ROCKS

(Areas of subaqueous deposits are shown by patterns of parallel lines; subaerial deposits by patterns of dots and circles; metamorphism is indicated by hachures combined with the line patterns.)

Recent

- Qal — **Alluvium and marsh muck** *(tidal flats not included)*
- Qbs — **Wind blown sand**

Pleistocene — QUATERNARY

- Quc — **Unclassified deposits** *(gravel, sand, and loam, of various ages, usually thin and discontinuous, with occasional outcrops of older formations)*

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- Qcm — **Cape May formation** *(sand and gravel, chiefly on terraces)*

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- Qpd / Qpt — **Pensauken formation** *(Delaware River phase, Qpd; tributary valley phase, Qpt; arkose, sand, and gravel, possibly includes material of slightly different age)*

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- Qbt — **Bridgeton formation** *(sand and gravel)*

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Miocene — TERTIARY

- Tc — **Cohansey sand** *(coarse sand with clay lenses)*

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- Tk — **Kirkwood formation** *(fine, meally, micaceous sand and, locally, beds of clay)*

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Upper Cretaceous — CRETACEOUS

Rancocas group

- Kv — **Vincentown sand** *(quartz and lime sands, the latter mostly indurated)*

Monmouth group

- Kh — **Hornerstown sand**
- Kns — **Navesink marl** *(dark-green glauconite marls, distinguishable by fossils but not separated on map)*
- Kml — **Mount Laurel sand**
- Kw — **Wenonah sand** *(reddish brown and yellow quartz sand; upper portion marly and coarse, lower portion finer and micaceous and contains a different fauna, but not separated on map)*
- Kmt — **Marshalltown formation** *(black sandy clay and sandy marl)*

Matawan group

- Ke — **Englishtown sand** *(variicolored sand, slightly lignitic, with occasional thin clay lenses)*
- Kwb — **Woodbury clay** *(black to dove-colored clay, usually nonglauconitic)*
- Kmv — **Merchantville clay** *(black sandy clay, usually glauconitic)*
- Km — **Magothy formation** *(lignitic sand and clay, the latter laminated and often black)*

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Lower Cretaceous

- Kr — **Raritan formation** *(varicolored clay, often highly refractory, with coarse, cross-bedded sand and gravel lenses)*

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PRE-CAMBRIAN

- wg — **Wissahickon gneiss** *(banded quartz-feldspar-mica rock with garnet, sillimanite, and andalusite)*

IGNEOUS ROCKS

(Areas of igneous rocks are shown by patterns of triangles and rhombs; metamorphism is indicated by hachures.)

- grn — **Granite gneiss** *(quartz-orthoclase-biotite-hornblende rock)*

Economic data

⚒ *Quarries*
building stone and road material

⛏ *Pits in unconsolidated deposits*
S, sand; G, gravel; CL, clay; M, marl

Note: *Building stone can be obtained from* grn, *and* wg; *road materials from* Qbt, Qpd, *and* Qpt; *clay for brick from* Kr, Km, Kmv, Kwb, *and* Ke; *gravel for concrete and building purposes from* Kr, Qbt, Qpd, Qpt, *and* Qcm; *sand for building and molding purposes from* Kr, Km, Kw, Kml, Kv, Tk, Tc, Qbt, Qpd, Qpt, Qcm, *and* Qbs; *marl for fertilizer from* Kmt, Kns, *and* Kh.

Henry Gannett, Chief Topographer.
H. M. Wilson, Chief Geographer.
Triangulation by U.S.C. and G.S. City of Philadelphia, and Geol. Survey of New Jersey.
Topography by Geol. Survey of New Jersey, City of Philadelphia, Frank Sutton, and R. D. Cummin.
Surveyed in 1894.

Scale 1/62500
1 0 1 2 3 4 Miles
1 0 1 2 3 4 5 Kilometers

Contour interval 20 feet.
Datum is mean sea level.

Edition of Sept. 1908.

Geology of the pre-Cretaceous by F. Bascom;
Cretaceous and Tertiary by W. B. Clark, G. N. Knapp, B. L. Miller, and A. Bibbins;
Quaternary of New Jersey by G. N. Knapp.
Surveyed in 1894–1907.

SURVEYED IN COOPERATION WITH THE STATE OF NEW JERSEY.

7½° MAGNETIC NORTH — TRUE NORTH
APPROXIMATE MEAN DECLINATION 1907.