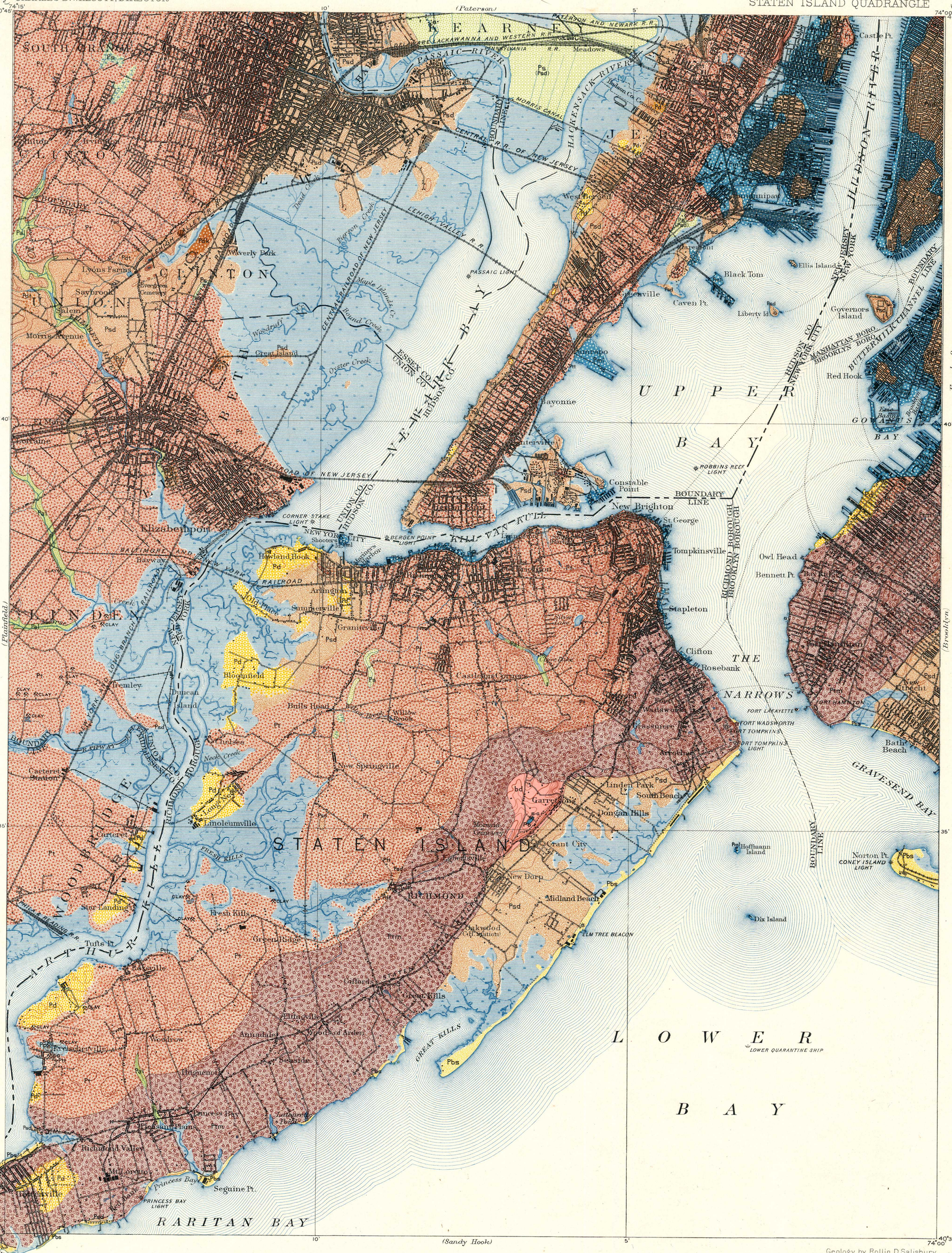
U.S. GEOLOGICAL SURVEY
CHARLES D. WALCOTT, DIRECTOR

SURFICIAL GEOLOGY SHEET

NEW JERSEY - NEW YORK
STATEN ISLAND QUADRANGLE



LEGEND

SURFICIAL ROCKS

(Areas of Surficial rocks are shown by patterns of dots and circles.)

Post-Glacial Epoch

- **Pml** — Made land
- **Pal** — Alluvium *(in stream bottoms)*
- **Ps** — Swamp muck *(tidal flats not included)*
- **Pbs** — Recent beach sand and gravel
- **Pd** — Dunes and dune sand

Epoch of Glacial Retreat

- **Psd** — Stratified drift *(locally very thin, with occasional rock exposures)*
- **Pdk** — Stratified drift with kame-like habit
- **Pk** — Kames *(irregular hills or mounds of stratified drift)*

Epoch of Late Glacial Occupation

- **Pdt** — Stratified drift and till *(undifferentiated)*
- **Pdr** — Drumlins and drumloids *(elongate elliptical hills of till)*
- **Ptt** — Thin till *(with numerous rock exposures)*
- **Pt** — Till *(with occasional small rock exposures)*
- **Ptm** — Terminal moraine *(belt of thick drift with very irregular topography)*

Early Pleistocene

- **Pp** — Pensauken formation *(sand and gravel thinly covered with till)*
- **Pb** — Bridgeton or Beacon Hill gravel

PLEISTOCENE

- **bd** — Bed rock *(larger exposures of bed rock in places covered by thin till or stratified drift)*

PRE-PLEISTOCENE

CLAY *Clay pits in surficial deposits*
S-G *Sand and gravel pits*

Letter symbols in parenthesis indicate the formation which underlies swamp muck

H. M. Wilson, Geographer in charge.
Triangulation by U. S. Coast and Geodetic Survey.
Topography by U. S. Coast and Geodetic Survey.
S. H. Bodfish, Frank Sutton, J. W. Thom, and J. H. Wheat.
Surveyed in 1888-89 and 1897 in cooperation with the State of New York
Campbell W. Adams, State Engineer and Surveyor.

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.
Edition of Oct. 1901.

Geology by Rollin D. Salisbury and Charles E. Peet.
Surveyed in 1896.