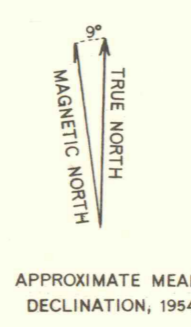


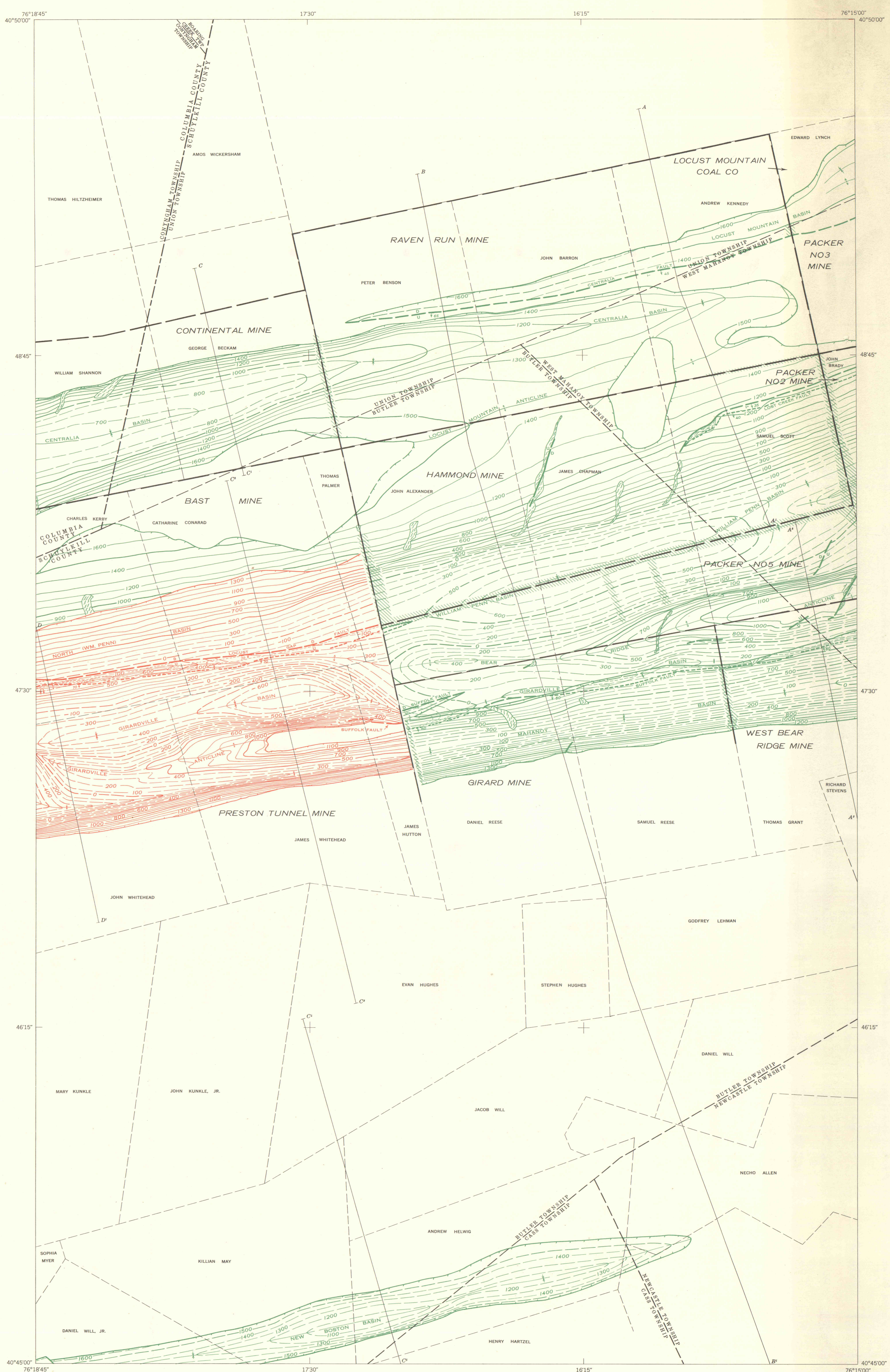
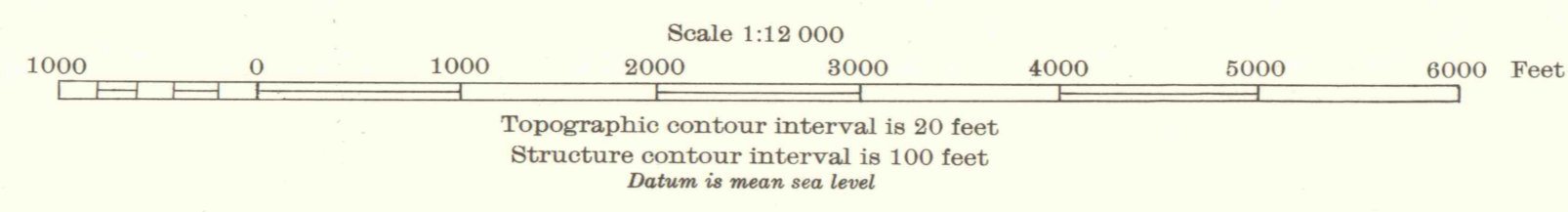


COAL OUTCROP MAP

Base: U. S. Geological Survey topographic map.
 Polyconic projection, 1927 North American datum.
 Topography was contoured from aerial photographs
 made in 1942. Correction has generally not been
 made for topographic changes resulting from strip
 mining or alteration of mine refuse banks since 1942.

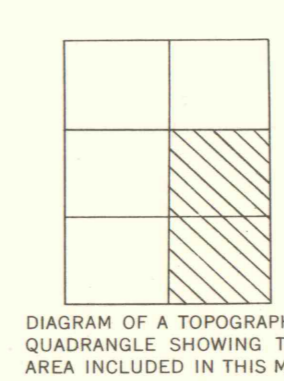


- EXPLANATION
 OUTCROP MAP**
- Coal outcrop
(Solid where location is known, long dashes where uncertain,
 Number designates coal bed, 1, local bed, 1, top split.)
 - High angle fault showing dip
(1, westward side; 2, eastward side.)
 - Fault showing relative movement
 - Thrust or low angle reverse fault
(Showing dip
 1, upper plate.)
 - Anticline
(Showing crest line.)
 - Syncline
(Showing trough line.)
 - Overtured anticline
(Showing crest line and direction of
 dip of the beds.)
 - Overtured syncline
(Showing trough line and direction of
 dip of the beds.)
 - Structural cross section
 - Strip-mined area
(Shaded area back-filled.)
 - Surface opening on coal bed
 - Exploratory trench
(This shows where coal was found.)
 - Crop fall
(Collapsed area where surface has fallen into
 underground workings.)
 - Mine waste
(Includes such refuse from mining and breaker operations
 as rock, rock banks, coal piles, back fill, and tail in
 strip basins.)
 - Stream-transported waste
 - Boundary of mine
(NICHOL ALLEN)
 - Warranty tract
(Boundaries are indicated by general orientation and
 identification but are not substantiated for legal
 purposes.)
 - Borough line
- EXPLANATION
 STRUCTURE MAP**
- Outcrop of coal beds
 - Fault cutting contoured bed showing dip of
 fault plane, relative position of faulted seg-
 ments, and direction of slip.
(Fault trace is solid where location is known, long dashes
 where uncertain; long dashes with dots where location
 is indicated by short dashes where approximately
 located and dots where approximately located. If no
 sense is apparent, D, downthrown segment; U, overturned
 segment.)
 - Shear zone
 - Anticline
(Showing crest line and where location is known, dashed
 where location is uncertain.)
 - Syncline
(Showing trough line and where location is known, dashed
 where location is uncertain.)
 - Overtured syncline
(Showing trough line and direction of
 dip of the beds.)
 - Contours on the bottom of the contoured
 coal bed
(Solid in solid areas; dashed in unmined areas; in
 those places where a part of the bed has been mined
 part of the line is short dashes and part is solid
 lines, and every short dash is unmined area.)
 - Structural cross section
(A—A')
 - Barrier pillar in contoured bed
 - Boundary of mine
(NICHOL ALLEN)
 - Warranty tract
(Boundaries are indicated by general orientation and
 identification but are not substantiated for legal
 purposes.)



STRUCTURE MAP OF THE BUCK MOUNTAIN AND MAMMOTH COAL BEDS

Prepared in 1951 from data supplied by the Hazle Brook Coal Co.,
 Lehigh Valley Coal Co., and Philadelphia and Reading Coal and Iron
 Co., with modifications by the U. S. Geological Survey.



GEOLOGY OF ANTHRACITE IN THE EASTERN PART OF THE ASHLAND QUADRANGLE, PENNSYLVANIA

By
 Boyd R. Haley, Harold H. Arndt, Howard E. Rothrock, and Holly C. Wagner