

Location: Long Branch of Tug Fork of Knox River, Buchanan County Va.

0-60	Missing
60-70	Graywacke, light gray (N-7) medium-grained, poorly sorted, sub-angular-angular, little fine-grained black mineral, trace green mineral, trace pyrite, 75% quartzose.
70-79	Ditto.
79-85	Shale, medium light gray (N-6) finely micaceous (muscovite?).
85-95	Siltstone, medium light gray (N-6) poorly sorted, fine-grained, black mineral.
95-106	Graywacke, light gray (N-7) medium- to coarse-grained, poorly sorted, and subangular to angular, black mineral, little green mineral (glaucanite), 75% quartzose.
106-114	Ditto.
114-122	Shale, black (N-1) platy, carbonaceous (?).
122-132	Graywacke, light gray (N-7) fine-grained poorly sorted, sub-angular to angular, black mineral, trace green mineral, 75% quartzose.
132-138	Same as above with slightly more clay cement.
138-150	Shale, silty, medium gray (N-4) friable, very micaceous (muscovite?) slightly calcareous.
150-164	Ditto.
164-171	Ditto.
171-175	Ditto.
175-185	Ditto.
185-215	Same as above, but slightly more quartzose.
215-225	Shale, medium gray (N-5) silty, slightly calcareous, slightly calcareous, slightly micaceous, trace pyrite.
225-235	Graywacke, light gray (N-7) very fine grained, sub angular to angular, little green mineral (chlorite?), brown mineral (phlogopite?), trace pyrite, 40% quartzose.
235-242	Shale, medium gray (N-5) fairly silty, compact, fairly micaceous (muscovite?).
242-250	Ditto.

- 250-256 Shale, medium gray (N-5) silty, slightly micaceous.
- 256-270 Shale, medium light gray (N-6), silty, micaceous, 10% black shale (carbonaceous?).
- 270-285 Same as above, but no black shale.
- 285-291 Shale, medium gray (N-5), silty, fissile, slightly micaceous, trace coal and carbonaceous shale.
- 291-303 Ditto.
- 303-310 Shale, medium light gray, silty, micaceous.
- 310-315 Same as above, but trace of coal and 5% carbonaceous shale.
- 315-325 Graywacke, medium dark gray (N-4) very fine-grained, subangular to angular, slightly micaceous (muscovite and sericite?), green mineral (chlorite?), black mineral, 25% quartzose.
- 325-335 Shale, dark gray (3.6) micaceous (muscovite?); 10% black shale (carbonaceous).
- 335-345 Shale, dark gray (N-3) compact, finely micaceous; 10% coal.
- 345-350 Shale, medium dark gray (N-4); trace coal and carbonaceous shale.
- 350-358 Shale, gray black (N-2), slightly silty, finely micaceous.
- 358-365 Ditto.
- 365-371 Black, shale (N-1) slightly silty, finely micaceous, carbonaceous (?).
- 371-378 Ditto.
- 378-381 Shale, dark gray (N-3) micaceous.
- 381-390 Shale, medium gray (N-5.5) micaceous, fissile.
- 390-400 Graywacke, very silty, very light gray (N-7) little black mineral, little mica (muscovite?), slightly calcareous cement, 80% quartzose.
- 400-411 Same as above, but with 10% fine sandstone.
- 411-417 Graywacke, silty, medium dark gray (N-4), micaceous, black mineral (15%) quartzose (70%).
- 417-426 Shale, dark gray (N-3), micaceous, carbonaceous.
- 426-431 Ditto.
- 431-440 Shale, medium dark gray (N-4), fissile, carbonaceous (?).
- 440-450 Shale, medium gray (N-5), carbonaceous; trace calcite; 5% coal.

- 450-456 Shale, medium dark gray (N-4);;trace pyrite.
- 456-463 Ditto.
- 463-471 Shale, medium dark gray (N-4.5), carbonaceous, slightly silty.
- 471-475 Shale, medium gray (N-5), dense, blocky, micaceous.
- 475-480 Ditto.
- 480-486 Ditto.
- 486-491 Sandstone, very light gray (N-8), very fine-grained to fine-grained, fairly well sorted, subangular to angular, little mica (muscovite?), slightly porous, trace black mineral, 90% quartzose.
- 491-496 Sandstone, very light gray (N-8), fine to medium-grained, fairly well sorted sorted, subrounded to subangular, slightly porous, little black mineral, 90% quartzose.
- 496-500 Sandstone, white (N-9), fine- to medium-grained, subrounded to subangular, well sorted, friable, porous, 30% of quartz grains frosted, 95% quartzose.
- 500-505 Sample missing.
- 505-510 Sandstone, white (N-9), poorly sorted, very fine- to medium-grained, subrounded to angular, few frosted quartz grains, fairly porous, friable, little mica (muscovite), 90% quartzose.
- 510-527 Graywacke, very light gray (N-8), friable, black mineral, micaceous (muscovite?), 80% quartzose.
- 527-535 Graywacke, light gray (N-7), friable, black mineral, micaceous (muscovite?), 70% quartzose.
- 535-544 Graywacke, medium gray (N-5), micaceous (muscovite?), 20% black mineral, 70% quartzose.
- 544-550 Shale, silty, medium dark gray (N-4.5), micaceous (muscovite).
- 550-560 Shale, silty, medium dark gray (N-4), platy, micaceous (muscovite?).
- 560-566 Siltstone, medium dark gray (N-4).
- 566-575 Ditto.
- 575-584 Same as above, but more shaly, and slightly micaceous.
- 584-592 Same as above, with trace of white very fine-grained crystalline(?) limestone.

- 592-598 Siltstone, medium dark gray (N-4); shaly; trace of limestone as above.
- 598-607 Siltstone, light gray (N-7), coarse-grained, black mineral, micaceous (muscovite?).
- 607-616 Ditto.
- 616-625 Siltstone, medium light gray (N-6), coarse-grained, micaceous, banded, dark gray carbonaceous shale (?); plant fossil.
- 625-635 Siltstone, medium dark gray (N-4), disseminated carbonaceous material.
- 635-645 Sandstone, very light gray (N-8), fine- to medium-grained, subrounded to subangular, fairly well sorted, fairly porous, little black mineral.
- 645-652 Ditto.
- 652-662 Sandstone, very light gray (N-8), very fine- to medium-grained, poorly sorted, less porous than above.
- 662-673 Shale, medium light gray (N-6), slightly silty, chunky, slightly micaceous.
- 673-685 Shale, medium light gray, laminated, finely micaceous.
- 685-695 Ditto.
- 695-705 Ditto.
- 705-715 Shale, medium dark gray (N-4), laminated.
- 715-722 Shale, dark gray (N-3), laminated.
- 722-730 Siltstone, light gray (N-7).
- 730-738 Ditto.
- 738-742 Ditto.
- 742-750 Graywacke, very light gray (N-7), very fine- to fine-grained, black mineral, micaceous, green mineral (glauconite?), 70% quartzose.
- 750-754 Ditto.
- 754-762 Shale, medium dark gray (N-4), silty, micaceous, thin bedded.

- 762-766 Graywacke, very light gray (N-8), very fine- to fine-grained, moderately well sorted.
- 766-770 Ditto.
- 770-775 Ditto.
- 775-782 Ditto.
- 782-786 Sandstone, very light gray (N-8), very fine- to fine-grained, little black mineral, slightly porous, 95% quartzite.
- 786-790 Ditto.
- 790-795 Ditto.
- 795-805 Sandstone, grayish orange (10YR 7/4), fine-grained, well sorted, porous, 90% quartzose.
- 805-809 Shale, medium dark gray (N-4), micaceous.
- 809-817 Ditto.
- 817-822 Shale, medium dark gray (N-4), sandy, slightly carbonaceous, little chert (?).
- 822-828 Shale, medium dark gray (N-4), compact, plant fossil.
- 828-836 Shale, medium dark gray (N-4), compact, carbonaceous; trace coal.
- 836-841 Shale, medium dark gray (N-4), same as above; but with 10% coal.
- 841-850 Shale, medium dark gray (N-4).
- 850-860 Ditto.
- 860-870 Shale, medium dark gray (N-4); 5% coal.
- 870-881 Graywacke, light gray (N-7), very fine- to fine-grained, black mineral, 60% quartzose.
- 881-890 Graywacke, medium light gray (N-6), fine- to medium-grained, micaceous (muscovite), black mineral, 40% quartzose.
- 890-900 Graywacke, light gray (N-7), very fine- to fine-grained, black mineral, micaceous (muscovite?), 60% quartzose.
- 900-905 Graywacke, light gray (N-7), black mineral, micaceous, slightly calcareous, 70% quartzose.

950-915	Shale, dark gray (N-3), slightly micaceous.
915-926	Shale, dark gray (N-3.5), carbonaceous; plant fossil; trace coal.
926-937	Shale, dark gray (N-3), compact.
937-946	Shale, medium dark gray (N-4), massive, slightly micaceous.
946-956	Shale, dark gray (N-3), massive; 5% chert (?).
956-964	Shale, dark gray (N-3), massive, micaceous.
964-973	Shale, grayish black (N-2); 50% coal with very thin interbedded seams of calcite (?).
973-980	Shale, dark gray (N-3).
980-985	Ditto.
985-991	Shale, medium dark gray (N-4), platy, silty.
991-1000	Ditto.
1000-1005	Shale, medium gray (N-5), silty, slightly micaceous.
1005-1011	Ditto.
1011-1022	Shale, medium dark gray (N-4), sandy.
1022-1030	Sandstone, medium light gray (N-6), silty, very fine- to fine-grained, fairly well sorted, black mineral, 70% quartzose.
1030-1032	Sandstone, light gray (N-7), very fine- to fine-grained, sub-angular to angular, fairly well sorted, slightly porous, brown mineral.

Samples from 0 to 1032 feet
examined by Allen Williamson,
Geologist, U. S. Geological Survey
Lexington, Kentucky, October, 1949.