151-911A-3H-3 (Piece Dropstone 44–45 cm) OBSERVER: LLD WHERE SAMPLED: Northern Yermak Plateau
ROCK NAME: Quartzite
GRAINSIZE: Very fine-grained.
TEXTURE: Mica defines a lineation. Foliated: two at an angle of 30°–40°.

| MINERALS | VOL. % | SIZE (mm) | MORPHOLOGY | COMMENTS |
|---|---|---|---|---|
| Quartz | 95 | 0.04 | Xenoblastic. | |
| Tourmaline or amphibole | <1 | 0.05–0.10 | Idioblastic. | Zoned with lighter green rims. |
| White mica | 2-Jan | 0.05–2.0 | "Needle-like, wispy." | Colorless to light green pleochroism. |
| Brown mica | 2-Jan | 0.05–1.1 | Wispy. | Fibrous to ropey. |

ADDITIONAL COMMENTS: Reddish-brown phyllosilicates outline many quartz grains, forming sinusoidal chains. Rock is 1X 2X? cm, and enclosed by a partial rind of iron-oxide minerals.

151-911A-34X-3 (Piece Dropstone, 93–96 cm) OBSERVER:LLD WHERE SAMPLED: North Yermark
ROCK NAME: Clast-bearing pelletal mudstone. Brief description.
GRAINSIZE: 0.05–0.10

| MINERALS | VOL. % | SIZE | MORPHOLOGY | COMMENTS |
|---|---|---|---|---|
| Microcline | 10 | | | Some altered K-feldspar. |
| Plagioclase | 5 | | | |
| Quartz | 20 | | | |
| Carbonate | 2 | | | |
| Altered biotite | 1–2 | | | |
| Chlorite | 1 | | | |
| White mica | 1 | | | |
| Iron-oxide minerals | 3 | | | |
| Pyroxene | <1 | | | Green-clear pleochroism. |
| Siderite | <1 | | | |
| Epidote | <1 | | | |
| Glauconite | <1 | | | |
| ALLOCHEMS | | | | |
| Carbonate pellets. | 20 | | | Rounded (worm fecal pellets). |
| CEMENT/ MATRIX | | | | |
| Mud/Clay | 20 | | | Brown to mustard colored. |
| Iron-oxide minerals | 1–2 | | | |
| Clay | 10 | | | Kaolinite (?); nearly isotropic. |
| ROCK FRAGMENTS | | | | |
| Mud clasts. | 3-5 | | Rounded. | >60% clay, angular fragments." |

ADDITIONAL COMMENTS: Clay "clasts" have 1-mm-long white mica tablets extending outward into the grain-rich "host" matrix." Pellets are locally concentrated. Grains are angular to subangular.

151-911A-34X-3, (Piece Dropstone, 95–98 cm) OBSERVER: LLD WHERE SAMPLED: Northern Yermak Plateau
ROCK NAME: Fossiliferous, carbonate-clast-bearing claystone. Brief description.
GRAINSIZE: 0.10 mm grains; 4–11 mm clasts.

| MINERALS | VOL. % | SIZE | MORPHOLOGY | COMMENTS |
|---|---|---|---|---|
| Altered biotite | 5 | | | Thin section is not described in detail. |
| ALLOCHEMS | | | | |
| Plants | <1 | | | |
| Filled burrows | 2 | | | |
| Bivalve fragments | <1 | | | |
| Coral? | <1 | | | |

ADDITIONAL COMMENTS: Many clasts are distinguished from the host matrix by a much higher percentage of clay. Clasts are rounded. Quartz is much more abundant than feldspar. It may be a concentration of the local diamicton.

151-911A-36X-2 (Piece Dropstone 31–33 cm) OBSERVER: LLD WHERE SAMPLED: Northern Yermak Plateau
ROCK NAME: Foliated, pyroxene, biotite metagranite.
GRAINSIZE: 0.05–2.0 mm
TEXTURE: Foliated, subhedral granular.

MINERALOGY

| MINERALS | PRES % | ORIG % | SIZE (mm) | COMP | MORPHOLOGY | COMMENTS |
|---|---|---|---|---|---|---|
| Quartz | 30 | | 0.05–2.0 | | Anhedral. | Much is strained. |
| Plagioclase | 20 | | 0.05–0.80 | Sodic. | Anhedral. | Twinned and slightly sericitized. |
| Apatite | 1 | 1 | 0.05–0.20 | | Anhedral. | |
| Biotite | 1 | 3 | | | | |
| Opaque mineral | 3 | 1 | 0.10–1.0 | 2 types. | Anhedral to euhedral. | 2 distinct phases present. |
| Clinopyroxene | Tr | | 0.10–0.30 | | Anhedral. | With or rimmed by Fe-oxides. |
| Allanite | 1 | | 0.02–0.20 | | Annhedral. | Anomalous birefringence; brown pleochroism. |
| Rutile | Tr | | 0.05 | | | Root beer color. |
| White mica | <1 | | 0.10–0.30 | | Subhedral. | |
| Zircon | Tr | | 0.02–0.10 | | Euhedral to subhedral. | |
| Chlorite | 3 | | | | | |
| K-feldspar | 40 | | 0.05–2.0 mm | | | Sericitized. |

ADDITIONAL COMMENTS: Allanite is not positively identified: it has high relief, has brown to yellow pleochroism, low to anomalous birefringence, is biaxial and looks fibrous at high magnification (perhaps metamict?).

151-911B-3H-CC (Piece Dropstone, 15–16 cm) OBSERVER: LLD WHERE SAMPLED: Northern Yemak Plateau
ROCK NAME: Olivine basalt (perhaps alkali basalt).
TEXTURE: Porphyritic, intergranular.

PHENOCRYSTS

| MINERAL | PRES % | ORIG % | SIZE (mm) | COMP | MORPHOLOGY | COMMENTS |
|---|---|---|---|---|---|---|
| Plagioclase | 20 | - | 0.2–1.8 | Calcic. | Euhedral. | Strongly zoned and resorbed. |
| Altered Olivine | 0 | 4–5 | 0.3–1.0 | - | Euhedral–subhedral. | Completely altered. |
| Clinopyroxene | 3 | - | 0.3–1.0 | Ti-rich. | Anhedral. | Sector zoned. |

GROUNDMASS:

| MINERAL | PRES % | ORIG % | SIZE | COMP | MORPHOLOGy | COMMENTS |
|---|---|---|---|---|---|---|
| Clinopyroxene | 15 | - | 0.01–0.05 | | Anhedral. | |
| Plagioclase | 45 | - | 0.01–0.20 | Calcic. | Euhedral. | |
| Iron-oxide mineral | 5 | 2–3 | 0.01–0.10 | - | Skeletal and euhedral cubes. | Ilmenite and magnetite? |
| Glass | 0 | 9 | - | - | - | Brown, slightly devitrified. |

VESICLES, CAVITIES, VOIDS, VEINS, AND FRACTURES

| TYPE | % | SIZE | LOCATION | FILLING | SHAPE/ ORIENTATION | COMMENTS |
|---|---|---|---|---|---|---|
| Veins | 1 | <1 mm | Cut slide. | Opaque. | | Cryptocrystalline. |

SECONDARY MINERALS

| MINERAL | % | REPLACEMENT/FILL | |
|---|---|---|---|
| Brown Mineraloid | 6 | Inhomogeneous glass. | Clay and iron-oxide minerals. |

ADDITIONAL COMMENTS: None.