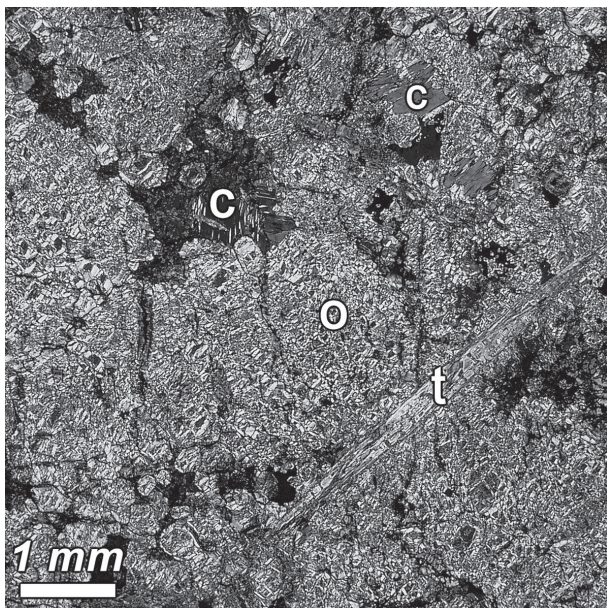


Stop 3-2 (Day 3). Eclogite, Louka (Roadcut with Meter-Scale Boudin of Eclogite, surrounded by Layered Garnet Amphibolite – Retrograded Eclogite)

Coordinates: N50°02'30.0" E12°48'53.8" (33U 343545 5545550)

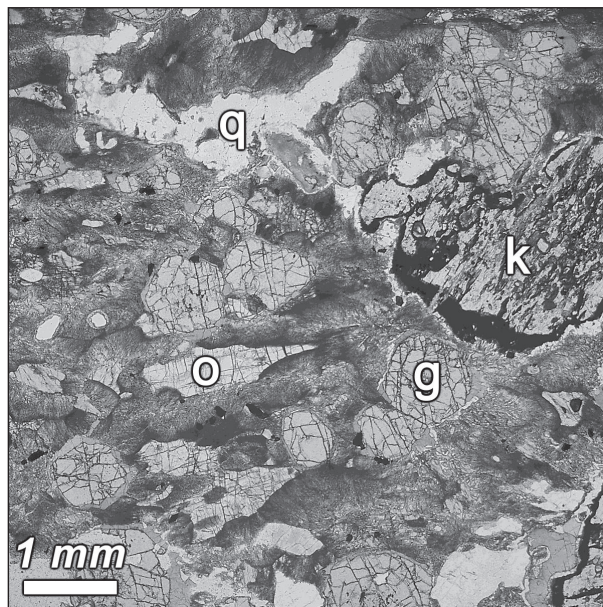


■ **Fig. 12.** Photomicrograph of Sítiny serpentinite, Locality 1 (plane polarized light). Abbreviations: c, chlorite after spinel; o, serpentine after olivine; t, serpentine after tremolite.

The Louka eclogite is a foliated, medium-grained kyanite-quartz eclogite, which is about 50% retrograded to symplectite and kelyphite (Fig. 13). The eclogite facies assemblage consists of garnet, omphacite, quartz, kyanite, and 2–3% medium-grained, early amphibole, with accessory rutile, ilmenite, and apatite. Garnet has an intermediate composition (Fig. 4) and exhibits a slight, prograde compositional zoning, in which Grs and Sps decrease from core to rim, and Alm and Prp increase, with a slight reversal in trend at the grain margin (Fig. 10). The jadeite content in omphacite ranges from 40 to 50% (Fig. 5), and early amphibole is magnesiotaramite, with 6.27 Si atoms p.f.u. and Mg# of 73.

The kyanite-quartz eclogite at this locality yields a pressure of 21.7 kbar and a temperature of 670 °C (Fig. 11), following the method of Ravna and Terry (2004). The surrounding amphibolite yields a range of P-T conditions, from 8 to 12 kbar and from 620 to 750 °C, depending on the combination of thermobarometric methods used (Timmermann et al., 2004).

The Louka locality has provided numerous geochronological data which constrain the timing of protolith genesis and metamorphism in the MLC (Table 1). The kyanite-quartz eclogite has yielded a Sm-Nd garnet-omphacite age of 377 ± 7 Ma (Beard et al., 1995) and a concordant U-Pb age for zircon of 382 ± 3 Ma (Timmermann et al., 2004). The surrounding amphibolite gives a concordant U-Pb age for zircon of 540 ± 9 Ma, a U-Pb lower intercept age for zircon of 373 ± 10 Ma, and a concordant U-Pb age for titanite of 365 ± 7 Ma. Other amphibolites in the vicinity of Louka give K-Ar ages for hornblende of 379 ± 9 , 374 ± 7 , and 368 ± 8 Ma (Kreuzer et al., 1992). As discussed previously, we interpret these data to reflect the genesis of oceanic crust in Early Cambrian time, followed by metamorphism during Frasnian to Famennian subduction and exhumation.



■ **Fig. 13.** Photomicrograph of Louka kyanite-quartz eclogite, Locality 2 (plane polarized light). Abbreviations: k, kyanite; g, garnet; o, omphacite; q, quartz. Garnet is surrounded by amphibole kelyphite, omphacite is extensively replaced by symplectite, and kyanite is surrounded by an extremely fine-grained reaction rim of spinel and plagioclase, which contains lamellar sapphirine and corundum.

Stop 3-3 (Day 3). Amphibolite and Feldspar Veins, Tisová (Roadcut in Amphibolite)

Coordinates: N50°02'43.3" E12°49'34.4" (33U 344365 5545937)

Massive to layered amphibolite, both garnet-bearing and garnet-free types, are exposed in this roadcut. Locally, amphibolite contains symplectitic intergrowths of sodic augite, amphibole, and plagioclase (Fig. 14), presumably after omphacite, demonstrating that amphibolite is the retrograde product of

eclogite. More commonly, garnet amphibolite is extensively recrystallized to a granoblastic, foliated assemblage of medium-grained garnet and fine-grained amphibole, plagioclase, quartz, titanite, and ilmenite (Fig. 15). Rutile occurs as inclusions in garnet.