

FIGURE OM1. A source-to-sink geological model showing the threefold division of the Kishon River catchment (3D view, not to scale). Two of the Cretaceous volcanoes, Rakefet (RMC) and Muharaka are shown to illustrate their situation high above the valley. Cretaceous volcanic centers in red, Cover Basalts in pink and Miocene basalts in purple. Recovered indicator minerals: C, corundum; M, moissanite; H, hibernite; D, diamond. The recovery of corundum and other minerals from the cover basalts is inferred from drainage sampling. However, these occurrences also coincide with the maximum extent of Miocene beach deposits, which may be the source of the alluvial minerals.

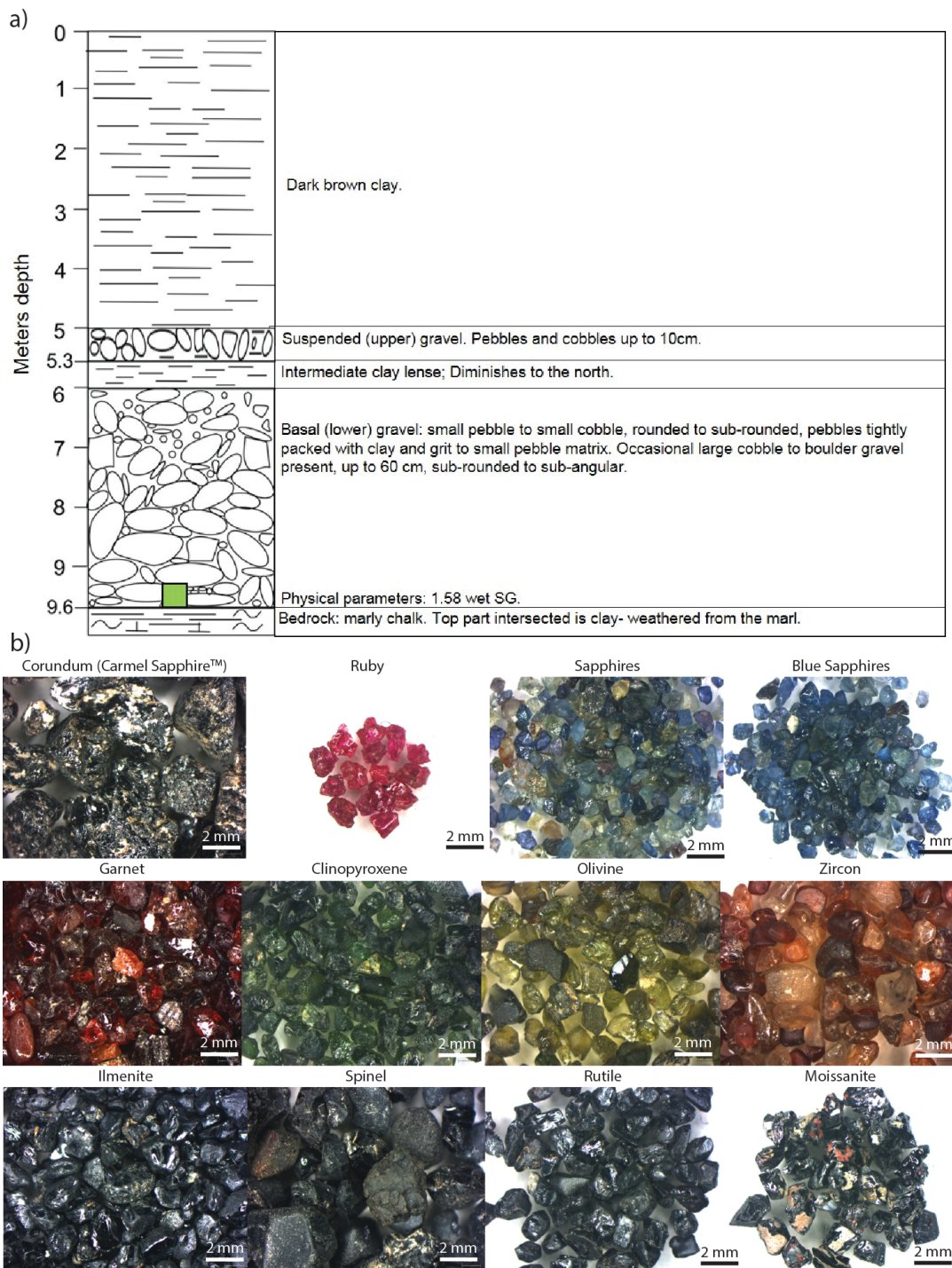


FIGURE OM2. (a) Typical stratigraphic section (sample BS1253) of a terrace above the Kishon River, with paleo-placers confined to the coarser basal stratum (site BS1253; green box); (b) Selected minerals recovered from BS1253 (333 tons of gravel processed).

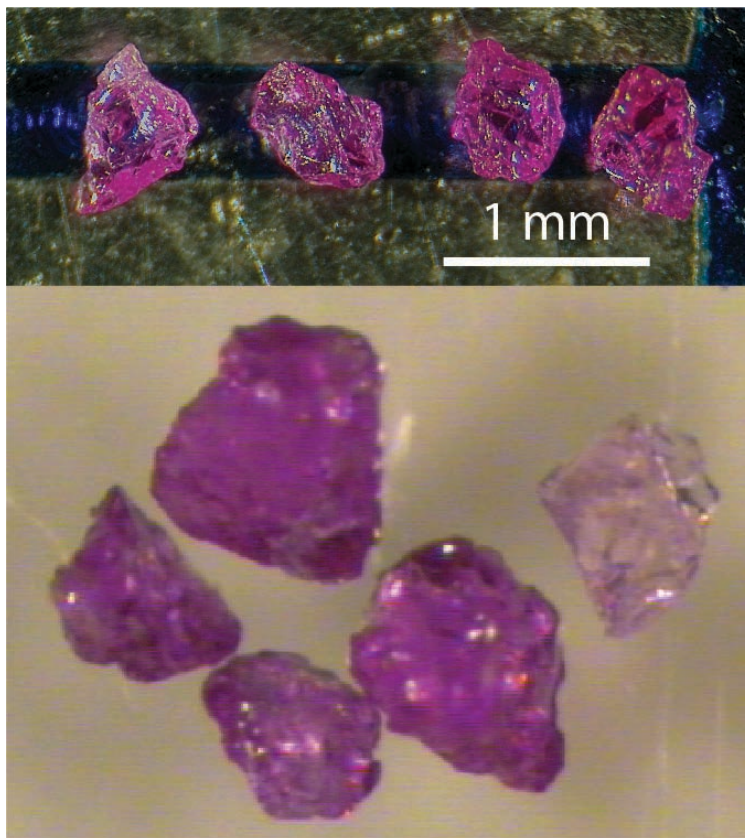


FIGURE OM3. Rubies (0.3–1 mm fraction) separated from vent tuffs of the Rakefet Magmatic Complex (bulk sample SY-479); Cr_2O_3 contents are 1.5–2 wt% (cf. Fig. 11).



FIGURE OM4. Binocular-microscope photo of typical Miocene carbonate-cemented beach placer (Shefa Yamim Sample SY-186, collected in 2003) from near Migdal-Ha-Emec (Figure SD-1). Note abundant moissanite and garnet (orange). Scale is in mm.

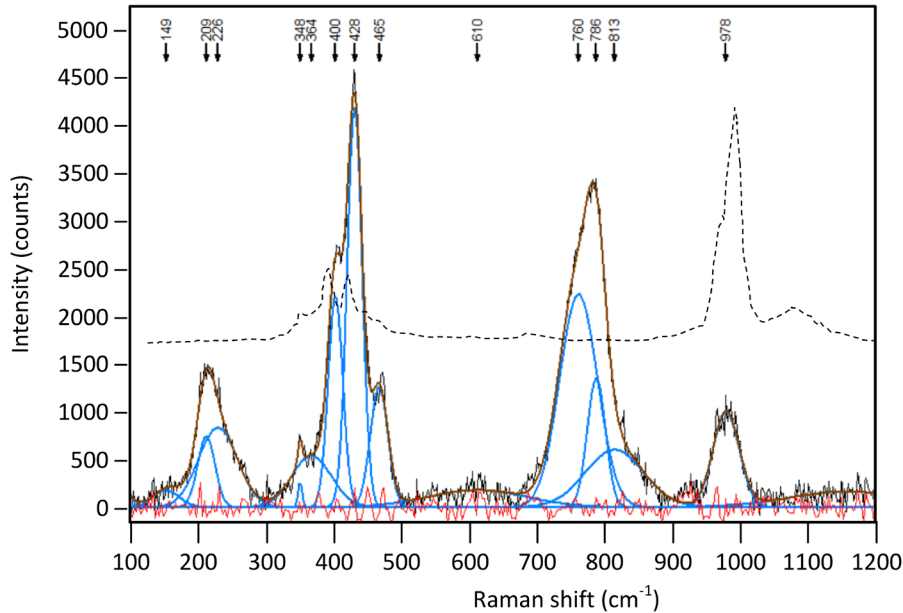


FIGURE OM5. Raman spectrum of the NaAlSiO₄ phase in sample 1174A-1 (Figs. 5,6) compared with the spectrum of the synthetic phase (“carnegieite”). The Raman spectrum was collected on NaAlSiO₄ grains (532 nm laser, 20 s acquisition, 32.25 nW). Light blue peaks are Gaussian fit (fitted peak positions reported on top). The spectrum of carnegieite at 298 K (488 nm argon ion laser, 100 s acquisition, 500 mW) modified from Figure 1 of Richet and Mysen (1999) is shown as a dashed line for comparison. While a few peaks have close Raman shifts, it is evident that the spectra correspond to two different phases.

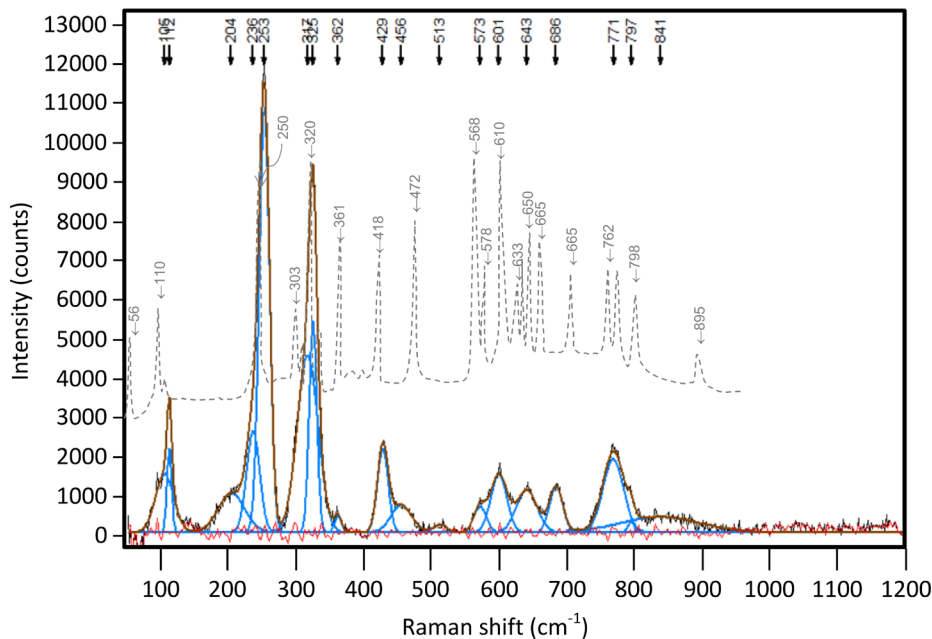


FIGURE OM6. Raman spectrum of kahlenbergite from sample 1210B-1 (Fig. 7b) compared with the spectrum of the synthetic material. The Raman spectrum was collected on a kahlenbergite from grain 1210B-1 (532 nm laser, 20 s acquisition, 32.25 nW). Light blue peaks are Gaussian fit (fitted peak positions reported on top). The spectrum of Na-β-alumina at 20 K (488 nm argon ion laser) modified from Figure 3b of Colomban and Lucazeau (1980) is shown as a dashed line for comparison. The match is good considering the difference in composition (K instead of Na) and temperature.