

# A MÖSSBAUER STUDY OF THE BLACK COLOUR IN EARLY CYPRIOTE AND NUBIAN C-GROUP BLACK-TOPPED POTTERY

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## Abstract

Black-topped pottery is a general term for vessels with a black interior and rim, the lower exterior being brownish red. Such pottery was common through millennia in the Nile valley, but it is also known elsewhere. In Cyprus there are bowls and other objects from the Early Bronze Age and the periods immediately before and after. In the Nile valley the Nubian C-Group bowls are similar to the Cypriote bowls in shape and colour. These wares are roughly contemporary occurring from the latter part of the third millennium B.C., but the Nubian C-Group, overlapping the former in time, prevailed further into the second millennium. In black-topped pottery the colours generally penetrate below the surface into the core. Also the surface border line dividing the differently coloured areas is not as straight and sharp as would be expected if it had been made by a painter's brush. Therefore the colouration seems to have been achieved in the firing process. The exact method used by the ancient potters and the chemical explanation of the change in colours have been discussed for about a century without a complete understanding having been reached yet. The black has been considered due either to carbon or to ferrous iron, the views being summarized in a preliminary study (Waern-Sperber 1988). By Mossbauer spectroscopy it was found that red or pink colour coincides with  $Fe^{3+}$  and black or grey colour coincides with  $Fe^{2+}$ , indicating that iron might be essential for the colouration in the Early Cypriote black-topped samples examined. Several authors using Mossbauer spectroscopy have found such a correlation in ceramic materials (Hess and Perlman 1974, Bouchez et al. 1974, Eissa et al. 1979, Longworth and Tite 1979, Riederer et al. 1979, Lazzarini et al. 1980, Maggetti et al. 1981, Tite et al. 1982). Other possible reasons for the black colour in pottery are carbon and manganese (Noll 1982). Only trace amounts of the latter were found in the preliminary study.