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Archaeochemical indications of the early use and trade of pigments and mordants in Turku, Finland

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Over 700 years old Turku town carries the longest history of urban activities in Finland and offers thick and continuous cultural deposits for urban geochemical studies. We analysed 78 composite samples from seven cultural layers dating from medieval time to recent surface soils by using ICP-AES and graphite AAS. The target of the study was to trace geochemical fingerprints from early industry and trade. The results indicate that archaeological units dating back to 13th - 17th century are heavily contaminated by lead (median 74 ppm, range 20 - 900), copper (median 320 ppm, range 59 - 2270 ppm), zinc (median 363 ppm, range 100 - 2100 ppm) and, to a lesser degree, by tin. The metal concentrations in buried urban soils exceeded those analysed from modern soils within the same area and can only be compared to the present day values detected close to metal smelters or mining districts. The archaeological evidence indicates that the studied area was occupied by intensive handicraft activity since 1300's. The elevated metal concentrations can probably be explained with raw materials used by blacksmiths, potters, tanners, and especially by fabric makers. According to the custom documents, guild of dyers in Turku imported lead, copper and tin from Central Europe to be used as pigments and mordants.