We have carried out the X-ray analyses of the new cation-radical salts such as TTT$^+(Br^-)$, TTT$^+(CuBr_2)^-$, TTT$^2+(Hg_2Br_6)^2-$ and also the cation-radical salts formed in the reaction of TTT (5Se2) with HgX$_2$ (X=I, Br, Cl) 1-3. Some of these salts have rather high values of conductivity at room temperature, $6 \times 10^3$ ohm$^{-1}$cm$^{-1}$. As distinct from the isostructural complexes TTT+TCON$_2$ and TSeT+TCON$_2$ the crystals TTT$^+(CuBr_2)^-$ and TSeT+TCIO$_2$ are not isostructural. The important feature of TTT-CuBr$_2$ structure is the presence of alternate interplanar TTT-TTT spacings of 3.24 and 3.63Å. The anion in this structure is in the form of a centro-symmetric dimer (CuBr$_2$)$^2-$. The existence of segregated regular stacks of TSeT$^+$ with interplanar distance of 3.55Å is characteristic of TSeT-CuBr$_2$- structure. The anion of this complex has a strongly distorted linear configuration with Br-Cu-Br angle of 154.7°. TTT$_3$(Hg$_2$Br$_6$) crystals are isomorphous with TTT$_3$(Hg$_2$Cl$_6$) and those of TSeT$_3$(Hg$_2$Cl$_6$) with TSeT$_3$(Hg$_2$Br$_6$) crystals.

The comparison of the geometry of the TTT$^+$, TSeT$^+$-cation-radicals and TTT, TSeT neutral molecules is given on the basis of X-ray crystallographic data. In particular, it is shown that the bond lengths Se-Se, S-S and S=Se, S=C in cation-radicals are shorter than in neutral structures. The crystal structures and electrical properties of the salts in question and all presently well known organic quasi one-dimensional conductors on the basis of TTT and TSeT are analyzed.

References: