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A New Method for Radical Generation: Reductive C–Se or C–S Bond Cleavage of Cyclic Onium Salts.

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2-Methyl-3,4-dihydro-1*H*-2-benzoselenopyranium salt was reduced by some metallic reagents or magnesium metal via the single electron transfer (SET) process to give 2-〔2-(methylseleno)ethyl〕-toluene. Magnesium metal was a good SET reducing agent. Some other selenonium or sulphonium salts were similarly reduced by magnesium. Particularly, sonicaton accelerated the reactions. ε-Ene-selenonium salt was treated with activated magesium to give a cyclized pyrrolidine derivative.

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Synthesis of 2,6-Epithio-3-benzazocine Derivatives.

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2,6-Epithio-3-benzazocines (9-thiabenzomorphans) in which the carbon atom at the 11-position is replaced by a sulfur atom, were synthesized by treatment of 1-(2-ethoxycarbonylaminoethyl)isothiochroman sulfoxides with acetic anhydride or by heating 3-acetoxyisothiochromans in Dowtherm A. The hetero-acetal moiety of this novel heterocycle was stable to lithium aluminum hydride and boron tribromide. Reduction of the novel heterocycle with lithium aluminum hydride gave the *N*-methyl derivative and demethylation of the 8-methoxy derivative with boron tribromide gave the 8-hydroxy derivative.

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2-Methylisoselenochromanium Salts: Spectroscopic Properties and Reactions.

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Some 2-methylisoselenochromanium salts were prepared. Proton nuclear magnetic resonance spectra in $CDCl_3$ and electron impact mass spectra showed that the selenonium tosylate and mesylate are selenuranes and that the tetrafluoroborate and the triflate are selenonium salts. Their structures at the selenium atom are influenced by their counter anions. Selenonium salts reacted with some nucleophiles to give a styrene derivative and methyl phenethyl selenides.