ARYL TELLURIUM TRIHALIDES-II

CONDENSATION REACTION WITH METHYLKETONES AND AROMATIC COMPOUNDS CONTAINING ELECTRON-REPELLING GROUPS

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Abstract—Aryl tellurium trichlorides and tribromides undergo condensation reactions with acetone, acetophenone, N-dimethylaniline and resorcinol, giving rise to aryl tellurium dihalides. Aryl tellurium triiodides are not reactive. The dihalides derived from N-dimethylaniline and resorcinol undergo ionic interchange reactions with halide ions. When treated with reducing agents the dihalides derived from N-dimethylaniline are reduced to the corresponding tellurides, while the other dihalides are cleaved to the diaryl-ditellurides.

It is known that aromatic selenenyl halides and pseudo-halides react with methylketones and with aromatic compounds containing electron-repelling groups giving rise to selenides.¹ It has been shown that several aryl tellurium trichlorides (I: $X = Cl)^{2-6}$ and some tribromides (I: $X = Br)^4$ react similarly, producing with acetone, acetophenone, N-dimethylaniline and resorcinol, aryl acetonyl tellurium dihalides (III), aryl phenacyl tellurium dihalides (V), aryl-*p*-dimethylaminophenyl tellurium dihalides (VII) and aryl-2,4-dihydroxyphenyl-tellurium dihalides (IX) respectively.

Only one of the halogen atoms of the trihalides is replaceable by an organic group, since, with excess of reagents 11, IV, VI or VIII only dihalides formulated below are obtained:



These condensation reactions take place less readily with the aryl tellurium tribromides, and in the case of the corresponding triiodides $(1 : X = 1)^4$ no tellurium diiodides are obtained.

The greater reactivity of the aryl trichlorides as compared with the corresponding tribromides and triiodides is probably due to a decrease in the electrophilic character

- ^a L. Reichel and E. Kirschbaum, *Liebigs Ann.* 523, 222 (1936).
- ⁴ N. Petragnani, Tetrahedron 11, 15 (1960).
- ⁶ G. T. Morgan and H. D. K. Drew, J. Chem. Soc. 2307 (1925).
- ⁴ H. O. K. Drew, J. Chem. Soc. 223 (1926).

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¹ H. Rheinboldt and M. Perrier, Bl. [5] 17, 248, 249, 250, 251, 252, 759 (1950); 20, 264, 379, 485-488 (1953); O. Behagel and Myller, Ber. Disch. Chem. Ges. 68, 1549 (1935).

^a G. T. Morgan and R. E. Kellett, J. Chem. Soc. 1080 (1935)

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of the positive fragment $(ArTeX_2)^{\perp}$, when bromine or iodine are substituted for chlorine. The reactivity of the aryl tellurium trihalides also decreases when the phenoxy group (I : $R = C_6H_5$) is substituted for the alcoxy group (I : $R = CH_3$ or C_2H_5). On the other hand, the aromatic reagents VI and VIII react readily and these reactions can be performed with aryl tellurium tribromides without difficulty, whereas the methylketones (II and IV), in the majority of the cases do not react with the tribromides under normal conditions and more drastic conditions lead to the formation of bromoacetone or phenacyl bromide and tarry products.

Studying the behaviour of the tellurium dihalides in water, it was found that VII and IX are stable, but III and V are hydrolysed to aryl tellurium oxohalides $(XI)^{3,7}$ and halogenoketone (XII). The formation of XII is not understood.



The aryl tellurium dihalides of type VII and IX (stable in water) undergo ionic interchange with other halide ions. When aryl-2,4-dihydroxyphenyl tellurium dichlorides (IX) are treated with excess of hydrobromic acid or concentrated aqueous solutions of potassium iodide, the corresponding dibromides and diiodides are obtained:

$$III, \mathbf{Y} \xrightarrow{H_2\mathbf{O}} \mathbf{RO} \xrightarrow{\mathsf{TOX}} \mathbf{TOX} + \mathbf{XCH}_2\mathbf{CR}' \quad (\mathbf{R}' \cdot \mathbf{CH}_3, \mathbf{C}_6\mathbf{H}_5)$$

⁷ N. Petragnani and G. Vicentini, Universidade São Paulo, Faculdade Filosofia, Ciências e Letras, Quimica No. 5 (1959).

Aryl-*p*-dimethylaminophenyl tellurium dichlorides (VII) react only with hydrobromic acid, forming the corresponding dibromides:



In reduction of tellurium dichloride (III, V, VII, IX), for the purpose of obtaining tellurides, it was found that aryl acetonyl (III), aryl phenacyl (V), aryl-2,4-dihydroxy-phenyl tellurium dichlorides (IX) undergo decomposition, forming diaryl ditellurides (XIII).^{2-6.8} Only aryl *p*-dimethylaminophenyl tellurium (VII) are normally reduced to the corresponding aryl *p*-dimethylaminophenyl tellurides (XIV).





VП

The aryl p-dimethylaminophenyl tellurium diiodides (VII : X = I) may be prepared by the addition of iodine to the aryl p-dimethylaminophenyl telluride (XIV).



EXPERIMENTAL

(A) The Condensation of Trihalides with Acetone

Acetonyl aryl tellurium dichlorides (III)

Acetonyl-(p-methoxyphenyl-) tellurium dichloride. p-Methoxyphenyl tellurium trichloride (0.34 g; 0.001 mole) was dissolved in acetone (5 cc) in a small glass capsule. The acetone was rapidly evaporated at room temp with evolution of hydrogen chloride leaving a white crystalline residue. This treatment was repeated 3-5 times and finally the residue was washed with a small volume of cold methanol. The dichloride (0.23 g; 65%) crystallized in colourless plates from benzene and pet ether (50-70°) m.p. 137-138°. (Found: Te, 35.15; Calc. for C₁₀H₁₃O₃Cl₃Te: Te, 35.28%).

^{*} L. Reichel and E. Kirschbaum, Ber. Dtsch. Chem. Ges. 76, 1105 (1943).

Acetonyl-(p-ethoxyphenyl-) tellurium dichloride similarly prepared (yield 75%) crystallized from benzene and pet ether (50-70°) in colourless needles, m.p. 134-135°. (Found: Te, 34.00; Calc. for $C_{11}H_{14}O_5Cl_2Te$: Te, 33.87%).

In the case of *p*-phenoxyphenyl tellurium trichloride a yellow-orange oil was obtained from which a small amount of the unaltered trichloride slowly crystallized.

The aryl tellurium tribromides and triiodides (I: $\mathbf{R} = CH_3$, C_2H_6 , C_6H_6) were recovered unchanged when treated rapidly at room temp with acetone. If the reaction mixture was heated or allowed to stand at room temp it gave rise to bromoacetone or iodoacetone (recognized by the irritating and tear-provoking character).

Hydrolysis. A small amount of acetonyl-(p-methoxyphenyl-) tellurium dichloride was treated with cold water. After an hour the white residue of p-methoxyphenyl-tellurium oxochloride was filtered and dried (m.p. 225-235°, with dec²). With boiling water the oxochloride separated immediately with the formation of chloroacetone recognized by its piquant smell and tear provoking character. The acetonyl-(p-ethoxy-phenyl-) tellurium dichloride suffers similar hydrolitic cleavage.

Reduction. Acetonyl-*p*-methoxyphenyl-) tellurium dichloride treated with excess of hydrated sodium sulphide at 95-100° formed di-*p*-methoxyphenyl ditelluride as a red oil which solidified when diluted with water. After recrystallization from pet ether $(30-50^\circ)$ red-green needles were obtained m.p. 59-60°.^{4,3,8} Reduction with sodium bisulphite, zinc in chloroform or hydrazine sulphate also yielded the ditelluride. Similarly, from *p*-ethoxy-derivative the di-*p*-ethoxyphenyl ditelluride (m.p. 107°)^{3,5,8} was obtained.

(B) The Condensation of Trihalides with Acetophenone

Phenacyl aryl tellurium dihalides (V)

Phenacyl-(p-methoxyphenyl-) tellurium dichloride. p-Methoxyphenyl tellurium trichloride (0.34 g; 0.001 mole) was intimately mixed with 0.36 g (0.003 mole) of acetophenone, hydrogen chloride evolution being observed and separation, after 24-48 hr, of the dichloride. This was isolated by dissolving the excess of acetophenone in ether, and washing rapidly with a small quantity of cold methanol. Weight: 0.25 g (yield 60%). Colourless brilliant prism were obtained from benzene and pet ether (50-70°), m.p. 136-137° (Found: Te, 30.24; Calc. for C₁₄H₁₄O₂Cl₂Te: Te, 30.04%).

Similarly the following compounds were prepared:

Phenacyl-(p-*ethoxyphenyl-*) *tellurium dichloride* (yield: 57%), crystallized from benzene and pet ether (50-70°) in colourless needles, m.p. 141-142° (Found: Te, 29.26; Calc. for $C_{16}H_{16}O_2Cl_2Te$: Te, 29.08%).

Phenacyl-(p-*phenoxyphenyl-*) *tellurium dichloride* (yield: $45\cdot5\%$), crystallized from benzene and pet ether (50–70°) in colourless needles, m.p. 146–147° (Found: Te, 26:38; Calc. for C₁₀H₁₀O₁Cl₃Te: Te, 26:21\%).

Phenacyl-(p-*methoxyphenyl-*) *tellurium dibromide* (yield: 29.2%), crystallized from benzene and pet ether (50-70°) in pale yellow needles, m.p. 151-152° (with dec). (Found: Te, 24.95; Calc. for $C_{13}H_{14}O_{2}Cl_{2}Te$: Te, 24.84%).

p-Ethoxyphenyl tellurium tribromide, *p*-phenoxyphenyl tellurium tribromide and the aryl tellurium triiodides (I: $\mathbf{R} = CH_3$, C_3H_5 , C_6H_5) do not react with acetophenone.

Hydrolysis. Phenacyl-(*p*-methoxyphenyl-) tellurium dichloride after several hours treatment with cold water was recovered unchanged. With boiling water, after few minutes *p*-methoxyphenyl tellurium oxochloride (m.p. 225-235, with dec²) and phenacylchloride (recognized by its irritating smell) were formed. The other dihalides react similarly with boiling water.

Reduction. Di-*p*-methoxyphenyl ditelluride is formed by reduction of *p*-phenacyl-*p*-(methoxyphenyl-) tellurium dichloride with excess of sodium sulphide at 95-100°, or sodium bisulphite, zinc in chloroform, hydrazine sulphate. Crystallized from pet ether $(30-50^\circ)$ in red-green needles, m.p. $50-60^\circ$, ^{2,3,8}

Similarly di-*p*-ethoxyphenyl ditelluride (m.p. 107°)^{8,3,8} and di-*p*-phenoxyphenyl ditelluride (m.p. 88-88.5°)^{6,8} may be prepared from the corresponding dihalides.

(C) The Condensation of Trihalides with N-Dimethylaniline

p-Dimethylaminophenyl aryl tellurium dihalides (VII)

p-Dimethylaminophenyl-(p-methoxyphenyl-) tellurium dichloride. p-Methoxyphenyl tellurium trichloride (0.34 g; 0.001 mole) was intimately mixed with 0.36 g (0.003 mole) N-dimethylaniline

noting evolution of heat and a transient bluish-green colour. After 24 hr the mixture was extracted several times with methanol leaving a yellow crystalline residue of the dichloride, 0.32 g (yield: 75%). The compound crystallized from methanol or benzene and methanol in yellow prisms, m.p. 170-172° (with dec). (Found: Te, 29.99; Calc. for $C_{10}H_{17}OCl_{2}N$ Te: Te, 29.96%).

p-Dimethylaminophenyl-(p-ethoxypheny-) tellurium dichloride. (yield 59.1%) similarly prepared crystallized from methanol in yellow needles, m.p. 153-154° (with dec). (Found: Te, 29.28; Calc. for $C_{19}H_{19}OCl_9N$ Te: Te, 29.01%).

p-Dimethylaminophenyl-(p-methoxyphenyl-) tellurium dibromide (yield 50.6%) similarly prepared crystallized from benzene and methanol in yellow-orange prisms, m.p. 183–184° (with dec). (Found: Te, 24.81; Calc. for $C_{15}H_{12}OBr_{5}N$ Te: Te, 24.79%).

p-Dimethylaminophenyl-(p-ethoxyphenyl-) tellurium dibromide 0.48 g (0.001 mole) p-ethoxyphenyl tellurium tribromide was mixed with 0.36 g (0.003 mole) N-dimethylaniline noting the appearance of a transient bluish-green colour. After 24 hr the mixture was extracted with warm benzene and the extract treated with pet ether, and slowly evaporated in the open air. The dibromide crystallized in orange needles, 0.26 g (yield: 49%) m.p. 121-123° (with dec). (Found: Te, 24.27; Calc. for $C_{16}H_{19}$ OBr₈N Te: Te, 24.13%).

p-Dimethylaminophenyl-(p-phenoxyphenyl-) tellurium dichloride. A solution of 0.40 g (0.001 mole) p-phenoxyphenyl tellurium trichloride and 0.36 g (0.001 mole) N-dimethylaniline in 15 cc benzene was allowed to stand for 24 hr at room temp. Concentration in vacuum caused the separation of the yellow crystalline dichloride, 0.20 g (yield: 41%). Crystallized from benzene and methanol in yellow needles, m.p. 194-195° (with dec). (Found: Te, 26.20; Calc. for $C_{20}H_{10}OCl_{2}N$ Te: Te, 26.15%).

p-Dimethylaminophenyl-(p-phenoxyphenyl-) tellurium dibromide. A solution of 0.55 g (0.001 mole) p-phenoxyphenyl tellurium tribromide and 0.36 g (0.003 mole) N-dimethylaniline in 15 cc benzene was allowed to stand for 24 hr at room temp. By concentrating in vacuum, the tribromide precipitated (m.p. 206-207°).⁴ The filtrate treated with excess methanol precipitated a white flaky hydrolytic product of the tribromide. From the filtered solution a small amount of beautiful orange needles of the dibromide was obtained, m.p. 188-189° (with dec) (Analysis given below).

From mixtures of aryl tellurium triiodides (1: $R = CH_3$, C_3H_5 , C_4H_5) and N-dimethylaniline (0.001 to 0.003 mole) treated in the same manner the starting triiodides were recovered. By heating the mixtures at 60° for 1 hr black oils were obtained.

Interchange reaction of p-dimethylaminophenyl aryl tellurium dihalides

p-Dimethylaminophenyl-(*p*-methoxyphenyl-) tellurium dichloride (0·42 g; 0·001 mole) was mixed in the cold with excess 40% hydrobromic acid. The mixture was diluted with water and dil ammonium hydroxide added dropwise. *p*-Dimethylaminophenyl-(*p*-methoxyphenyl-) tellurium dibromide separated as orange crystals (solution still being acid), 0·51 g (yield: 100%), m.p. 183–184° (with dec). A mixed m.p. with the dibromide obtained previously was not depressed.

Similarly, treating *p*-dimethylaminophenyl-(*p*-methoxyphenyl-) tellurium dibromide with excess of conc hydrochloric acid the corresponding dichloride was obtained. Similar reactions were performed with *p*-dimethylaminophenyl-(*p*-ethoxyphenyl-) tellurium dichloride and dibromide and in each case the yields were quantitative.

p-Dimethylaminophenyl-(p-phenoxyphenyl-) tellurium dibromide. p-Dimethylaminophenyl-(p-phenoxyphenyl-) tellurium dichloride (0.16 g; 0.00033 mole) was treated with 20 cc boiling 40% hydrobromic acid during 3 min. A yellow compound (the hydrobromide) was obtained and well dispersed in water. Ammonium hydroxide was added dropwise until the pale yellow hydrobromide was transformed in the orange dibromide. This was separated, washed with water and treated again with 10 cc boiling 40% hydrobromic acid for 1 min. The yellow hydrobromide was transformed again into the dibromide, as per the above manner. Weight: 0.19 g (Yield: quantitative). Crystallized from benzene and pet ether (50-70°) in orange needles, m.p. 188-189° (with dec). Mixed m.p. with the dibromide prepared by condensation reaction was not depressed). (Found: Te, 22.15; Calc. for $C_{to}H_{10}OBr_tN$ Te: Te 22.12%).

Similar reactions performed with the purpose of preparing the corresponding diiodides failed.

p-Dimethylaminophenyl aryl tellurides

p-Dimethylaminophenyl-(p-methoxyphenyl-)telluride. p-Dimethylamino-phenyl-(p-methoxyphenyl-) tellurium dichloride (0.42 g; 0.001 mole) was added to 3.6 g (0.015 mole) hydrated sodium sulphide at 100° and the mixture maintained at this temp for 10 to 15 min. The telluride, a yellow orange oil, solidified after dilution of the mixture with water, 0.35 g (yield: 100%) and recrystallized from ethanol in colourless needles m.p. 96–97° (Found: Te, 36.04; Calc. for $C_{14}H_{17}ON$ Te: Te, 35.96%).

By this same procedure the *p*-ethoxy- and *p*-phenoxy- derivatives were prepared:

p-Dimethylaminophenyl-(p-ethoxyphenyl-) telluride. (Yield: 100%) crystallized from ethanol in colourless needles, m.p. 126-127° (Found: Te, 34.59; Calc. for C₁₆H₁₉ON Te: Te, 34.59%).

p-Dimethylaminophenyl-(p-phenoxyphenyl-) telluride. (Yield: 100%) crystallized from ethanol in colourless needles, m.p. 75.5-76.5° (Found: Te, 30.58; Calc. for C₂₀H₁₀ON Te: Te, 30.60%).

The dibromides may similarly be reduced to the tellurides.

The tellurides treated in carbon tetrachloride solution with the equimolar amount of sulphuryl chloride or bromide gave rise respectively to the dichlorides and dibromides (mixed m.p. with the dihalides prepared by the condensation reactions were not depressed).

p-Dimethylaminophenyl aryl tellurium diiodides

p-Dimethylaminophenyl-(p-methoxyphenyl-) tellurium diiodide. To an ice-cooled solution of 0.35 g (0.001 mole) p-dimethylaminophenyl-(p-methoxyphenyl-) telluride was added, dropwise, a solution of an equimolar quantity of iodine in chloroform. Addition of pet ether (50-70°) precipitated the red diiodide, 0.60 g (yield: 100%). Crystallized from benzene and pet ether (50-70°) in dark red needles, m.p. 129-130° (with dec). (Found: Te, 21.02; Calc. for C₁₄H₁₇OI₄N Te: Te, 20.96%).

Similarly, the *p*-ethoxy- and *p*-phenoxy derivatives were prepared:

p-Dimethylaminophenyl-(p-ethoxyphenyl-) tellurium diiodide. (Yield: 100%), crystallized from benzene and pet ether (50-70°) in dark red needles, m.p. 96-97° (with dec). (Found: Te, 20.44; Calc. for $C_{16}H_{19}OI_{2}N$ Te: Te, 20.50%).

p-Dimethylaminophenyl-(p-phenoxyphenyl-) tellurium diiodide. (Yield: 100%), crystallized from benzene and pet ether (50-70°) in dark red needles, m.p. 135-136° (with dec). (Found: Te, 18.97; Calc. for $C_{20}H_{10}OI_2N$ Te: Te, 19.02%).

The *p*-dimethylaminophenyl aryl tellurium dihalides all melt with decomposition forming an intense blue liquid.

(D) The Condensation of Trihalides with Resorcinol

2,4-Dihydroxyphenyl aryl tellurium dihalides (IX)

2,4-Dihydroxyphenyl-(p-methoxyphenyl-) tellurium dichloride. A solution of 0.34 g (0.001 mole) p-methoxyphenyl-tellurium trichloride and 0.22 g (0.002 mole) resorcinol in a small volume methanol was allowed to stand overnight at room temp. Concentration of the solution to almost dryness yielded a colourless crystalline residue of the dichloride, 0.29 g (yield: 70%), crystallized from ether and pet ether (50-70°) in colourless plates, m.p. 182-183° (with dec). (Found: Te, 30.86; Calc. for $C_{13}H_{13}O_3Cl_3Te$: Te, 30.77%).

The *p*-ethoxy- and *p*-phenoxy- derivatives were prepared by the same method:

2,4-Dihydroxyphenyl-(p-ethoxyphenyl-) tellurium dichloride. (Yield: 70%), crystallized from ether and pet ether (50-70°) in colourless plates, m.p. 189-190° (with dec). (Found: Te, 29.72; Calc. for $C_{14}H_{14}O_3Cl_3$ Te: Te, 29.76%).

2,4-Dihydroxyphenyl-(p-phenoxyphenyl-) tellurium dichloride. (Yield: 61%) crystallized from ether and pet ether (50-70°) in colourless plates, m.p. 181° (with dec). (Found: Te, 26.74; Calc. for $C_{14}H_{14}O_3Cl_3Te$: Te, 26.76%).

2,4-Dihydroxyphenyl-(p-methoxyphenyl-) tellurium dibromide. (Yield: 6%), crystallized from ether and pet ether (50-70°) in yellow needles, m.p. 179-180° (with dec). (Analysis given below).

2,4-Dihydroxyphenyl-(p-ethoxyphenyl-) tellurium dibromide. (Yield: 28%) crystallized from ether and pet ether (50-70°) in yellow plates, m.p. 190-191° (with dec). (Analysis given below).

p-Phenoxyphenyl tellurium tribromide did not react and was recovered unchanged.

Reduction: 2,4-Dihydroxyphenyl-(*p*-methoxyphenyl) tellurium dichloride treated with excess of hydrated sodium sulphide at $95-100^{\circ}$, or sodium bisulphite, zinc in chloroform, hydrazine sulphate formed di-*p*-methoxyphenyl ditelluride, crystallized from pet ether (30-50°) in red-green needles, m.p. $59-60^{\circ}$.^{*,3,8}

Similarly di-*p*-ethoxyphenyl ditelluride (m.p. 107°)^{8,6,8} and di-*p*-phenoxyphenyl ditelluride (m.p. 88-88.5°)^{6,8} were obtained from the corresponding dihalides.

2,4-Dihydroxyphenyl aryl tellurium dibromides and diiodides from the corresponding dichlorides

2,4-Dihydroxyphenyl-(p-methoxyphenyl-) tellurium dibromide. A solution of 0.41 g (0.001 mole) 2,4-dihydroxyphenyl-(p-methoxyphenyl-) tellurium dichloride in a small volume of ethanol was treated with excess 40% hydrobromic acid. The yellow precipitate of the dibromide was separated by filtration, washed with dil hydro^{1, r}omic acid and dried, 0.50 g (yield: 100%). Crystallized from ether and pet ether (50-70°) in yellow needles, m.p. 179-180° (with dec). Mixed m.p. with the dibromide prepared by condensation reaction was not depressed. (Found: Te, 25.30; Calc. for C₁₃H₁₂O₃Br₂ Te: Te, 25.33%).

2,4-Dihydroxyphenyl-(p-methoxyphenyl-) tellurium diiodide. This was similarly prepared by adding an excess of aqueous potassium iodide to an ethanolic solution of the dichloride maintaining the temp at 0-5°. It separated as a red paste which solidified after standing for 24 hr (yield: 100%). Crystallized from ether and pet ether (50-70°) in red prism, m.p. 130° (with dec). (Found: Te, 21.33; Calc. for $C_{13}H_{12}O_{3}I_{2}$ Te: Te, 21.35%).

Similarly the *p*-ethoxy- and *p*-phenoxy- derivatives were prepared:

2,4-Dihydroxyphenyl-(p-ethoxyphenyl-) tellurium dibromide. (Yield: 100%), crystallized from ether and pet ether (50-70°) in yellow plates, m.p. 190-191° (with dec). Mixed m.p. with the dibromide prepared by condensation reaction was not depressed (Found: Te, 24.61; Calc. for $C_{14}H_{14}O_{3}Br_{1}$ Te: Te, 24.65%).

2,4-Dihydroxyphenyl-(p-ethoxyphenyl-) tellurium diiodide. (Yield: 100%), crystallized from ether and pet ether (50-70°) in orange needles, m.p. 105° (with dec) or orange plates, m.p. 132° (with dec) or red prisms, m.p. 127° (with dec). (Found: Te, 20.80; Calc. for $C_{14}H_{14}O_{8}I_{2}Te$: Te, 20.86%).

2,4-Dihydroxyphenyl-(p-phenoxyphenyl-) tellurium dibromide. (Yield: 100%), crystallized from ether and pet ether (50-70°) in yellow prism, m.p. 181-182° (with dec). (Found: Te, 22.52; Calc. for $C_{14}H_{14}O_3Br_3Te$: Te, 22.56%).

2,4-Dihydroxyphenyl-(p-phenoxyphenyl-) tellurium diiodide. (Yield: 100%) crystallized from ether and pet ether (50-70°) in red needles, m.p. 122-124° (with dec). (Found: Te, 19.00: Calc. for $C_{18}H_{14}O_{3}I_{2}$ Te: Te, 19.34%).

2,4-Diacetoxyphenyl aryl tellurium dichlorides (X)

2,4-Diacetoxyphenyl-(p-methoxyphenyl-) tellurium dichloride. 2,4-Dihydroxyphenyl-(p-methoxyphenyl-) tellurium dichloride (0.21 g: 0.0005 mole) was treated with 5 cc acetic anhydride and a drop conc sulphuric acid, and allowed to stand for 24 hr at room temp. Water was then added, dropwise with stirring and cooling the mixture in an icebath. The dichloride separated as a solid (rapid addition of water caused the product to separate as an oil), 0.22 g (yield: 88%). Crystallized from benzene and pet ether (50-70°) in colourless prisms, m.p. 166–167°. (Found: Te, 25.61; Calc. for $C_{17}H_eO_sCl_2$ Te: Te, 25.58%).

Similarly the *p*-ethoxy- and *p*-phenoxy- derivatives were prepared:

2,4-Diacetoxyphenyl-(p-ethoxyphenyl-) tellurium dichloride. (Yield: 88%), crystallized from denzene and pet ether (50-70°) in colourless needles, m.p. 162-168°. (Found: Te, 24.88; Calc. for $C_{18}H_{18}O_{5}Cl_{5}$ Te: Te, 24.89%).

2,4-Diacetoxyphenyl-(p-phenoxyphenyl-) tellurium dichloride. (Yield: 100%), crystallized from denzene and pet ether in colourless needles, m.p. 172-173°. (Found: Te, 22·33%; Calc. for $C_{32}H_{18}O_{5}$ Cl₂ Te: Te, 22·75%).