

and likewise with Se instead of Te.

It appears possible that such exchanges, and the reactions named in the title of this note, proceed over tetravalent selenium and tellurium compounds as intermediates.

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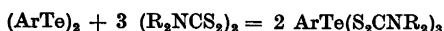
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Interactions of *Bis*(thiocarbamyl) Disulphides and *Bis*(*p*-anisyl) Ditelluride

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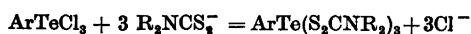
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These reactions give tetravalent tellurium compounds, as follows:



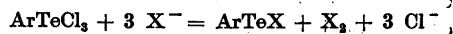
The *bis*(thiocarbamyl) disulphides here react with the ditelluride in the same way as do the halogens¹. Disulphides show halogen-like properties also in other reactions^{2, 3}.

The products, *viz.*, *p*-anisyl telluridithiocarbamates, represent a new type of organotellurium compounds. The same derivatives occur when *p*-anisyl telluritrichloride¹, in dioxane solutions, reacts with sodium dithiocarbamates:



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Thiosulphonate, thiosulphate and xanthate anions react with *p*-anisyl telluritrichloride in a different way, to give the corresponding thio pseudohalogenates together with the tellurenyl compounds⁴:



The thio pseudohalogen, X₂ where X is methanethiosulphonate, aromatic thiosulphonate, thiosulphate and xanthate, do not react with *bis*(*p*-anisyl) ditelluride. The above equations thus illustrate, once more⁵, a difference in the behaviour of dithiocarbamate and these other thio groups.

The *p*-anisyl telluridithiocarbamates form stable, greenish yellow crystals, whereas ditellurides, and tellurenyl derivatives⁴, have a red colour. The preparations were made by dissolving 2.5 millimoles of *bis*(*p*-anisyl) ditelluride and 7.5 millimoles of the disulphide in 10 ml of chloroform, heating, and addition of 15–20 ml of ethanol to the mixture. On continued heating, the products crystallized in about 90 % yields. The dimethylamino derivative is sparingly soluble in cold chloroform, the diethylamino and piperidyl derivatives are readily soluble. In preheated baths, these compounds melt and decompose at approx. 184°, 156° and 178° C, respectively.

Compound (Ar = <i>p</i> -anisyl)	% Te	
	Calc.	Found
ArTe(S ₂ CN(CH ₃) ₂) ₃	21.4	21.4
ArTe(S ₂ CN(C ₂ H ₅) ₂) ₃	18.8	18.8
ArTe(S ₂ CNC ₅ H ₁₀) ₃	17.8	17.7

In chloroform, tetrachloroethane and toluene solutions, the *p*-anisyl telluridithiocarbamates possess pronounced thermochromic properties. On heating, the colour changes slowly and reversibly from greenish yellow to red. Addition of the parent *bis*(thiocarbamyl) disulphide to the hot red solutions causes the red colour to recede more rapidly on cooling. These phenomena are indications of a reversible

dissociation, into the ditelluride and disulphide, or the corresponding radicals.

Some arylselenium tribromides, ArSeBr_3 , dissociate into bromine and the selenenyl bromide⁶. For the *p*-anisyl telluritri-dithiocarbamates, the tellurenyl dithiocarbamate is, correspondingly, a possible dissociation product. However, these compounds appear to be unstable. Thus, they are not obtainable from *p*-methoxybenzene-tellurenyl methanethiosulphonate⁴ and sodium dithiocarbamates; instead, a mixture of *bis*(*p*-anisyl) ditelluride and the *p*-anisyl telluritri-dithiocarbamate results.

In ethylene dibromide at 20° C *bis*(dimethylthiocarbamyl) disulphide does not obey Beer's law, and thus perhaps dissociates into free radicals⁷. In view of this fact, and recent indications of radical dissociation of aromatic ditellurides⁸, one may inquire whether the reactions of *bis*(thiocarbamyl) disulphides with *bis*(*p*-anisyl) ditelluride take place by radical mechanisms. Qualitative observations have shown that *bis*(2-benzothiazyl) disulphide, for which radical dissociation in hot toluene solutions has been demonstrated by magnetic measurements⁹, reacts with *bis*(*p*-anisyl) ditelluride in the same way as do the *bis*(thiocarbamyl) disulphides. Diphenyl disulphide, hot solutions of which do not obey Beer's law¹⁰, is inactive.

Diphenyl ditelluride⁸, according to preliminary experiments, reacts with *bis*(thiocarbamyl) disulphides to give compounds of the same type, and having analogous thermochromic properties, as does *bis*(*p*-anisyl) ditelluride.

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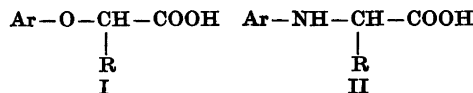
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α -N-Arylamino-carboxylic Acids as Plant Growth-Regulators

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A considerable part of the work on the relations between chemical structure and biological activity of plant growth-regulators has been carried out on α -aryloxyalkylcarboxylic acids (I). A few α -N-arylamino-acids (II) have been investiga-



ted in this respect and at least in one case such an acid was found to be highly active¹ while in another case it was stated that the replacement of the O atom by NH resulted in an inactive compound². Thus our knowledge of the effect of replacing the oxygen bridge by an imino group is very unsatisfactory and this would be ample reason for a more thorough investigation of compounds of the type II. Also from a different point of view more notice should be paid to these amino-acid derivatives. Plant growth-regulators of the type I have not been found to occur in nature, which is very little surprising, as the active members of this series have structures which are far from "natural" looking. However, by replacing the oxygen bridge by an imino group, compounds are obtained,