

## Pentamethyl- and Hexamethyl-platinate(IV)

By GARY W. RICE and R. STUART TOBIAS\*

(Department of Chemistry, Purdue University, West Lafayette, Indiana 47907)

*Summary* Reactions of tetramethylbis(methyldiphenylphosphine)platinum(IV) or trimethylplatinum iodide with methyl-lithium in diethyl ether yield lithium hexamethyl platinate(IV); in the former case, pentamethyl(methyldiphenylphosphine)platinate(IV) is observed as an intermediate.

RECENTLY considerable success has been achieved in the synthesis of binary methyl derivatives and anionic permethyl complexes of the early transition metals.<sup>1</sup> The

recent identification of  $\text{Li}[\text{Me}_4\text{Au}]$  in solution by spectroscopic techniques<sup>2</sup> and the isolation of thermally stable tetramethylaurate(III) compounds<sup>3</sup> suggested that a number of co-ordinatively saturated methyl complexes of the later transition elements should exist.

We have observed a ready reaction between ether-insoluble  $[(\text{Me}_3\text{PtI})_4]$  and  $\text{MeLi}$  in  $\text{Et}_2\text{O}$  which yields quantitatively hexamethylplatinate(IV). Thus,  $[(\text{Me}_3\text{PtI})_4]$  dissolves in a solution of  $\text{MeLi}$  in  $\text{Et}_2\text{O}$  during 4 h at room temperature to yield a colourless, homogeneous solution.

