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Alternative Ligands, XXXVII [1]. Phosphane Ligands with Boron as *Lewis*-acidic Centre: Synthesis and Coordinating Properties

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The complex $[Rh(CO)Cl\{Me_2PC(Me)=C(Me)BMe_2\}_2]$ (**5**) has been prepared again in order to prove its structure with weak bonding interactions between the basic rhodium centre and the *Lewis*-acidic Me_2B group of the donor/acceptor ligand $Me_2PC(Me)=C(Me)BMe_2$ (**1**). For further investigations additional ligands with P-donor and B-acceptor centres, *e. g.* $Ph_2PC(Ph)=C(Ph)BPh_2$ (**2**), $B(OCH_2PMe_2)_3$ (**3**), and $B(CH_2CH_2PMe_2)_3$ (**4**), have been prepared and the coordinating properties have been studied by reactions of **1** and **4** with $[(\pi\text{-}C_5Me_5)Rh(CO)_2]$ and $Pd(PPh_3)_4$, respectively. Because single crystals of the products $[(\pi\text{-}C_5Me_5)Rh(CO)Me_2PC(Me)=C(Me)BMe_2]$ (**6**), $[(\pi\text{-}C_5Me_5)Rh(CO)\{Me_2PC(Me)=C(Me)BMe_2\}_2]$ (**7**) as well as $[Pd\{B(CH_2CH_2PMe_2)_3\}]$ (**8**) or $[(Ph_3P)Pd\{B(CH_2CH_2PMe_2)_3\}]$ (**9**) could not be generated, quantum chemical calculations have been used to elucidate the coordination geometry expected for **5**, **8** and **9**. The calculations support the structure of **5** within the expected limitations of the experimental and theoretical methods and – in spite of the extremely soft coordination sphere of **8** and **9** – are in accord with spectroscopic results for the cage structures.

Key words: Phosphane Ligands, Boron Acceptor Centres, Rhodium(I), Palladium(0) Complexes