9 D. E. Fenton, P. A. Vigato, U. Casellato, R. Graziani and M. Vidali, *Inorg. Chim. Acta, 51,* 195 (1981).

10 D. H. Cook and D. E. Fenton, *J. Chem. Soc., Dalton Trans.*, 266 and 810 (1979).

11 J. D. J. Backer-Dirks, C. J. Gray, F. A. Hart, M. B. Hursthouse and B. C. Schoop, *J. Chem. Soc., Chem. Commun.*, 774 (1979).

12 W. Radecka-Paryzek, *Inorg. Chim. Acta, 45,* L147 (1980).

13 W. Radecka-Paryzek, *Inorg. Chim. Acta, 52,* 231 (1981).

14 S. M. Nelson, *Pure and Appl. Chem., 52,* 2461 (1980).

15 S. M. Nelson, *J. Chem. Soc., Chem. Commun.*, 388 (1981).

A4

Organometallic Compounds of the Lanthanides with Ylide Ligands

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$LuCl_3$ reacts with $Li(CH_2)_2P(t\text{-}C_4H_9)_2$ yielding a 1:3 complex which shows dynamic behaviour in solution. The addition of $(C_5H_5)_2LuCl$ to $Li(CH_2)_2$-$P(t\text{-}C_4H_9)_2$ yields an 1:1 chelate complex with stable configuration.

$(C_5H_5)_2Lu(t\text{-}C_4H_9)(THF)$ and $(C_5H_5)_2Lu(CH_2$-$SiMe_3)(THF)$ react with $CH_2{=}P(C_6H_5)_3$ and $Me_3SiCH{=}P(CH_3)_3$ in toluene with exchange of the THF ligand for the ylides and formation of new dicyclopentadienyl(alkyl)lutetinyl methylene triorganophosphoranes. New zwitterionic complexes of the type $(C_5H_5)_2Lu(R)(CHR'{=}PR''_3)$ have been isolated and characterized by their NMR spectra and by X-ray structural investigations.

Other ylide complexes of organolanthanides are unstable at room temperature. They decompose with evolution of hydrocarbons and formation of metallacycles or polymeric organolanthanide derivatives.

A5

New Aspects in the Chemistry of Uranocene

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A6

Lower Oxidation States of Lanthanides and Actinides

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A7

Recent Studies of Actinide Stereochemistry

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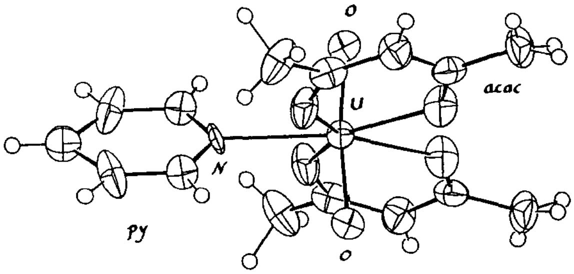
The result of recent work on co-ordination compounds will be described. Emphasis will be laid on the effects of changing the actinide element and on the detailed influence of the coordinating ligands. Among other examples, the structure of UO_2(pyridine)-(acac)$_2$ will be discussed, which has been shown to contain a significantly bent O–U–O group (173.5(8)°); its crystals are orthorhombic, *Fdd2,* with a = 29.702(4), b = 11.433(2), c = 10.593(2), R(final) = 0.032:



A8

Electron Spin Resonance Study of Uranium(V) Intermediate in Both Processes of Photo- and Electrolytic Reductions of Uranyl Complex in Organic Solution

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Recently the appearance of pentavalent uranium was suggested indirectly by an analysis of photochemical- or electrolytic reduction processes of uranyl complexes in solution [1, 2] but we have first observed the electron spin resonance (ESR) spectra of uranium(V) and confirmed directly the existence of uranium(V) species on the way of both