Dicarbonyl(methylcyclopentadienyl)(benzonorbornadienone)manganese

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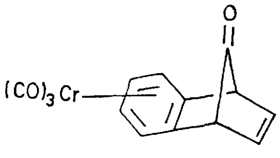
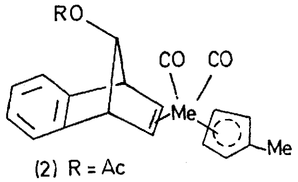
Summary The title compound, in which the elusive benzonorbornadienone is stabilised through bonding of the olefinic π-bond to manganese, has been prepared.

Attempts to prepare *exo*- and *endo*-tricarbonyl(benzonorbornadienone)chromium (**1**) resulted in the formation of tricarbonyl(naphthalene)chromium,[1,2] indicating that complexing of the arene ring of the reactive benzonorbornadienone is not sufficient to prevent cheletropic loss of carbon monoxide. As predicted,[2] we have found that benzonorbornadienone can be isolated in the form of a complex in which the olefinic π-bond is linked to a metal carbonyl system.

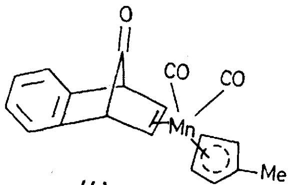
Irradiation (350 nm) of a pentane solution of *syn*-7-acetoxybenzonorbornadiene[3] and tricarbonyl(methylcylopentadienyl)manganese gave complexed acetate (**2**)† (80%), m.p. 138·5—140°. Reduction with lithium aluminium hydride in ether at 0° afforded complexed alcohol (**3**)† (84%), m.p. 114—115°. Not unexpectedly, it proved to be difficult to oxidise efficiently the hydroxy-group of (**3**) without causing oxidation at the metal atom. Dicarbonyl(methylcyclopentadienyl)(benzonorbornadienone)manganese (**4**)† could, however, be isolated by preparative t.l.c. in 1% yield from the products obtained by treating alcohol (**3**) with *N*-chlorosuccinimide–dimethyl sulphide–triethylamine in toluene[4] at −25° to 0°. Complexed ketone (**4**) was obtained as pale yellow plates, which decomposed without melting at *ca.* 125°.



(1)



(2) R = Ac
(3) R = H



(4)

Complex (**4**) thus joins the growing number of examples, *e.g.*, ref. 5 in which a highly reactive organic species is stabilised through co-ordination to a low valent transition metal.

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† Satisfactory analytical and spectral data have been obtained.

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