Previous attempts to prepare monomeric aquo and hydroxo complexes of platinum(II) have been unsuccessful, (Faggiani, R., Lipert, B., Lock, C.J.L., J. Amer. Chem. Soc. (1977) 99, 777; Inorg. Chem. (1977) 16, 1192; (1978) 17, 1941; Lipert, B., Lock, C.J.L., RosenBerg, B., Zavagulis, M., Inorg. Chem. (1978) 17, 1971). Crystalisation at low pH was no more successful, the product containing coordinated nitrate ion (Lippert, B., Lock, C.J.L., Rosenberg, B., Zavagulis, M., Inorg. Chem. (1978) 17, 1971). It was possible to explain the results and postulate the conditions under which monomeric Pt(II) hydroxo and aquo complexes might be obtained (Lock, C.J.L., ACS Symposium Series, Inorganic Chemistry in Biology and Medicine (1980) 140, 208) using Brown's model (Brown, I.D. J. Chem. Soc., Dalton, in press). We have now obtained such complexes ([Pt(NH₃)₂(H₂O)Cl₂]⁺, [Pt(NH₃)₂(H₂O)Cl]⁺, [Pt(NH₃)₂(μ-OH)]⁻, and [Pt(NH₃)₂(μ-OH)₂]⁻) and have examined their structures. The predicted hydrogen bonding requirements are observed.

Structural studies have been undertaken of the complexes containing coordinated nitrate ion (Lippert, B., Lock, C.J.L., RosenBerg, B., Zavagulis, M., Inorg. Chem. (1978) 17, 1971). It was possible to explain the results and postulate the conditions under which monomeric Pt(II) hydroxo and aquo complexes might be obtained (Lock, C.J.L., ACS Symposium Series, Inorganic Chemistry in Biology and Medicine (1980) 140, 208) using Brown's model (Brown, I.D. J. Chem. Soc., Dalton, in press). We have now obtained such complexes ([Pt(NH₃)₂(H₂O)Cl₂]⁺, [Pt(NH₃)₂(H₂O)Cl]⁺, [Pt(NH₃)₂(μ-OH)]⁻, and [Pt(NH₃)₂(μ-OH)₂]⁻) and have examined their structures. The predicted hydrogen bonding requirements are observed.

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