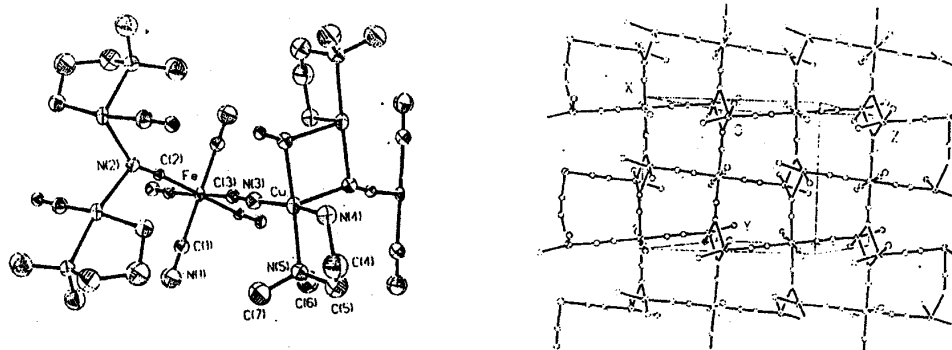


## Crystal structure and magnetic behaviour of the two-dimensional complex $[\text{Cu}(\text{dmen})]_2[\text{Fe}(\text{CN})_6]$ (dmen = 2-dimethylaminoethylamine) with an exceptional cyano-bridging

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The chemistry of several bimetallic assemblies has developed recently due to their variable magnetic properties<sup>1</sup>. Among them a cyanide system based on prussian blue and its analogues is particularly useful and has drawn considerable interest. The cyanide bridged bimetallic assemblies of  $[\text{Cu}(\text{dmen})]_2[\text{Fe}(\text{CN})_6]$  (dmen = 2-dimethylaminoethylamine) have been prepared and characterized by elemental analysis, infrared, ESR and electronic spectroscopy. The crystal structure of the compound showed a monoclinic system of space group  $P2_{1/c}$  with  $a = 11.11(2)$ ,  $b = 8.969(10)$ ,  $c = 10.73(2)$  Å,  $\alpha = \beta = 90$ ,  $\gamma = 112.48(11)^\circ$  and  $Z = 2$ . The polymeric two-dimensional sheet of the compound consists of two different rings; one is a four-membered square ring and another a twelve-membered hexagonal ring. In the crystal, all the Fe(II) ions have two free cyanide groups, two linearly bridging cyanide groups and two end-on bridging cyanide groups, which is exceptional. Each Cu(II) ion shows distorted square pyramidal geometry. From the variable temperature magnetic susceptibility measurements, the complex was found to exhibit a weak ferromagnetic interaction between the nearest copper (II) through the diamagnetic iron(II) atoms.



### Reference

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