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X-RAY BIBLIOGRAPHY

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The structures of the following compounds appeared in:

Inorg. Chem., Vol. 13, No. 7, July 1974

(i) A second isomer of hydridonitrosyltris(triphenylphosphine)iridium(I) perchlorate, $[IrH(NO)(P(C_6H_5)_3)_3]ClO_4$
(ii) $Mo_2(CO)_6(\mu\text{-}Ph_3PNH)_3$
(iii) Di-μ-chloro-dichlorobis(cyclopentene)diplatinum(II), $[PtCl_2(C_5H_8)]_2$ and di-μ-chloro-dichlorobis(cycloheptene)diplatinum(II), $[PtCl_2(C_7H_{12})]_2$
(iv) Tetrakis(o-phenylenediamine)nickel(II) chloride-bis(o-phenylenediamine) adduct, $[Ni(OPDA)]_4Cl_2 \cdot 2\ OPDA$
(v) Bis{perchlorato[2-(2-hydroxyethyl)imino-3-oximobutanato]aquo-copper(II)}
(vi) Di-μ-hydroxo-bis(*N*,*N*,*N'*,*N'*-tetraethylethylenediamine)dicopper(II) perchlorate, $[Cu(teen)OH]_2(ClO_4)_2$
(vii) Tetrafluoroboratotris(triphenylphosphine)copper(I), $Cu(BF_4)(P(C_6H_5)_3)_3$
(viii) A transition metal complex with a terminal dicyanovinylidene ligand, $MoCl(\eta\text{-}C_5H_5)[C{=}C(CN)_2][P(OCH_3)_3]_2$
(ix) Bis(cyclotetramethylenethiocarbamato)bis(pyrrolidine)cobalt(II), $Co(SOCN(C_4H_8))_2(NC_4H_9)_2$
(x) Potassium pentachloroantimonate(III)
(xi) Trivalent transition metal cyanides, $Cs_2LiM(CN)_6$, M = Cr, Ir
(xii) Divalent transition metal cyanides, $Cs_2MgFe(CN)_6$
(xiii) Methyl iodide adduct of tetraphosphorus hexakis(*N*-methylimide), $P_4(NCH_3)_6CH_3I$
(xiv) $XeF_3^+SbF_6^-$
(xv) Tris(ethyl thioxanthato)cobalt(III), $Co(S_2CSEt)_3$

Inorg. Chem., Vol. 13, No. 8, August 1974

(i) μ-Carbonyl-bis-μ-[bis(bis(trifluoromethyl)phosphino)sulfur-*P*,*P'*]-bis(carbonylnickel), $Ni_2[(CF_3)_2PSP(CF_3)_2]_2(CO)_3$
(ii) Sodium gold(I) thiosulfate dihydrate, $Na_3Au(S_2O_3)_2 \cdot 2\,H_2O$
(iii) Studies on metal-acetylene complexes, III. Methyl(hydrotris(1-pyrazolyl)borato)hexafluorobut-2-yneplatinum(II), $(CH_3)(HB(N_2C_3H_3)_3)(F_3CC{\equiv}CCF_3)Pt^{II}$

(iv) Studies on metal-acetylene complexes, IV. Bis(triphenylphosphine)hexafluorobut-2-yneplatinum(0), $((C_6H_5)_3P)_2(CF_3C{\equiv}CCF_3)Pt^0$
(v) Tris(tropolonato)manganese(III), $Mn(OC_7H_5)_3$
(vi) Tris(2,4-pentanedionato)manganese(III), $Mn(O_2C_5H_7)_3$
(vii) Stereochemistry of low-spin cobalt porphyrins, V. Nitro-$\alpha,\beta,\gamma,\delta$-tetraphenylporphinato(3,5-lutidine)cobalt(III), $O_2N(3,5\text{-lut})CoTPP$
(viii) The acid dimer of tetrakis(tropolonato)scandium(III), $(HScT_4)_2$
(ix) Coordination chemistry of scandium, VII. Hydrogentetrakis(tropolonato)scandium(III), $HSc(C_7H_5O_2)_4$
(x) Tris(dibenzylideneacetone)dipalladium(0), $Pd_2(C_{17}OH_{14})_3$
(xi) η^2-(*cis*-2,3-Dicarbomethoxymethylenecyclopropane)iron tetracarbonyl (*cis*-Feist's ester iron tetracarbonyl)
(xii) Tetrameric triethylphosphinecopper(I) iodide and triethylarsinecopper(I) iodide
(xiii) A dimeric cyclic copper(I)-aliphatic disulfide complex: *cyclo*-di-μ-{bis-[2-(*N,N*-dimethylamino)ethyl]disulfide}-dicopper(I) tetrafluoroborate, $Cu_2((CH_3)_2NCH_2CH_2SSCH_2CH_2N(CH_3)_2)_2(BF_4)_2$
(xiv) An outer-sphere copper(II) dimer, $[Cu_2(tren)_2(CN)_2](BPh_4)_2$
(xv) Neodymium tris(methylcyclopentadienide), $(C_6H_7)_3Nd$
(xvi) 1,8-Naphthyridine complexes of 1.5 valent nickel, $[Ni_2(napy)_4Br_2]B(C_6H_5)_4$
(xvii) Copper halide adducts of copper Schiff base complexes. Dichlorobis(*N*-methylsalicylaldimino)dicopper(II), dichlorobis(*N*-ethylsalicylaldimino)-dicopper(II), dibromobis(*N*-ethylsalicylaldimino)dicopper(II) and dichloro-[*N,N'*-ethylenebis(2-hydroxyacetophenimino)copper(II)] copper(II)

Inorg. Chem., Vol. 13, No. 9, Sept. 1974
(i) Tris(*N,N*-diethyldithiocarbamato)ruthenium(III), $Ru(EtEt(dtc))_3$
(ii) An end-to-end di-μ-cyanato-nickel dimer; di-μ-cyanato-bis(2,2',2''-triamino-triethylamine)dinickel(II) tetraphenylborate, $[Ni_2(tren)_2(OCN)_2](BPh_4)_2$
(iii) Nitrosodisulfonates and hydroxylamine-*N,N*-disulfonates, II. A rubidium hydroxylamine-*N,N*-disulfonate, $Rb_5\{[ON(SO_3)_2]H\}\cdot 3H_2O$
(iv) Bis[*N*-(picolinoyl)-3-amino-1-propoxidoaquocopper(II)] dihydrate
(v) A 2:1 pentahydrate complex of 1,4,7,10-tetraoxacyclododecane with sodium chloride $[Na^+(C_8H_{16}O_4)_2][Cl^-\cdot 5H_2O]$
(vi) Bis(1,5-dithiacyclooctane)nickel(II) chloride, $Ni(C_6H_{12}S_2)_2Cl_2$
(vii) Δ-$[PtCl\{o\text{-}(C_6H_5)_2PC_6H_4C{=}CHC_6H_4P(C_6H_5)_2\text{-}o\}]$
(viii) A six-coordinate cobalt(III) complex containing the quinquedentate ligand *N,N'*-bis(salicylidene)dipropylenetriamine, [Co(saldpt)(1-methylimidazole)] bromide monohydrate
(ix) (4,7,13,16,21,24-Hexaoxa-1,10-diazabicyclo[8.8.8]hexacosane)lead(II) thiocyanate, $C_{18}H_{36}N_2O_6\cdot Pb(SCN)_2$
(x) $(\pi\text{-}C_5H_5)Ni[C_5H_5(Me_2C_2O)_2]$

(xi) Green and yellow thermochromic modificiations of bis(*N*-methylphenethylammonium) tetrachlorocuprate(II), $[C_6H_5CH_2CH_2NHCH_3H^+]_2[CuCl_4^{2-}]$
(xii) Manganese metalloborane containing a tridentate borane ligand, 5-THF-6-$(CO)_3$-6-MnB_9H_{12}

Inorg. Chem., Vol. 13, No. 10, October 1974
(i) Tris(bis(triphenylphosphine)silver(I)) tris(dithiooxalato)iron(III) and aluminum(III), $[Ag(P(C_6H_5)_3)_2]_3M(O_2C_2S_2)_3$, M = Fe^{III} and Al^{III}
(ii) Effect of packing forces on the geometry of the $[Ni(CN)_5]^{3-}$ ion; structures of $[Cr(NH_2CH_2CH_2CH_2NH_2)_3][Ni(CN)_5]\cdot 2H_2O$ and $[Cr(NH_3)_6][Ni(CN)_5]\cdot 2H_2O$
(iii) A five-coordinated iron(II) complex with an intermediate spin state $[Fe(P_4)Br]BPh_4\cdot CH_2CH_2$ where P_4 = hexaphenyl-1,4,7,10-tetraphosphadecane
(iv) A monobridged inner-sphere dimer; μ-cyano-bis(5,7,7,12,14,14-hexamethyl-1,4,8,11-tetraazacyclotetradeca-4,11-diene)dicopper(II) perchlorate, $[Cu_2(C_{16}H_{32}N_4)_2CN](ClO_4)_3$
(v) η^5-Cyclopentadienyl(triphenylphosphine)carbonyliridium, $(\eta^5\text{-}C_5H_5)$-$IrP(C_6H_5)_3(CO)$
(vi) Bis(tetraethylammonium) di-μ-hydrido-octacarbonylditungstate(2—), $[Et_4N^+]_2[H_2W_2(CO)_8^{2-}]$
(vii) A metalloborane zwitterion, 8-$[(C_2H_5)_3N(CH_2)_4O]$-6-$(CO)_3$-6-MnB_9H_{12}
(viii) Dimerization of nickel(II) with a tridentate α-amine oxime ligand; *N*-(6-amino-4-aza-3,3,6-trimethyl-2-heptylidenyl)-hydroxanatonickel(II) ion, $[Ni_2(BnAO\text{-}H_2]Cl_2.5H_2O$
(ix) π-$C_6H_6Pb(AlCl_4)_2\cdot C_6H_6$
(x) A new series of polynuclear copper dithiocarbamate—copper halide polymers, $Cu(pipdtc)_2(CuBr)_n$ (n = 4, 6)

J. Amer. Chem. Soc., Vol. 96, No. 13, June 26, 1974
(i) A selenium ylide, diacetylmethylenediphenylselenurane
(ii) Triiron dodecacarhonyl, $Fe_3(CO)_{12}$
(iii) Synthetic analogs of the active sites of iron—sulfur proteins, VII. $[(CH_3)_4N]_2[Fe_4S_4(SC_6H_5)_4]$

J. Amer. Chem. Soc., Vol. 96, No. 14, July 10, 1974
(i) Gaseous methylaminobis(difluorophosphine), $CH_3N(PF_2)_2$, an electron-diffraction investigation
(ii) (Tetraphenyldiphosphinomethane)heptacarbonyldiiron, $Fe_2(CO)_7$-$(Ph_2P)_2CH_2$
(iii) Dibromotris(trimethylphosphine)nickel(II), $[NiBr_2(PMe_3)_3]$
(iv) Stereochemistry of cobalt porphyrins, I. 2,3,7,8,12,13,17,18-Octaethylporphinatobis(3-methylpyridine)cobalt(II) Co(3-pic)$_2$ OEP

(v) Stereochemistry of cobalt porphyrins, II. *meso*-Tetraphenylporphinatobis(imidazole)cobalt(III) acetate monohydrate monochloroformate, $[Co(Im)_2(TPP)][OAc].H_2O.CHCl_3$
(vi) Stereochemistry of cobalt porphyrins, III. 2,3,7,8,12,13,17,18-Octaethylporphinato(1-methylimidazole)cobalt(II) Co(1-Me-Im)(OEP)
(vii) Bis(methylguanidinium) monohydrogen orthophosphate $[CH_3NHC(NH_2)_2]PO_3OH$

J. Amer. Chem. Soc., Vol. 96, No. 15, July 24, 1974
(i) A *p*-xylene clathrate of tris(1,8-naphthalenedioxy)cyclotriphosphazene
(ii) *trans*-Chlorobis(triethylphosphine)(*p*-fluorophenyldiazene)platinum(II) perchlorate, $[Pt(P(C_2H_5)_3)_2(HNNC_6H_4F)Cl][ClO_4]$
(iii) Stereochemistry of low-spin cobalt porphyrins, VI. (1,2-Dimethylimidazole)-$\alpha,\beta,\gamma,\delta$-tetraphenylporphinatocobalt(II), DMImCoTPP
(iv) (2,4-Pentanedionato)(triphenylphosphine)ethylnickel(II), $Ni(C_5H_7O_2)(C_2H_5)(PPh_3)$
(v) Rhodium(I) dithiolene complexes, Rh(COD)(CH_3-mnt)

J. Amer. Chem. Soc., Vol. 96, No. 16, August 7, 1974
(i) Octacarbonyldi(tetrahydrothiophene)triiron, $Fe_3(CO)_8(C_4H_8S)_2$
(ii) Nitrosyl-$\alpha,\beta,\gamma,\delta$-tetraphenylporphinato(1-methylimidazole)iron, ONFeTPP(NMeIm) and nitrosyl-$\alpha,\beta,\gamma,\delta$-tetraphenylporphinato(4-methylpiperidine) manganese ONMnTPP(MPip)

J. Amer. Chem. Soc., Vol. 96, No. 17, August 21, 1974.
(i) Anthracenetetrakis(silver perchlorate) monohydrate
(ii) Bis(cyclopentadienyl)ethyl(ethylene)niobium, $(C_5H_5)_2Nb(C_2H_5)(C_2H_4)$
(iii) $[\pi\text{-}C_5H_5(CO)_3MoZnCl.O(C_2H_5)_2]_2$ and $[\pi\text{-}C_5H_5(CO)_3Mo]_2Zn$
(iv) Fluorenylpotassium tetramethylethylenediamine, $C_{13}H_9K(N_2C_6H_{16})$
(v) A σ-carboranyl complex of platinum(II), 1-[(P-*n*-Pr_3)Pt^{II}(P-*n*-Pr_2)$CHCH_2CH_3$]-2-C_6H_5-1,2-(σ-$B_{10}C_2H_{10}$)
(vi) Tetrakis(tetraphenylphosphonium)hexakis(1,2-dithiosquarato)octacuprate(I), copper—copper bonding at 2.8 Å, $(Ph_4P)_4Cu_8DTS_6$

J. Amer. Chem. Soc., Vol. 96, No. 18, Sept. 4, 1974
(i) Λ $(-)_{436}$-β_2-[(2*S*,9*S*)-2,9-Diamino-4,7-diazadecanecobalt(III) aminomethylmalonate] perchlorate monohydrate
(ii) $[Me_2GeRe(CO)_4C(O)Me]_2$

J. Amer. Chem. Soc., Vol. 96, No. 19, Sept. 19, 1974
(i) Cyclohexyllithium benzene adduct, $[C_6H_{11}Li]_6(C_6H_6)_2$
(ii) Tris(dimethylaminato)tris(*N*,*N*-dimethylcarbamato)tungsten(VI), $W[N(CH_3)_2]_3[O_2CN(CH_3)_2]_3$

Acta Crystallogr. Sect. B, Vol. 30, May 15, 1974

(i) Brazilianite, $NaAl_3(PO_4)_2(OH)_4$
(ii) Ditin(II)trifluoridechloride, $(Sn_2F_3)Cl$
(iii) Caesium triborate, $Cs_2O.3\,B_2O_3$
(iv) Tetraamminepalladium(II) pyrazine-2,5-dicarboxylate, $[Pd(NH_3)_4]\cdot C_4N_2H_2(CO_2)_2$
(v) Tetra-(2-thienyl)silane, $(C_4H_3S)_4Si$
(vi) Dichlorobis-(*N*,*N*-dimethylacetamide)zinc(II), $ZnCl_2(C_4H_9ON)_2$
(vii) Trisilver-diethylsulfone-diimin-nitrate, $Ag_3N_2S(C_2H_5)_2(NO_3)$
(viii) Disodium maleate monohydrate
(ix) The 2:1 derivative of copper(I) chloride and bis(diphenylphosphino)-methane $C_{49}H_{42}Cl_4Cu_4P_4.xC_2H_4Cl_2$
(x) 3,7-Dichlorophenoselenazine, $SeCl_2NC_{12}H_7$
(xi) 2,3-*exo*-Ferroco-4,4-dimethylbicyclo[3,2,1]octa-2,6-diene, $(\pi\text{-}C_5H_5)Fe(\pi\text{-}C_{13}H_{15})$
(xii) β-Tungsten hexachloride, $\beta\text{-}WCl_6$
(xiii) $KHCO_3$ and $KDCO_3$ at 298, 219 and 95 K
(xiv) $TlNbB_2O_6$
(xv) $La_{32.66}M_{11}S_{60}$ (M = Mn, Fe)
(xvi) Hexaaquocobalt(II) bis(hydrogen-2,2'-dithiobisbenzoate)-hexahydrate-tetrakismethanol and its isostructural nickel(II) homologue, $M(H_2O)_6(HOOCC_6H_4SSC_6H_4COO)_2(H_2O)_6(CH_3OH)_4$, M = Co, Ni
(xvii) $K_2Mn(C_2O_4)_2.2\,H_2O$
(xviii) Tris(acetylacetonato)gallium(III), $Ga(acac)_3$

Acta Crystallogr. Sect. B, Vol. 30, June 15, 1974

(i) Strontium "chlorapatite", $Sr_5(PO_4)_3Cl$
(ii) $PbGeS_3$
(iii) γ-Sulphur
(iv) γ Brass type structures, Cu_5Zn_8, Cu_5Cd_8, Fe_3Zn_{10}
(v) $Na_{3-x}Ru_4O_9$ ($x \simeq 0.9$)
(vi) $H_3PO_4.\frac{1}{2}H_2O$
(vii) Uranium hexachloride, UCl_6
(viii) Dicarbonylnitrosyltriphenylstibinecobalt(0), $Co(CO)_2(NO)Sb(C_6H_5)_3$
(ix) $(-)_{589}$-[*l*-*N*,*N*,*N'*,*N'*-Tetrakis-(2'-aminoethyl)-1,2-diaminopropane]cobalt-(III) hexacyanocobaltate(III) trihydrate, $(-)_{589}$-$[Co(C_{11}H_{30}N_6)]\cdot[Co(CN)_6].3\,H_2O$
(x) Hexaferrite, $BaFe_{12}O_{19}$
(xi) $Na_2PO_3F\beta$
(xii) Ammonium mercury(II) trichloride monohydrate, $NH_4HgCl_3.H_2O$
(xiii) *cis*-[Adeninato-chloro-bis(ethylenediamine)cobalt(III)] bromide monohydrate, $[CoClC_9H_{20}N_9]Br.H_2O$
(xiv) *trans*-Bis(diethylphenylphosphine)(difluorophosphonato)chloroplatinum-(II), $(Et_2PPh)_2PtCl(PF_2O)$
(xv) Sodium metavanadate α form, $\alpha\text{-}NaVO_3$

(xvi) Tricarbonyl-1-*syn*-(1′,2′-dihydro-2′-oxo-1′-oxa-azulen-3′-yl)-h^5-pentadienylmanganese, $C_{17}H_{11}O_5Mn$
(xvii) Low temperature rubidium sulphate, β-Rb_2SO_4
(xviii) The unit cells of $(PtenX_4)(PtenX_2)$, (X = Cl, Br, I)

Acta Crystallogr. Sect. B, Vol. 30, July 15, 1974
(i) Thiamine hydrochloride copper(II), $C_{12}H_{18}N_4OSCl_2.CuCl_2$
(ii) Hexakis(pyridine-*N*-oxide)nickel(II) bis(tetrafluoroborate), $Ni(PyNO)_6(BF_4)_2$
(iii) β-Uranium oxide tetrafluoride, β-UOF_4
(iv) Perovskite-related compounds, $Ba_4M_3LiO_{12}$ (M = Sb, Bi) and $Ba_5M_3Li_2O_{15-x}$ (M = Te, U)
(v) Dirubidium and dipotassium-μ-oxo-bis(pentafluorodiarsenate)monohydrate, $Rb_2(As_2F_{10}O).H_2O$ and $K_2(As_2F_{10}O).H_2O$
(vi) Rare-earth hexaaurides, RAu_6, R = Pr
(vii) Samarium ultraphosphate, SmP_5O_{14}
(viii) Bis(tricyclo[6.3.0.0^{2,7}]undeca-3,5-diene)dicarbonyl molybdenum, $(C_{11}H_{14})_2Mo(CO)_2$
(ix) Guerinite, $Ca_5(HAsO_4)_2(AsO_4)_2.9H_2O$
(x) White α molybdic acid, α-$MoO_3.H_2O$
(xi) Bis(trimethylsilyl)diimine, $(CH_3)_3Si{-}N{=}N{-}Si(CH_3)_3$
(xii) H_2TeO_4
(xiii) $5K_2O.19B_2O_3$
(xiv) $C(CN)_4$
(xv) $(+)_{589}$-Tris(biguanide)cobalt(III) trichloride monohydrate $Co(C_2H_7N_5)_3Cl_3.H_2O$
(xvi) Ytterbium metaphosphate, YbP_3O_9
(xvii) *catena*-μ-Dichlorobis(pyrazole)manganese(II), $[MnCl_2(C_3H_4N_2)_2]_\infty$
(xviii) Sodium tungstate, Na_2WO_4
(xix) Redetermination of $Al_2(WO_4)_3$
(xx) Cadmium(II) formate dihydrate, $C_4H_{12}O_{12}Cd_2$
(xxi) $NaInSi_2O_6$

J. Chem. Soc. Dalton, No. 5, 1974
(i) Dimeric dimethyltin nitrate hydroxide, [di-μ-hydroxo-bis(dimethylnitratotin)]
(ii) Polymeric tris(trimethyltin) chromate hydroxide
(iii) Carbonyltris(*N*,*N*-diethyldithiocarbamato)rhenium(III); a complex of seven-coordinate rhenium, $Re(S_2CNEt_2)_3(CO)$
(iv) Steric effects in the reversible oxygenation of cobalt-Schiff-base complexes, Part II. Structure of [*N*,*N*′-butylenebis(salicylideneiminato)]-pyridinecobalt(II).
(v) Tungsten trichloride $[W_6Cl_6]Cl_6$
(vi) μ-[2,2′-Bipyridylcadmium]-bis(pentacarbonylmanganese), (2Cd—Mn)-(bipy)Cd$[Mn(CO)_5]_2$ and μ-[1,10-phenanthrolinecadmium]-bis(pentacarbonylmanganese), (2Cd—Mn)(phen)Cd$[Mn(CO)_5]_2$

J. Chem. Soc. Dalton, No. 6, 1974

(i) Crystal structures of thiocyanate polyamine copper(II) complexes, Part II. Bis-(1,3-diaminopropane)isothiocyanatocopper(II) perchlorate, $[Cu(tn)_2(SCN)]ClO_4$

(ii) Crystal structures of thiocyanate polyamine copper(II) complexes, Part III. [Di-(2-aminoethyl)amine]diisothiocyanatocopper(II), $Cu(den)(SCN)_2$

(iii) Crystal structures of thiocyanate polyamine copper(II) complexes, Part IV. Di-μ-thiocyanato-bis[di-(2-aminoethyl)amine]dicopper(II) diperchlorate, $[Cu(den)(SCN)]_2[ClO_4]_2$

(iv) Cobalt(II) and nickel(II) derivatives of dithioacetylacetone, $Co(sacsac)_2$ and $Ni(sacsac)_2$

J. Chem. Soc. Dalton, No. 7, 1974

(i) Cadmium(II) maleate dihydrate, $C_4H_6CdO_6$

(ii) Di-μ-carbonyl-carbonyl[dicarbonyl(methyldiphenylphosphine)cobaltio]-π-cyclopentadienyliron, $(\pi\text{-}C_5H_5)COFe.(CO)_2.Co(CO)_2(PMePh_2)$

(iii) *trans*-Carbonyl(*p*-chlorophenyl)bis(triethylphosphine)platinum(II) hexafluorophosphate, $[Pt(CO)(p\text{-}ClC_6H_4)(PEt_3)_2][PF_6]$

(iv) Molecular structures of non-geminally substituted phosphazenes, Part V. 2-*trans*-6-Dichloro-2,4,4,6,8,8-hexakis(dimethylamino)cyclotetraphosphazatetraene, $N_4P_4Cl_2(NMe_2)_6$

J. Chem. Soc. Dalton, No. 8, 1974

(i) Bis-μ-[dicarbonyl(π-cyclopentadienyl)ferriochloro]-bis{[dicarbonyl-(π-cyclopentadienyl)ferriochloro]trichloroantimony}, $[Fe(\pi\text{-}C_5H_5)(CO)_2Cl]_4[SbCl_3]_2$

(ii) μ-(Dimethylarsino)-μ-[3,3,4,4-tetrafluoro-2-(dimethylarsino)cyclobut-1-enyl(*As*, *C*)]-bis(tetracarbonylmanganese)

(iii) Nonacarbonyldi-iron, $Fe_2(CO)_9$

(iv) Bis-[*N*,*N*′-ethylenebis(salicylideneiminato)copper(II)]perchloratosodium-*p*-xylene, $NaClO_4[Cu(salen)]_2$-*p*-xylene

J. Chem. Soc. Dalton, No. 9, 1974

(i) Dichloro-(4-methoxyphenyldiimide-C^2,*N*′)bis(triphenylphosphine)iridium-chloroform(1/1), $IrCl_2(p\text{-}MeO.C_6H_3.N{:}NH)(PPh_3)_2CHCl_3(1/1)$

(ii) Complex of potassium iodide with phenacyl kojate: bis(5-phenacyloxy-2-hydroxymethyl-4H-pyran-4-one)potassium iodide

(iii) Trichlorotris(tetrahydrofuran)scandium(III), $ScCl_3(C_4H_8O)_3$

(iv) Di-μ-carbonyl-carbonyl[carbonyl(2,3-dimethylbuta-1,3-diene)cobalt]-(π-methylcyclopentadienyl)iron

(v) A novel phosphomolybdate structure, $[NH_4]_5(MoO_3)_5(PO_4)(HPO_4)]\cdot 3H_2O$

(vi) Cyclic compound formed by the thermal dehydration of 1-hydroxyethylidenediphosphonic acid, $C_4H_{28}N_4O_{14}P_4$

(vii) Chloro[*NN'*-di-(3-aminopropyl)piperazine]nickel(II) chloride, $[Ni(NH_2(CH_2)_3.\overline{N\ N}.(CH_2)_3.NH_2)Cl]Cl$
(viii) Red form of 2,2'-bipyridyldichloroplatinum(II), [(2,2'-bipyridyl)-$PtCl_2$]

J. Chem. Soc. Dalton, No. 10, 1974
(i) Tricarbonyl(decafluorocyclohepta-1,3-dienyl)iron, $(C_7F_{10})Fe(CO)_3$
(ii) *trans*-Chlorobis(dimethylglyoximato)(triphenylphosphine)cobalt(III) and *trans*-chlorobis(dimethylglyoximato)(ammine)cobalt(III) monohydrate
(iii) Dodecamethoxycyclohexaphosphazene, $N_6P_6(OMe)_{12}$
(iv) An inorganic zwitterion: trichloro{[2-(diphenylphosphinyl)ethyl]-dimethylammonium}copper(II), $[Me_2N^+(H)C_2H_4P(O)Ph_2](CuCl_3^-)$
(v) (Dimethylacetylenedicarboxylate)bis(triphenylphosphine)palladium, $[Pd\{C_2(CO_2Me)_2\}(PPh_3)_2]$
(vi) A tetranuclear copper complex: di-μ-chloro-bis{chloro[*N,N'*-ethylenebis(salicylideneiminato)copper(II)]-copper(II)}
(vii) Di-μ-carbonyl-dicarbonyl(triethylphosphine)cobalt(π-cyclopentadienylnickel),$(\pi\text{-}C_5H_5)Ni[Co(CO)_4(PEt_3)]$
(viii) Tris-μ-[2,5-di(2-pyridyl)-3,4-diazahexa-2,4-diene]-dicobalt(II) di[aquotrichlorozincate(II)] tetrachlorozincate(II) tetrahydrate: a helical binuclear cobalt(II) cation, $Co_2(pmk)_3ZnCl_4(ZnCl_3.H_2O)_2.4H_2O$
(ix) Dicarbonyl(π-cyclopentadienyl)(pentafluorophenylsulphonyl-*S*)iron, $C_6F_5SO_2Fe(CO)_2(\pi\text{-}C_5H_5)$

J. Chem. Soc. Dalton, No. 11, 1974
(i) Thiocarbonylbis(triphenylphosphine)rutheniumtri-μ-chloro-chlorobis(triphenylphosphine)ruthenium, $CS(PPh_3)_2RuCl_3Ru(PPh_3)_2Cl$
(ii) Bis[bromo-, chloro- and nitrato-(*N*-*n*-butyl-5-chloro-α-phenyl-2-hydroxybenzylidene)aminato-μ-*O*-copper(II)]
(iii) 1,*trans*-3,*cis*-5,*trans*-7-Tetrakis(dimethylamino)-1,3,5,7-tetrafluorotetraphosphonitrile
(iv) Isoquinolinium tetrakis[4,4,4-trifluoro-1-(2-thienyl)butane-1,3-dionato]-cerium(III)
(v) Octaethylporphin bis[*cis*-dicarbonyldichlororhodate(I)], $[oepH_4]^{2+}$-$2[RhCl_2(CO)_2]^-$

Tetrakis(urea)cobalt(II) nitrate, $[Co(urea)_4](NO_3)_2$
($P2_1/c$) $Z = 2$, $R = 7.5\%$ from 650 visually estimated reflections. Coordination about the Co atom is octahedral with two oxygen bound urea molecules in the axial positions, and two urea molecules, bound as bidentates through the oxygen and nitrogen forming bridges between cobalt atoms in adjacent unit cells. The nitrate groups are ionic. Co—O(monodentate urea) = 2.055(7), Co—O(bidentate) = 2.100(9), Co—N(bidentate) = 2.231(9) Å.
P.S. Gentile, J. White and S. Haddad, *Inorg. Chim. Acta*, 8 (1974) 97.

trans-Tetra-μ[chlorodiaquocopper(II)] copper(II)bis(tetramethylene sulfone), $Cu_3Cl_6(H_2O)_2.2H_8C_4SO_2$

($C2/c$) $Z = 4$, $R = 9.3\%$ from 1210 observed reflections. The compound contains a new aquo complex of copper chloride, $Cu_3Cl_6(H_2O)_2$. This species exists as a discrete *trans* planar trimer with halogen bridges, and is stabilized by hydrogen bonding between the tetramethylene sulfone molecule and the H_2O molecule, O—H····O = 2.70 Å. Cu—Cl (bridging, avg.) = 2.28, Cu—Cl(terminal) = 2.24, Cu—O = 1.97 Å.

D.D. Swank and R.D. Willett, *Inorg. Chim. Acta*, 8 (1974) 143.

Bis(isopropylammonium)tetrachlorocuprate(II), $[(CH_3)_2CHNH_3]_2CuCl_4$

($P1$) $Z = 6$, $R = 7.3\%$ from 3240 reflections. The structure contains discrete $CuCl_4^{2-}$ ions which pack together to form infinite ribbons parallel to the a-axis. The ribbons are held together by hydrogen bonds between the $CuCl_4^{2-}$ and $[(CH_3)_2CHNH_3]^+$ ions. $CuCl_4^{2-}$ is square planar.

D.N. Anderson and R.D. Willett, *Inorg. Chim. Acta*, 8 (1974) 167.

Optically active potassium antimony tartrate, $K_2Sb_2(d\text{-}C_4H_2O_6)_2 \cdot 3\ H_2O$ (Tartar emetic)

($C222_1$) $Z = 8$, $R = 7.8\%$ from 2604 reflections. The coordination of the quadridentate ligands to antimony is such that the more electronegative carboxyl oxygens occupy axial positions, and the hydroxyl oxygens equatorial positions, avg. distances = 2.16 and 1.99 Å.

M.E. Gress and R.A. Jacobson, *Inorg. Chim. Acta*, 8 (1974) 209.

Chloro(bis{salicylideniminephenyl}disulfido)iron(III), $Fe(C_{26}H_{18}N_2S_2O_2)Cl$

($P2_1/c$) $Z = 4$, $R = 9.6\%$ from 2163 unique reflections. The structure consists of monomeric iron(III) complexes with octahedral coordination. The disulfide ligand is pentadentate, and coordinates through two nitrogens, two oxygens and one sulfur atom, Cl^- occupies the sixth site. Fe—O = 1.871 (8), 1.909(7). Fe—N = 2.20, 2.17, Fe—Cl = 2.314(4), Fe—S = 2.536(4) Å.

J.A. Bertrand and J.L. Breece, *Inorg. Chim. Acta*, 8 (1974) 267.

Potassium thorium triphosphate, $KThP_3O_{10}$

($P2_12_12_1$) $Z = 4$, $R = 8.7\%$ from 638 visually observed reflections. The thorium atom is coordinated by eight oxygen atoms, from six triphosphate chains, in the shape of a dodecahedron. Th—O = 2.37(4) — 2.58(4) Å.

Z. Ruzic-Toros, B. Kojic-Prodic, R. Liminga and S. Popovic, *Inorg. Chim. Acta*, 8 (1974) 273.

A cobalt(III) complex of *N,N'*-di(2-hydroxyethyl)-2,4-pentanediimine, $Co(C_9H_{16}N_2O_2)(C_2H_7NO)_2$

($P\bar{1}$) $Z = 2$, $R = 6.0\%$ from 3210 unique reflections. The structure consists of a Co(III) coordinated to the planar tetradentate diimine ligand and to two monodentate 2-aminoethanol groups. Co—N = 1.898(4) — 1.989(3), Co—O = 1.917(3), 1.931(3) Å.

J.A. Bertrand, F.T. Helm and L.J. Carpenter, *Inorg. Chim. Acta*, 9 (1974) 69.

Potassium decacyano-μ-peroxodicobaltate dinitrate tetrahydrate, $K_6[(CN)_5CoO_2Co(CN)_5](NO_3)_2.4H_2O$
($P2_1/c$) $Z = 2$, $R = 4.3\%$ from 2114 unique reflections. The binuclear anion contains a planar peroxo linkage, in which the Co—O—O—Co atoms are σ-bonded in a staggered arrangement. All the H_2O molecules are hydrogen bonded to the bridging peroxo group. O—O = 1.447(4), Co—C = 1.874—1.912, Co—O = 1.985(3) Å.
F.R. Fronczek and W.P. Schaefer, *Inorg. Chim. Acta*, 9 (1974) 143.

Trichloroethoxytin(IV) ethanolate dimer, $[SnCl_3(OC_2H_5), C_2H_5OH]_2$
($P2_1/c$) $Z = 4$, $R = 7.9\%$ from 946 observed reflections. The structure consists of discrete centrosymmetric dimeric molecules with ethoxy groups bridging between the two tin atoms. Each tin atom is approx. octahedrally coordinated by three mutually *cis* chlorine atoms, (Sn—Cl = 2.347(6), 2.351(7), 2.400(7) Å), and three oxygen atoms (Sn—O = 2.08(2), 2.11(2), 2.18(2) Å).
M. Webster and P.H. Collins, *Inorg. Chim. Acta*, 9 (1974) 157.

The bis-(5,5′-diethylbarbiturato)-bis-(picoline) dihydrate complex of copper(II), $C_{28}H_{36}CuN_6O_6.2H_2O$
($P2_1/c$) $Z = 2$, $R = 3.5\%$ from 1133 independent reflections. The copper atom is bonded in square planar arrangement to the deprotonated nitrogen atoms of the barbital anions, Cu—N = 1.980(5), and to the nitrogens of the picolines, Cu—N = 2.018(3). Of interest is the hydrogen bonding (C=O···H—OH) and (N—H···OH_2) in which the water molecules form a layer-like linkage with molecules of the complex.
G.V. Fazakerley, P.W. Linder, L.R. Nassimbeni and A.L. Rodgers, *Inorg. Chim. Acta*, 9 (1974) 193.

An unexpected σ-phenyl—nickel(II) complex, $[Ni(NAs_3)(\sigma\text{-}C_6H_5)](BPh_4)$
($P\bar{1}$) $Z = 2$, $R = 6.9\%$ from 3008 independent reflections. The geometry around the five coordinate Ni atom is trigonal-bipyramidal. Ni is bonded to four donor atoms of the ligand molecule and to a carbon atom of a free phenyl ring in an apical position. Ni—As = 2.30 — 2.39, Ni—N = 2.10, Ni—C = 1.87 Å.
P. Dapporto and L. Sacconi, *Inorg. Chim. Acta*, 9 (1974) L2.

Pentalene complexes from cyclo-octatetraenes, $Ru_3(CO)_8(C_8H_6)$
($P1$) $Z = 2$, $R = 7.7\%$. The three ruthenium atoms form an isosceles triangle in which the apical atom Ru(3) carries four carbonyl groups, while the atoms Ru(1) and Ru(2) each carry two carbonyl groups and are bonded to the pentalene in an inter-annular π-allyl manner. The molecular structure indicates a fluxional $Ru_3(CO)_8(C_8H_6)$.
J.A.K. Howard, S.A.R. Knox, V. Riera, F.G.A. Stone and P. Woodward, *J. Chem. Soc. Chem. Commun.*, (1974) 452.

2,2'-(Ethylenedithio)bis-1,3,2-dithiophospholan
($P2_1/c$) $Z = 2$, $R = 7.5\%$ from 1141 observed unique reflections. The structure of this five membered ring phosphine trisulphide shows a five-membered ring approximately in an envelope conformation with one of the sulphur atoms in a flap position. Phosphorus is three-coordinate, S—P—S angle = 99.9° (avg.).
M.G. Newton, H.C. Brown, C.J. Finder, J.B. Robert, J. Martin and D. Tranqui, *J. Chem. Soc. Chem. Commun.*, (1974) 455.

σ-Bonded dioxygen; $[NEt_4]_3[Co(CN)_5(O_2)]$, 5 H_2O
($P2_1$) $Z = 2$, $R = 6.9\%$ from 2315 reflections. The complex is best formulated as a nearly linear superoxide complex of Co(III). Co—O—O angle = 175°. O—O = 1.2 — 1.3, Co—O = 1.93(2), Co—CN(avg.) = 1.92(1) Å.
L.D. Brown and K.N. Raymond, *J. Chem. Soc. Chem. Commun.*, (1974) 470.

A new compound with a metal-to-metal triple bond, hexakis(dimethylamino)-dimolybdenum, $Mo_2(NMe_2)_6$
($P2_1/c$) $Z = 4$, $R = 5.7\%$. The compound $Mo_2(NMe_2)_6$ contains centrosymmetric molecules (virtual symmetry S_6, differing little from D_{3d}) with a triple bond between the metal atoms. Mo—Mo = 2.214(2) Å.
M. Chisholm, F.A. Cotton, B.A. Frenz and L. Shive, *J. Chem. Soc. Chem. Commun.*, (1974) 480.

A stable σ-allyl organopalladium compound, $(C_8H_{11}PdCl)_2$
($R3$) $Z = 9$, $R = 5.1\%$ based on 731 unique non-zero reflections. In this structure the metal is preferentially bound by a σ-bond plus a chelating double bond rather than by a π-allyl bond.
F. Dahan, C. Agami, J. Levisalles and F. Rose-Munch, *J. Chem. Soc. Chem. Commun.*, (1974) 505.

Bonding mode of thiocyanate in palladium(II) phosphite complexes. *trans*-Dithiocyanatobis(triphenyl phosphite)palladium(II), *trans*-$Pd(SCN)_2[P(OPh)_3]_2$
($P2_1/c$) $Z = 4$, $R = 6.3\%$ from 3089 reflections. The compound contains *S*-bonded thiocyanates; antisymbiosis in the phosphine complexes appears primarily to result from steric inhibition of *S*-bonding rather than electronic effects. Pd—P = 2.312(1), Pd—S = 2.352(2) Å.
S. Jacobson, Y.S. Wong, P.C. Chieh and A.J. Carty, *J. Chem. Soc. Chem. Commun.*, (1974) 520.

A novel tetranuclear copper(I) ethylenethiourea cluster complex, μ_4-ethylenethiourea-cyclo-tetrakis-μ-(ethylenethiourea)tetrakis[ethylenethioureacopper(I)] nitrate hexahydrate
($C2/c$, (C_2^6h)) $Z = 4$, $R = 5.0\%$ from 3737 reflections. The structure, geometry and bonding in $[Cu_4(C_3H_6N_2S)_9(NO_3)_4]$, 6 H_2O reveals discrete

$Cu_4(C_3H_6N_2S)_6^{4+}$ cations containing an alternating Cu—S eight-membered ring with a unique ethylenethiourea ligand in an axial position bridging four copper atoms. Cu is tetrahedral, Cu—S = 2.243 — 2.515(2) Å.

A.L. Crumbliss, L.J. Gestaut, R.C. Rickard and A.T. McPhail, *J. Chem. Soc. Chem. Commun.*, (1974) 545.