

X-RAY BIBLIOGRAPHY

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The structures of the following compounds appeared in:

J. Amer. Chem. Soc., Vol. 97, No. 7, April 2, 1975

- (i) Hexakis(methylisocyanide)dipalladium(I), $[\text{Pd}_2(\text{CNCH}_3)_6][\text{PF}_6]_2$

J. Amer. Chem. Soc., Vol. 97, No. 8, April 16, 1975

- (i) Bis[(tetramethylethylenediamine)lithium(I)]anthracenide,
 $\{\text{Li}[(\text{CH}_3)_2\text{N}(\text{CH}_2)_2\text{N}(\text{CH}_3)_2]\}_2\text{C}_{14}\text{H}_{10}$
- (ii) (Diphenyldipyrazolylborato)(2-methylallyl)dicarbonylmolybdenum,
 $[(\text{C}_6\text{H}_5)_2\text{B}(\text{pz})_2](\text{CO})_2(2\text{-methylallyl})\text{Mo}$
- (iii) Bridging and terminal *o*-benzoquinone coordination, hexakis(tetra-
chloro-1,2-benzoquinone)dimolybdenum, $\text{Mo}_2(\text{O}_2\text{C}_6\text{Cl}_4)_6$

J. Amer. Chem. Soc., Vol. 97, No. 9, April 30, 1975

- (i) Interaction of metal ions with 8-azapurines
- (ii) Tetrachlorobis-2-[(5-amino-4-carboxamidinium)[1,2,3]-triazole]copper-
(II) monohydrate, $[\text{CuCl}_4(\text{N}_6\text{C}_3\text{H}_7)_2]\cdot\text{H}_2\text{O}$

J. Amer. Chem. Soc., Vol. 97, No. 10, May 14, 1975

- (i) $\alpha,\beta,\gamma,\delta$ -Tetraphenylporphinatoiron(II), $\text{Fe}(\text{TPP})$
- (ii) μ -(Acetyl- $\text{O}:\text{C}$)- μ -(benzoyl- $\text{O}:\text{C}$)- μ -(diphenylphosphido-*P*)tricarbonyl-
 $[\eta^5\text{-cyclopentadienyl}]\text{iridium(III)}\text{manganese hemibenzene,}$
 $(\eta^5\text{-C}_5\text{H}_5)\text{Ir}-\mu[\text{C}(\text{C}_6\text{H}_5)\text{O}]-\mu[\text{C}(\text{CH}_3)\text{O}]-\mu[\text{P}(\text{C}_6\text{H}_5)_2]-\text{Mn}(\text{CO})_3 \cdot \frac{1}{2}\text{C}_6\text{H}_6$
- (iii) Heptakis(*tert*-butyl isocyanide)molybdenum(II) hexafluorophosphate —
a seven-coordinate complex with C_{2v} mono-capped trigonal prismatic
geometry
- (iv) Tetrakis(2,2,6,6-tetramethyl-3,5-heptanedionato)niobium(IV), a square
antiprismatic $\text{M}(\text{bidentate})_4$ stereoisomer

J. Amer. Chem. Soc., Vol. 97, No. 11, May 28, 1975

- (i) $\text{PcSi}[\text{OSi}(\text{CH}_3)_3]_2$, Pc = phthalocyanine
- (ii) σ - vs. π -Bonded organoactinides. Tris(η^5 -cyclopentadienyl)- η^1 -2-methyl-
allyluranium(IV), $(\text{C}_5\text{H}_5)_3[\text{CH}_3\text{C}(\text{CH}_2)_2]\text{U}^{\text{IV}}$

- (iii) Reactions of metal carbonyl anions with methyl organometallic compounds, *cis*-(CO)₅MnRe(CO)₄C(OCH₃)CH₃
- (iv) Reactions of metals with vitamins, I. Crystal and molecular structure of thiaminium tetrachlorocadmate monohydrate, CdCl₄C₁₂H₂₀N₄O₂S
- (v) Manganese(II) porphyrins, Mn(TPP)(1-MeIm). THF

J. Amer. Chem. Soc., Vol. 97, No. 12, 1975

- (i) Reaction of coordinated purines. The structure of [bis(dimethylglyoximato)(xanthinato)(tri-*n*-butylphosphine)cobalt(III)]
- (ii) Bis(diphenylglyoximato)nickel and palladium iodides, M(dpg)₂I, M=Ni, Pd, dpg=diphenylglyoximate
- (iii) Reaction of a diphenylacetylene complex of cobalt with isocyanide. A novel metalloring, C₅H₅Co[(PhC₂Ph)(PhNC)₂]

Inorg. Chem., Vol. 14, No. 4, April 1975

- (i) A cationic nickel nitrosyl bicyclic phosphite complex, [Ni(P(OCH₂)₃CCH₃)₃NO]BF₄
- (ii) Diiodotris(trimethyl phosphite)nickel(II), NiI₂[P(OCH₃)₃]₃
- (iii) Acetylene sorption complexes of partially manganese(II)-exchanged and partially cobalt(II)-exchanged forms of zeolite A
- (iv) Distortions of the coordination polyhedron in high-spin manganese(III) complexes, I. Structure of azido(acetylacetonato)manganese(III)
- (v) Cyanobis(1,10-phenanthroline)copper(II) nitrate monohydrate, [Cu(N₂C₁₂H₈)₂CN](NO₃)·H₂O
- (vi) Cyclomer complexes, IV. Structure of a 1:1 hexahydrate complex of magnesium chloride with 1,4,7,10-tetraoxacyclododecane, Mg(H₂O)₆Cl₂·C₆H₁₆O₄
- (vii) Tetraphenylphosphonium trithiocyanatomercurate(II), [(C₆H₅)₄P][Hg(SCN)₃]
- (viii) Dinuclear-bridged *d*⁸ metal complexes, IV. Structure of [RhCl(CO)(P(CH₃)₂C₆H₅)₂]₂
- (ix) Hindered ligand systems, VIII. Structure of *cis,cis*-1,3,5-tris(salicylaldimino)cyclohexane cobalt(III), Co((sal)₃tach), where ((sal)₃tach) = *cis,cis*-1,3,5-(salicylaldimino)cyclohexane
- (x) Transition metal hydroborate complexes, VIII. Structure of {[(C₆H₅)₃P]₂Cu }₂B₁₀H₁₀·CHCl₃

Inorg. Chem., Vol. 14, No. 5, May 1975

- (i) 1,2-Dicarba-*closo*-hexaborane(6) and carba-hexaborane(7) — a gas-phase electron diffraction study
- (ii) [Pt{SP(C₂H₅)₂}P(OC₆H₅)₃]₂(Pt—Pt), a thiophosphinato-bridged platinum complex
- (iii) Di-μ-hydroxo-bis[bis(1,10-phenanthroline)chromium(III)] iodide tetrahydrate, [Cr(phen)₂OH]₂I₄·4H₂O

- (iv) The phenyldiazo group as a bridging ligand. Structure of bis(tetracarbonylphenyldiazomanganese), $[\text{PhN}=\text{NMn}(\text{CO})_4]_2$
- (v) Tricarbonyl[(methylsulfidomethyl)phenyl-2-*C, S*]-triphenylphosphine-manganese, an ortho-metalated complex of a sulfur donor ligand, $\text{C}_6\text{H}_4\text{CH}_2\text{SCH}_3\text{Mn}(\text{CO})_3\text{P}(\text{C}_6\text{H}_5)_3$
- (vi) Dibenzotellurophene diiodide, $\text{C}_{12}\text{H}_8\text{TeI}_2$
- (vii) Trihydrogen diethylenetriaminepentaacetatocuprate(II) monohydrate, $\text{H}_3\text{CuDTPA}\cdot\text{H}_2\text{O}$

Inorg. Chem., Vol. 14, No. 6, June 1975

- (i) Tetraphenylarsonium tris(benzenedithiolato)tantalate(V), $[(\text{C}_6\text{H}_5)_4\text{As}][\text{Ta}(\text{S}_2\text{C}_6\text{H}_4)_3]$
- (ii) Triamines of cobalt(III), IV. Structure of the polymerization isomer *trans*-diazidotetraamminecobalt(III) *trans*-tetraazidodiamminecobaltate(III), $[\text{Co}(\text{NH}_3)_4(\text{N}_3)_2][\text{Co}(\text{NH}_3)_2(\text{N}_3)_4]$
- (iii) Aryldiazo complexes. Structure of an iron-aryldiazo complex, $[\text{Fe}(\text{CO})_2(\text{N}_2\text{C}_6\text{H}_5)(\text{P}(\text{C}_6\text{H}_5)_3)_2][\text{BF}_4]$
- (iv) A chloride-bridged lanthanide cyclopentadienyl dimer, $[\text{Yb}(\text{C}_5\text{H}_4\text{CH}_3)_2\text{Cl}]_2$
- (v) Structural characterization of complexes of cobalt and nickel in low oxidation states with the tripod ligand, tris(2-diphenylphosphinoethyl)-amine, np_3 , $[\text{Ni}(\text{np}_3)]$ and $[\text{CoH}(\text{np}_3)]$
- (vi) Amine-sulfur dioxide complexes. Structure of *N, N, N', N'*-tetramethyl-*p*-phenylenediamine-bis(sulfur dioxide), $\text{SO}_2\cdot\text{N}(\text{CH}_3)_2(\text{C}_6\text{H}_4)(\text{CH}_3)_2\text{N}\cdot\text{SO}_2$
- (vii) $\text{NH}_4\text{ReO}_{1.5}\text{F}_3\cdot\text{H}_2\text{O}$

J. Chem. Soc. Chem. Commun., No. 8, 1975

- (i) A nickel(II) complex containing a new type of terdentate ligand with a planar NNN donor set and both uni- and bi-dentate nitrato-groups. Structure of 2,6-bis-(phenyliminoethyl)pyridine(dinitrato)nickel(II)
- (ii) Tris-(2-aminoethyl)aminoglycinatocobalt(III) ion, $[\text{Co}(\text{tren})(\text{gly})]\text{Cl}\cdot\text{ClO}_4$
- (iii) The reaction of hexafluorobut-2-yne and tetrafluoroethylene with π -cyclopentadienyl-iron and -ruthenium complexes. Structures of $[\text{Fe}_2(\text{CO})\{\text{C}_4(\text{CF}_3)_4\text{CO}\}(\eta^5\text{-C}_5\text{H}_5)_2]$ and $[\text{Fe}(\text{COCF}_2\text{C}_5\text{H}_5)(\eta^5\text{-C}_5\text{H}_5)]$

J. Chem. Soc. Chem. Commun., No. 9, 1975

- (i) A molybdenum nitrosyl complex containing a dihapto phenylhydrazine ligand, $[(\eta^5\text{-C}_5\text{H}_5)\text{Mo}(\text{NO})\text{I}(\text{NH}_2\text{NHPH})][\text{BF}_4]$
- (ii) A trinuclear dinitrogen-bridged complex, *trans*- $[\text{MoCl}_4\{(\text{N}_2)\text{ReCl}(\text{PMe}_2\text{Ph})_4\}]_2$
- (iii) The potassium salt of the binuclear molybdenum(III) complex, μ -acetato-di- μ -hydroxo- μ -(*NN'*)ethylenediaminetetraacetatobis[molybdenum(III)], $[\text{Mo}_2(\text{OH})_2(\text{O}_2\text{CMe})(\text{C}_{10}\text{H}_{12}\text{O}_8\text{N}_2)]$
- (iv) A new carbonyl bridging mode: structure of the metal carbonyl derivative $[\text{Mn}_2(\text{CO})_5(\text{Ph}_2\text{PCH}_2\text{PPh}_2)_2]$

- (v) Two-carbon three-electron ligands. Phosphonium—betaine complexes via nucleophilic attack by phosphites on a σ - π -acetylide di-iron hexacarbonyl derivative, $\text{Fe}_2(\text{CO})_6[\text{C}[\text{P}(\text{OEt})_3]\text{CPh}](\text{PPh}_2)$

N,N-Dimethylethanolaminogallane dimer, $[\text{Me}_2\text{NCH}_2\text{OGaH}_2]_2$, A and *N,N*-dimethylethanolaminogallium dimethyl, $[\text{Me}_2\text{NCH}_2\text{CH}_2\text{OGaMe}_2]_2$, B

A, (*P2₁/c*) $Z = 2$, $R = 3.9\%$ for 1062 reflections. B, (*Pccn*) $Z = 4$, $R = 5.3\%$ based on 1155 reflections. Both structures feature well-separated centrosymmetric dimeric units occurring via the formation of four-membered Ga_2O_2 rings. The five-coordinate gallium atoms have distorted trigonal bipyramidal geometry. Steric interactions between methyl groups in B are believed responsible for the lengthening of the axial Ga—N distance, from 2.279(3) in A to 2.471(4) Å in B. Ga—O(axial) = 2.053(3), A, 2.078(3), B, Ga—O = 1.911(3), A, 1.913(3) Å, B.

S.J. Rettig, A. Storr and J. Trotter, *Can. J. Chem.*, 53 (1975) 58.

K_2MgCl_4 , A and Cs_2MgCl_4 , B

A, (*I4/mmm*) $Z = 2$, $R = 4.6\%$ for 180 reflections. B, (*Pnma*) $Z = 4$, $R = 7.4\%$ for 1084 reflections. A is isostructural with K_2NiF_4 , and contains an infinite two-dimensional array of MgCl_6 octahedra sharing edges. The Cs_2MgCl_4 structure contains discrete MgCl_4^{2-} anions.

C.S. Gibbons, V.C. Reinsborough and W.A. Whitla, *Can. J. Chem.*, 53 (1975) 114.

A novel polycyclic $\text{Ga}_3\text{O}_3\text{N}$ cage compound, $(\text{GaH})_6(\text{GaH}_2)_2(\mu_3\text{-O})_2(\mu_3\text{-NCH}_2\text{CH}_2\text{NMe}_2)_4(\mu\text{-NHCH}_2\text{CH}_2\text{NMe}_2)_2$

(*P1*) $Z = 1$, $R = 3.8\%$ for 3393 reflections. The structure contains the first crystallographic examples of four-membered Ga_2NO and six-membered $\text{Ga}_3\text{N}_2\text{O}$ rings. Three of the Ga atoms are tetrahedrally four-coordinate, the other Ga has a distorted trigonal bipyramidal geometry. Ga (four-coordinate) bond lengths are: Ga—O = 1.869, 1.879(2), Ga—N = 1.945—2.001(3), Ga—H = 1.40—1.52(5) Å, Ga (five-coordinate) Ga—N_{ax} = 2.779(3), Ga—N_{eq} = 1.949, 1.999(3), Ga—O(ax) = 1.960(3) Å.

S.J. Rettig, A. Storr and J. Trotter, *Can. J. Chem.*, 53 (1975) 753.

$[\text{Pt}(\text{diethylenetriamine})\text{Br}]\text{Br}$

(*Pca2₁*) $Z = 4$, $R = 3.9\%$ based on 1435 independent reflections. The coordination around the platinum atom is planar. The crystal consists of alternate layers of $[\text{Pt}(\text{dien})\text{Br}]^+$ cations and Br^- ions parallel to the *ac* plane. Pt—N = 1.98, 1.96, 2.12 Å.

R. Melanson, J. Hubert and F.D. Rochon, *Can. J. Chem.*, 53 (1975) 1139.

An iron(III) compound of a potentially septadentate $[\text{N}_4\text{O}_3]$ salicylaldiminato ligand, structure of $[\text{FeC}_{27}\text{H}_{24}\text{Cl}_3\text{N}_4\text{O}_3] \cdot 3\text{H}_2\text{O}$

(*Ia3*, No. 206) $R = 8.4\%$ based on 1121 independent reflections. The co-

ordination geometry around Fe^{III} is octahedral (N_3O_3), with a very long $\text{Fe}\cdots\text{N}$ apical distance, 3.25 Å

N.A. Bailey, D.F. Cook, D. Cummins and E.D. McKenzie, *Inorg. Nucl. Chem. Lett.*, 11 (1975) 51.

A six-coordinate nickel(II) porphyrin, bis(imidazole)nickel(II) tetra(4-*N*-methylpyridyl)porphine, chlorate, $(\text{NiTMPyP})(\text{ClO}_4)_4(\text{C}_3\text{H}_4\text{N}_2)_2 \cdot 2\text{C}_3\text{H}_6\text{O}$

($P2_1/c$) $Z = 2$, $R = 8.2\%$ based on 3868 observed reflections. The molecule is six-coordinate. $\text{Ni}-\text{N}_{\text{porphyrin}} = 2.038$ Å. $\text{Ni}-\text{N}_{\text{imidazole}} = 2.160$ Å. Electronic configuration is discussed.

J.F. Kirner, J. Garofalo, Jr. and W.R. Scheidt, *Inorg. Nucl. Chem. Lett.*, 11 (1975) 107.

$\text{CaU}_2\text{O}_6\text{F}_2$

(C_{2mm}) $Z = 4$. The compound is isomorphous with U_3O_8 .

G. Fonteneau, H. L'Helgoualch and J. Lucas, *Inorg. Nucl. Chem. Lett.*, 11 (1975) 207.

The zinc(II) derivative of *O*-ethylthioacetoacetate $[\text{Zn}(\text{OEtCOCH}=\text{CSCH}_3)_2]$

($P2_1/c$) $Z = 4$, $R = 4.1\%$ based on 2274 independent reflections. The two chelate rings do not have equivalent geometry. The ligand moiety is essentially planar with the zinc atom ~ 0.1 Å out of this plane. $\text{Zn}-\text{S}(\text{avg}) = 2.248(2)$, $\text{Zn}-\text{O}(\text{avg}) = 2.006(4)$ Å.

B.F. Hoskins and C.D. Pannan, *Inorg. Nucl. Chem. Lett.*, 11 (1975) 405.

High and low-spin iron(III) 1,3-monothiolate complexes: $[\text{Fe}(\text{PhCS}=\text{CHCOPh})_3]$ ($\mu = 5.50$ B.M.), A and $[\text{Fe}(\text{PhCS}=\text{CHCOCF}_3)_3]$ ($\mu = 2.31$ B.M.), B

A ($P2_1/c$) $Z = 4$, $R = 5.3\%$ based on 3995 reflections. B ($P\bar{1}$) $Z = 2$, $R = 5.6\%$ based on 3875 reflections. Each complex has essentially *cis*(facial) octahedral geometry. The iron environment is not precisely symmetrical as evident from the spread of Fe—S and Fe—O bond lengths. In A Fe—S = 2.355(2) — 2.391(2), Fe—O = 1.977—2.002 Å. In B Fe—S = 2.217(2)—2.254(2), Fe—O = 1.930(4)—1.967(4) Å. The change in the Fe—S and Fe—O bond lengths in going from high- to low-spin states is ~ 0.13 Å and ~ 0.05 Å respectively.

B.F. Hoskins and C.D. Pannan, *Inorg. Nucl. Chem. Lett.*, 11 (1975) 409.

Chlorodicarbonylpyridyliridium(I) $\text{IrCl}(\text{CO})_2(\text{C}_5\text{H}_5\text{N})$

($P2_1/a$) $Z = 4$, $R = 2.5\%$ based on 1325 reflections. The coordination geometry around Ir is square planar. $\text{Ir}-\text{Cl} = 2.342(3)$, $\text{Ir}-\text{CO}(\text{avg}) = 1.813(14)$, $\text{Ir}-\text{N} = 2.133(8)$, $\text{Ir}\cdots\text{Ir} = 3.60$ Å.

D.Y. Jeter and E.B. Fleischer, *J. Coord. Chem.*, 4 (1975) 107.