



<http://researchspace.auckland.ac.nz>

ResearchSpace@Auckland

Copyright Statement

The digital copy of this thesis is protected by the Copyright Act 1994 (New Zealand).

This thesis may be consulted by you, provided you comply with the provisions of the Act and the following conditions of use:

- Any use you make of these documents or images must be for research or private study purposes only, and you may not make them available to any other person.
- Authors control the copyright of their thesis. You will recognise the author's right to be identified as the author of this thesis, and due acknowledgement will be made to the author where appropriate.
- You will obtain the author's permission before publishing any material from their thesis.

To request permissions please use the Feedback form on our webpage.

<http://researchspace.auckland.ac.nz/feedback>

General copyright and disclaimer

In addition to the above conditions, authors give their consent for the digital copy of their work to be used subject to the conditions specified on the Library Thesis Consent Form.

CRYSTALLOGRAPHIC STUDIES OF
NITROSYL, ISOCYANIDE AND DITHIOLATE COMPLEXES
OF GROUP VIII METALS

*A thesis presented to
The University of Auckland
for the degree of
Doctor of Philosophy*

Kenneth Rodney Whittle

Department of Chemistry

December 1972

This thesis is presented in two parts:

PART A contains the crystallographic studies of nitrosyl and isocyanide complexes.

PART B contains the structural determination of an olefin adduct of a dithiolate complex.

CONTENTS

<u>PART A</u>	<u>Page</u>
<u>CHAPTER</u>	
I INTRODUCTION	1
II THE STRUCTURE OF THE BROWN ISOMER OF [IrH(NO)(PPh ₃) ₃]ClO ₄	25
III THE STRUCTURE OF [Os(OH)(NO) ₂ (PPh ₃) ₂]PF ₆	32
IV THE STRUCTURE OF [Os(CO) ₂ (NO)(PPh ₃) ₂]ClO ₄ ·CH ₂ Cl ₂	42
V THE STRUCTURE OF [Os(CO)(NO)(p-CH ₃ C ₆ H ₄ NC)(PPh ₃) ₂]ClO ₄	50
VI THE STRUCTURE OF Ru(O ₂ CCH ₃)(p-CH ₃ C ₆ H ₄ NCH)(CO)(PPh ₃) ₂	58
VII CONCLUSION	66
REFERENCES	73
<u>PART B</u>	
VIII THE STRUCTURE OF PdS ₄ C ₄ Ph ₄ ·C ₆ H ₈	81
REFERENCES	97
<u>APPENDIX</u>	
A COMPUTING	99
B SCALE DIAGRAM OF CRYSTALS	100
C UNITS	102
D PUBLICATIONS	103
ACKNOWLEDGEMENTS	104