

Contents

PREFACE	v
NOMENCLATURE	vii
ACKNOWLEDGEMENTS	ix
LIST OF PLATES	xiii
INTRODUCTION	1
1 IRON AND STEEL	9
<i>Iron ores – The general principles of iron production – Cast iron – The production of steel – Steel-making economics – The processing of steel – The rusting of iron – Protection against rust</i>	
2 NON-FERROUS METALS	27
<i>Aluminium – Copper – Gold – Lead – Magnesium – Mercury – Nickel – Sodium – Uranium – Zinc – Other metals</i>	
3 CALCIUM CARBONATE AND ITS DERIVATIVES	61
<i>Occurrence – Extraction of limestone – Uses of quicklime, hydrated lime, and limestone – Natural waters – Softening of water – Cement – Calcium carbide – Calcium sulphate – The importance of calcium carbonate</i>	
4 CHEMICALS FROM SALT	76
<i>The extraction of salt – The production of sodium hydroxide – The production of other important sodium compounds</i>	
5 THE HALOGENS	90
<i>Fluorine and its derivatives – Chlorine and its derivatives – Bromine and its derivatives – Iodine and its derivatives</i>	
6 THE GASES OF THE AIR	102
<i>Oxygen – Nitrogen – Noble gases</i>	
7 NITROGEN, PHOSPHORUS, AND POTASSIUM—THE FERTILIZER ELEMENTS	109
<i>Nitrogen and its derivatives – Nitric acid – Phosphorus and its derivatives – Phosphate fertilizers – Nitrogen fertilizers – Potassium fertilizers – Compound fertilizers</i>	

8	SULPHUR AND ITS COMPOUNDS	126
	<i>The extraction of sulphur – Sulphur dioxide – Sulphuric acid – Carbon disulphide</i>	
9	SOME OTHER INORGANIC CHEMICALS	138
	<i>Aluminium compounds – Chromium compounds – Copper compounds – Hydrogen peroxide – Iron(II) or ferrous sulphate – Lead compounds – Manganese compounds – Nitrogen compounds – Ozone – Phosphorus compounds – Titanium dioxide</i>	
10	PETROCHEMICALS	148
	<i>The raw materials – Acetylene – Ethylene – Propylene – The alkane streams – Detergents</i>	
11	PLASTICS	159
	<i>Thermoplastics and thermosets – Thermoplastic materials – The new materials – Thermosetting materials</i>	
12	FIBRES	177
	<i>Cellulose fibres – Synthetic fibres</i>	
13	RUBBERS AND SILICONES	184
	<i>Natural and synthetic rubbers – Special synthetics – Silicones</i>	
14	THE PRODUCTION OF TOWN GAS AND HYDROGEN	193
	<i>Raw materials – Production from coal – Production from oil – Removal of acid gases – Natural gas – Other fuel gases – The production of hydrogen – Uses</i>	
15	CHEMICALS FROM COAL	209
	<i>Ammonia liquor – Benzoles and tars – The future of chemicals from coal</i>	
16	THE USEFUL ARTS	217
	<i>Glass – Soap and detergents – Paints – Pigments</i>	
17	APPLICATIONS OF NUCLEAR CHEMISTRY	227
	<i>Nuclear reactors – Production of artificial elements and radioisotopes – Uses of radioisotopes – Manufacturing industry – Medicine – Industrial chemistry – Agriculture – Civil engineering – Power from radioisotopes</i>	
	FURTHER READING	235
	INDEX	237