

Universitäts- und Landesbibliothek Tirol

A manual of chemistry

Physical and inorganic chemistry

Watts, Henry

1883

Index

[urn:nbn:at:at-ubi:2-4741](https://nbn-resolving.org/urn:nbn:at:at-ubi:2-4741)

I N D E X.

A.		Acid:		PAGE		PAGE	
Absorption of gases	174	nitrous	218	Air, dephlogisticated	151		
Absorption spectra	91	nitro-hydrochloric	215	elasticity of	23		
Accumulators, electric	116	nitroxypyrosulphu- ric	224	empyrean.	151		
Acetylene	255	orthophosphoric	231, 351	Air-pump	24		
Acid, antimonie	533	osmic	573	Sprengel's	26		
arsenic	238	osmions	573	Air, atmospheric	220		
arsenious	237	pentathionic	197	weight of 1 cub. c.			
auric	546	perbromic	182	of, at different			
bismuthic	538	perchloric	181	temperatures	582		
boric	245	perchromic	543	Air, analysis of	222		
bromic	182	periodic	182	Air-thermometer	35		
carbamic	397	permanganic	480	Albite	470		
carbonic	260	phosphoric	230	Albumin process of			
chlorhydric	143	glacial	231	photography	99		
chloric	180	phosphorous	230	Alembroth, sal-	448		
chlorochromic	504	prussic	265	Algaroth, powder of	531		
chlorous	179	pyrophosphoric	231, 353	Alkali-metals	361		
chromic	502	pyrophosphotriamic	235	Alkalis	335, 360		
dinitro-sulphuric	223	pyrosulphuric	195	Alkaline earths	399		
disulphuric	195	selenhydric	202	reactions of	412		
dithuonic	197	selenic	203	Alloys	333		
ferric	484	selenio-sulphuric	196	Alumina	466		
fluoboric	245	selenious	203	Aluminates	467		
hydriodic	148	silicic	250	Aluminium and its			
hydrobromic	146	silicofluoric	249	compounds	464		
hydrochloric	143	stannic	518	Aluminium methide,			
hydrocyanic	265	sulphamic	396	vapour-density of	291		
hydrofluoric	150	sulphocarboinic	263	oxide and hydrox-			
hydrofluosilicic	249	sulphuric	192	ides	466		
hydroselenic	202	sulphurous	190	Aluminium salts, reac-			
hydrosulphuric	185	sulphydric	185	tions of	470		
hydrosulphurous	195	tellurhydric	204	Aluminium silicates	469		
hydrotelluric	204	telluric	206	Alum stone	468		
hydroxylamine-tri- sulphonic	225	tellurous	205	Alums	468		
hypobromous	181	tetrathionic	197	Amalgam, ammonia-			
hypochlorous	178	thiocarbonic	263	cal	392		
hyponitrous	217	thiophosphoric	233	Amalgamation of gold	544		
hypophosphoric	232	thiosulphuric	196	of silver	439		
hypophosphorous	230	titanic	521	Amalgams	454		
hyposulphuric	197	trithionic	197	Amic acids	396		
hyposulphurous	195	tungstic	509	Amides	396		
iodic	182	vanadic	527	Amidogen	288, 362		
manganic	480	Acids	7	Amines	397		
metantimonie	533	ammonsulphonic	225	Ammonia	208		
metaphosphoric	231, 352	basicity of	348	Ammonia, liquid, freez-			
metastannic	518	polythionic	190	ing of water by			
molybdic	506	Actinism	98	the rapid evapora-			
muritic	143	Affinity, chemical	304	tion of	65		
niobic	541	relations of heat to	309	Ammoniacal amalgam	392		
nitric	213	disposing	280, 306	cobalt-compounds	495		
nitrosulphonic	224	After-damp of coal-		copper-compounds	438		
		mines	259	mercury-compounds	452		
				platinum-compounds	552		

	PAGE		PAGE		PAGE
Ammoniacal turpentine	454	Atomic weight, relation of, to crystal-line form	274	Bessemer steel	491
Ammonia-soda process	386	relation of, to quantitative	289	Bibasic acids	348
Ammonio-magnesium phosphate	410	relation of, to specific heat	272	Bichromate battery	324
Ammonium	209, 391	relation of, to volume	275	Binary theory of salts	347
alum	469	Atomic weights, table of	3	Biscuit	471
carbonates	394	Atomic weights of elements, periodic law of	290	Bismuth	536
chloride	392	Atomicity	281	Bismuthic acid	538
nitrate	393	Atoms	11, 267	Bisulphide of carbon	261
phosphates	393	combination of similar	283	Bitumen process in photography	101
salts, reactions of	396	Attraction, chemical	304	Bivalent elements	281
sulphate	393	electrical	108	Black flux	241
sulphides	395	electro-dynamic	129	Blast furnace	492
Amorphous phosphorus	227	magnetic	92	Bleaching	142, 179
Ampère's movable wire	129	Augite	417	Bleaching-powder	401
theory of magnetism	130	Auric acid and oxide	546	testing its value	403
Analclime	470	Auric and aurous compounds	545	salts	178
Analytical method of chemical research	164	Avogadro's law	277	Blende	419
Anatase	520	Axes of crystals	295	Blistered steel	490
Antimonates	533	Axinite	470	Blowpipe	157
Antimony	530	Azurite	437	oxyhydrogen	161
chlorides	531			Blue ink, sympathetic	493
hydride	531	B.		Blue light	536
oxides	532	Bar iron	488	Bohemian glass	384
salts, reactions of	535	Barilla	384	Boilers, deposits in	406
sulphides	534	Barium and its compounds	409	Boiling point	51
and potassium tartrate	532	Barium salts, reactions of	412	Borates	355
Apatite	404	Barometer	25	Borax	381
Appendix	575	Baryta	410	Boric oxide and acid	245
Aqua regia	215	Bases	7	Boron	243
Archimedes' theorem	18	Basic salts	349	bromide	244
Argand lamp	158	Basicity of acids	348	chloride	243
Argentio and argentous oxides	443	Batteries, voltaic :		fluoride	244
Arragonite	406	bichromate	324	nitride	246
Arsenates	239	Bunsen's	323	trioxide	245
Arsenic	235	Cruikshank's	124	trisulphide	246
detection in organic mixtures	240	Daniell's	322	Boron, specific heat of	274
hydrides	236	De la Rive's floating	129	Boulangerite	534
oxide	238	De la Rue's silver chloride	324	Boyle's law	28
reactions of	239	Grove's gas	325	Brass	438
sulphides	238	Grove's nitric acid	323	Braunite	478
Arsenic acid	238	secondary or storage	325	Britannia metal	535
Arsenious acid	237	Smee's	324	Bromic acid	182
Arsenites	238	Volta's	123	Bromides, metallic	339
Arsine	236	Wollaston's	125	Bromine	6, 146
Artiads	282	Baumé's hydrometer	575	oxyacids of	181
Astatic needle	127	Bay salt	376	Bronze	439
Atacamite	435	Bell metal	439	Brookite	520
Atomolysis	138	Bengal lights	536	Bunsen's battery	324
Atmosphere, composition and analysis of	221	Berthollet's fulminating silver	445	Bunsen's burner	159
physical constitution of	23	Beryl	413	Butter of antimony	531
vapour of water in	59	Beryllia	414		
Atmospheric electricity	117	Beryllium	413		
Atmospheric pressure	25				
Atomic theory	267				
volume	278				
Atomic weight, definition of	11, 269				

	PAGE		PAGE		PAGE
Candle, flame of . . .	157	Chemical rays of the solar spectrum . . .	98	Combination by weight . . .	4, 7, 267
Carbamic acid . . .	397	Chemistry of the voltaic pile . . .	313	Combustion . . .	152
Carbamide . . .	397	Chlorates . . .	181	heat of . . .	310
Carbon . . .	5, 252	Chlorides, metallic . . .	337	Combustion, flameless . . .	156
chlorides . . .	257	Chlorimetry . . .	403	Combustion, slow, under the influence of platinum . . .	162
bisulphide . . .	261	Chlorine . . .	6, 140	Compound radicles . . .	5, 288
compounds with oxygen . . .	257	compound of, with hydrogen . . .	143	Condensation of gases and vapours . . .	58, 62
with hydrogen . . .	254	with nitrogen . . .	211	Condensers, electric . . .	116
with nitrogen . . .	264	with carbon . . .	257	Conduction of heat . . .	41
with sulphur . . .	261	with oxygen . . .	177	Conductors of electricity . . .	110
specific heat of . . .	274	Chlorites . . .	179	Constancy of composition . . .	4, 7, 267
Carbon and Silicon, compounds containing . . .	265	Chloroform . . .	271	Constant batteries . . .	322
Carbon dioxide . . .	258	Chloromethane . . .	271	Contact action . . .	306
liquefaction and solidification of . . .	62	Chlorous or acid elements . . .	322	Copper . . .	433
disulphide . . .	261	Chromates . . .	503	alloys . . .	438
monoxide . . .	257	Chrome-alum . . .	502	arsenite . . .	437
monosulphide . . .	263	Chrome-yellow . . .	503	carbonates . . .	437
Carbon oxychloride . . .	258	Chromium . . .	499	chlorides . . .	435
oxysulphide . . .	263	salts, reactions of . . .	504	compounds, ammoniacal . . .	438
sulphochloride . . .	263	Chrysoberyl . . .	413	ferrocyanide . . .	438
Carbonates . . .	260	Chrysolite . . .	417	-glance . . .	437
analysis of . . .	261	Cinnabar . . .	452	hydride . . .	435
Carbonic acid . . .	260	Circular polarisation of light . . .	95	nitrate . . .	437
estimation of . . .	261	Clark's soap-test . . .	406	oxides . . .	436
Carbonides of hydrogen . . .	255	Classification of metals . . .	334	pyrites . . .	438
Carbonides of iron . . .	488	Clay . . .	469	salts, reactions of . . .	438
Carbonyl chloride . . .	258	Clay ironstone . . .	487	sulphate . . .	437
sulphide . . .	263	Cleavage of crystals . . .	295	sulphides . . .	437
Carre's freezing machine . . .	65	Cleavage and separation of surfaces, development of electricity by . . .	119	Cork-borer . . .	135
Cartier's hydrometer . . .	534	Coal-gas . . .	255	Corrosive sublimate . . .	447
Cassiterite . . .	518	Cobalt . . .	492	Corundum . . .	466
Cassius, purple of . . .	519, 547	ammoniacal compounds of . . .	495	Covellin . . .	437
Cast iron . . .	488	Cobalt-salts, reactions of . . .	496	Critical point of liquids . . .	64
Cast steel . . .	490	Cobalt-ultramarine . . .	496	Crown of cups . . .	124
Catalysis . . .	306	Cohesion . . .	304	Crown-glass . . .	382
Cavendish's eudiometer . . .	165	Coils, electro-magnetic, right and left handed . . .	128	Crucibles . . .	472
. . .	401	Coke . . .	252	Cruikshank's battery . . .	124
Centigrade thermometer scale . . .	34	Cold produced by chemical decomposition . . .	312	Cryohydrates . . .	169
Cerite . . .	459	Cold produced by evaporation . . .	64	Cryolite . . .	465
Cerium . . .	461	Colloid, iodised, use of, in photography . . .	99	Crystalline form . . .	294
Cervantite . . .	533	Colloids . . .	172	Crystalline form, relation of, to atomic weight . . .	274
Chalk . . .	405	Colours of the spectrum and of natural objects . . .	86	relation of, to chemical constitution . . .	300
Chamelion, mineral . . .	481	Columbium or Niobium . . .	541	Crystalline forms belonging to the same system, physical relations between . . .	299
Change of state produced by heat . . .	46	Combination, chemical, and mixture, distinction between . . .	4	Crystallisation . . .	294
Charcoal, animal and vegetable . . .	254	Combination by volume . . .	275	water of . . .	169
Chemical action, influence of pressure on . . .	307			Crystalloids . . .	172
Chemical affinity . . .	304			Crystallographic systems . . .	295
relations of heat to . . .	309			Crystals, axes of . . .	295
Chemical combination and mixture, distinction between . . .	4			cleavage of . . .	295
Chemical combination, general laws of . . .	7, 267			development of electricity in, by heat . . .	120
Chemical decomposition, cold produced by . . .	312				

	PAGE	E.	PAGE		PAGE
Crystals, primary and secondary forms of	298	Earthenware	472	Electrolytes	313
Cuprie and cuprous compounds	434	Earth-metals	335, 456	Electro-magnetism	126
Cyanides, metallic	342	Ebullition	51	Electro-motive power	318
Cyanite	470	Efflorescence	169	Electro-negative and electro-positive bodies	321
Cyanogen	265	Effusion of gases	139	Electrophorus	111
Cymophane	413	Ekabor	294, 459	Electro-plating	327
		Ekaluminium	294	Electroscopes	109
D.		Electric attraction and repulsion	108	Electroscope, condensing	17
Daguerreotype	100	Electric battery	117	Electrotype	326
Dalton's table of the tension of aqueous vapour	57	Electric condensers	116	Elementary atoms, combination between similar	283
Daniell's battery	322	Electric conduction and insulation	110	Elements, artiad and perissad	282
Davy lamp	161	Electric current	122	arrangements of, in the order of their atomic weights	290
Deacon's chlorine process	141	Electric current, action of the magnet on	128	atomic weights and symbols of	3
Declination, magnetic	102	Electric current, definite action of	317	classification of, according to equivalent value	290
Decolorisation by charcoal	254	development of, without contact of dissimilar metals	318	heat of combustion of, in oxygen	310
Decomposition, electro-chemical	313	heat developed by	327	physical and chemical relations of atomic weights of non-metallic	134
De la Rive's floating battery	129	Electric current, magnetisation by the	130	Emerald	413
De la Rue's silver chloride battery	324	Electric currents, induction of, by the action of magnets and of other electric currents	131	Emery	466
Deliquescence	169	Electric currents, mutual action of	129	Epsom salt	416
Density	15	Electric currents, storage of	325	Equations, chemical	13
Density of Metals	331	Electric discharge	110	Equivalency, variation of	285
of vapours, determination of	67	Electric lighting	132	Equivalents	12, 267
of vapours, maximum	58	machines	112, 132	Erbia	457
Dew-point	59	polarity	109	Estremadurite	404
Dialysis	171	Electricity developed by: chemical action	122	Ethylene	255
Diamagnetic bodies	104	cleavage	119	Euchlorine	180
Diamond	253	contact of dissimilar metals	121	Eucrase	413
Diapore	466	friction	108, 116	Eudialite	522
Didymium	459, 462	heat	120	Eudiometers	222
Diffusion of gases	136	magnetism	121, 126	Euxenite	523
of liquids	171	pressure	119	Evaporation	59
Dimercurammonium salts	453	vibration	120	cold produced by	64
Dimorphism	295	Electricity, positive and negative	108	Even numbers, law of	283
Dinitrosulphuric acid	223	of vapour	116	Exosmose	173
Dispersion of light	85	Electro-chemical decomposition	313	Expansion by heat	32
Disposing influence	306	Electro-chemical theory	321	of liquids	37
Dissociation	307	Electrodes	313	of gases	40
Distillation	54	Electro-dynamic attraction and repulsion	129	of mercury	38
fractional	55	Electro-dynamic induction	130	of solids	36
Disulphuric acid	195	Electro-gilding	327	of water	39
Dithionic acid	197	Electrolysis	313, 315	Exsiccator	66
Double refraction	93	Electrolytic decomposition, definite amount of	317		
Double salts	348			F.	
Ductility of metals	331			Fahl-ore	534
Dumas' method of determining vapour-densities	66			Fahrenheit's thermometer scale	34
Dyads	135, 291			Feather-ore	534
Dynamical theory of heat	75			Felspar	470
Dynamo-electric machines	132, 282			Fergusonite	522

	PAGE		PAGE		PAGE
Ferrates	484	Gases, collection of, by displacement	136, 141, 187	Hæmatite	484
Ferric and ferrous compounds	483	diffusion of	136	Hahnemann's soluble mercury	451
reactions of	486	effusion of	139	Haloid salts	347
Ferro- and ferri-cyanides	342	elasticity of	23	Hardness of water	406
Fire, blue	536	eudiometric analysis of	222	Harrison's freezing machine	64
red and green	409	expansion of	40	Hausmannite	479
Fire-damp	255	liquefaction and solidification of	60	Heat	32
Flame, conditions of luminosity of	155	occlusion of	139	atomic, of elements	273
structure of	157	osmose of	138	capacity for	42
Flame, oxy-hydrogen	161	physical constitution of	23, 77	change of state produced by	46
Fleitmann and Henneberg's phosphates	355	relations between pressure, elasticity, and volume of	27, 77	conduction of	41
Flint-glass	382	specific gravity of	67	developed by the electric current	327
Floating battery	129	specific heat of	44	developed by friction	73
Fluid pressure, general law of	18	solution of, in water	174	dynamical theory of expansion produced by	32
Fluids, expansion of	37	transpiration of	140	latent, of fusion	46
Fluorescence	92	Gas-holder	21	latent, of vaporisation	50
Fluorides, metallic	341	Gay-Lussac's method of determining vapour-densities	69	mechanical equivalent of	73
Fluorine	150	German silver	499	of combustion	310
Fluor-spar	400	Geyser springs of Iceland	177	relations of, to chemical affinity	309
Formulæ	11	Gibbsite	467	relations of, to work	72
constitutional, graphic, or structural	283	Gilding	547	sources of	71
rational	347	Glass	382	specific	42
Foucault's prisms	94	soluble	382	of elements	273
Fractional distillation	55	toughened	384	Heating rays of the solar spectrum	98
Freezing machines	65	Glauber's salt	378	Heavy metals	337
French weights and measures	579, 580	Glazing of porcelain and earthenware	471, 472	Heavy spar	411
Frigorific mixtures	50	Glow-lamp	163	Helices, right and left handed	128
Fulminating silver	445	Glucinum	413	Helvite	413
Fuming liquor of Libavium	517	Gold and its compounds	544	Hemihedral crystals	299
Furnaces for metallurgical operations	154	Gold-leaf	547	Hepar sulphuris	373
Fusocobaltic salts	495	-salts, reactions of	546	Heptads	292
Fusible metal	538	-standard of England	547	Heulandite	470
Fusibility of metals	332	Granite	469	Hexads	231
Fusion, latent heat of	48	Graphite	453	Hofmann's method of determining vapour-densities	69
		Gravity, specific	14	Holmia	459
G.		of gases	67	Holtz's electrical machine	114
Gadolinite	456	of metals	335	Hornblende	417
Gahnite	467	of liquids	15	Horn silver	442
Galenite	427	of solids	18	Hydrates	169
Galium	474	of vapours	67	Hydrotic acid	148
Galvanised iron	420	Green fire	409	Hydrobromic acid	146
Galvanism	125	Greenockite	421	Hydrocarbons	255
Galvanometer	127	Green salt of Magnus	555	Hydrochloric acid	143
Garnets	470	Groups, isomorphous	303	Hydrocyanic acid	265
Gas, coal and oil olefiant	255	Grove's battery	323	Hydrofluoric acid	150
Gas battery	325	gas battery	325	Hydrofluosilicic acid	249
Gas burners	159	Gun-metal	439	Hydrogen	3, 134
Gases, absorption of, by liquids	174	Gunpowder	368	antimonide	531
capillary transpiration of	140	Gypsum	403	arsenides	236
collection, preservation, and transference of	29			bromide	146
				carbides	255

	PAGE		PAGE		PAGE
Hydrogen— <i>cont.</i>		Iron— <i>cont.</i>		Law of multiples.	10, 267
chloride	143	cast	488	Law, periodic, of the	
combination of, with		cast, heat developed		atomic weights of	
oxygen	165	by friction of	75	the elements	239
cyanide	265	chlorides	483	Laws of combination	
dioxide	177	cyanides	317	by volume	276
fluoride	150	iodides	483	Laws of combination	
iodide	148	nitrites	485	by weight	7, 267
monoxide	164	oxides	483	Lead	422
phosphides	227	phosphates	486	alloys	427
selenide	202	plg.	488	carbonate	426
sulphides	185	pyrites	486	chloride	423
telluride	204	salts, reactions of	486	iodide	423
Hydrogen and oxygen,		sulphates	485	oxides	423
slow combination		sulphides	486	red	424
of, under the in-		wrought	489	salts, relations of	427
fluence of plati-		Iron manufacture	487	sulphide	427
num	162	Iron metals	335, 476	tree	327
Hydrogen-salts	7	Iron, meteoric, of		vanadate	528
Hydrometer	21	Lenarto, occlusion		white	426
Hydrometer tables	575	of hydrogen by	139	Lenses	85
Hydroselenic acid	202	Iron ore, magnetic	161	Lepidolite	389
Hydrosulphuric acid	185	Isomorphism	274, 300	Leucophane	413
Hydrotelluric acid	204			Leyden jar	117
Hydroxides	168, 343			Liebig's condenser	55
Hydroxyl	288	J.		Light	82
Hydroxylamine	210	Jade	417	blue or Bengal	536
Hygrometer, dew-point	59	Joule's determination		chemical rays of	98
Hypochlorites	179	of the mechanical		dispersion of	85
Hyponitrites	217	equivalent of heat	73	refraction and re-	
Hypophosphates	232			fraction of	83
Hypophosphites	230	K.		double refraction of	93
Hyposulphates	197	Kalium	360	polarised	93
Hyposulphites	195	Kaolin	470	Light, velocity of	82
Hypothioarsenites	239	Kelp	147	Light metals	337
Hypothiophosphites	233	Kermes mineral	534	Lightning rods	117
I.		Kindling point	160	Lime	401
Ice-making machines	64	Kupfernickel	497	Lime, chloride of	401
Ice, melting of	46, 48	Kyan's method of pre-		Limestone	405
Ignition	153	serving timber	448	Lines, bright, in spec-	
Incandescence	153			tra of incandes-	
Incrustations in boilers	406	L.		cent vapours	88
Index of refraction	84	Labarraque's disinfect-		Lines, dark, in solar	
Indigo copper	437	ing fluid	377	spectrum	87
Indium	472	Lakes	466	Liquefaction of gases	60
Induction coils	132	Lamp, argand	158	of carbonic acid	62
Induction, electric	109	Lampblack	252	Liquid elements and	
electro-magnetic	131	Lamp, gas-	159	compounds, spe-	
magnetic	102	safety-	161	cific volumes of	279, 280
magneto-electric	131	spirit-	158	Liquids, boiling points	
Ink, blue, sympathetic	493	without flame	163	of	51
Insulation, electric	110	Lanthanum	461	complete vaporisa-	
Iodic acid	182	Latent heat of fusion	48	tion of, under	
Iodides, metallic	341	vaporisation	50	great pressure	63
Iodine	6, 147	Laughing-gas	216	critical points of	64
and nitrogen	211	Laumontite	470	diffusion of	170
and oxygen	212	Law of Avogadro	277	expansion of	37
bromide	150	Boyle and Mariotte	28	latent heat of	48
chlorides	149	Dulong and Petit	272	molecular constitu-	
Iridium	564	Gay - Lussac and		tion of	79
ammoniacal com-		Humboldt	276	osmose of	173
pounds of	567	Law of equivalents	12, 267	specific gravity of	16
salts, reactions of	567	Law of even numbers	283	specific volume of	279
Iron	482			vaporisation of	50
carbonate	486			Liquids, organic, cir-	
				cular polarisation	
				produced by	95

	PAGE		PAGE		PAGE
Liquor Ammoniae . . .	209	Mechanical equivalent		Molecules . . .	11, 267
Litharge . . .	423	of heat . . .	73	Molybdenite . . .	507
Lithium . . .	389	Meerschäum . . .	417	Molybdenum . . .	505
Liver of sulphur . . .	373	Melting points, deter-		Monads . . .	134, 282
Loadstone . . .	101, 484	mination of . . .	46	Monobasic acids . . .	351
Luminosity, condi-		Mercurammonium		Mordants . . .	466
tions of . . .	155	salts . . .	452	Mortar . . .	401
Luteocobaltic salts . . .	495	Mercurial thermome-		Mosaic gold . . .	519
		ter . . .	33	Multiplier . . .	127
		Mercuric oxide, de-		Multiples, law of . . .	10, 267
		composition of, by		Muriatic acid . . .	143
		heat . . .	29, 450		
M.		Mercury . . .	446		
Magnesia . . .	416	alloys or amalgams . . .	455	N.	
Magnesia alba . . .	418	chlorides . . .	447		
Magnesium . . .	414	cyanide . . .	264	Nephelin . . .	471
carbonates . . .	417	expansion of, by heat . . .	37	Nessler's test for am-	
chloride . . .	415	heat developed by		monia . . .	396, 453
phosphates . . .	416	friction of . . .	75	Neutrality of salts . . .	348
salts, reactions of . . .	418	iodides . . .	449	Nicol's prisms . . .	94
silicates . . .	417	nitrites . . .	451	Nickel . . .	497
sulphate . . .	416	oxides . . .	450	Niobium . . .	541
Magnet, action of the,		sulphates . . .	451	Nitrates . . .	213
on the electric cur-		sulphides . . .	452	Nitre . . .	367
rent . . .	128	Mercury-compounds,		cubic . . .	379
Magnetic declination . . .	102	ammoniacal . . .	452	Nitric acid . . .	213
Magnetic oxide of		Mercury salts, reac-		anhydride . . .	213
iron . . .	101, 484	tions of . . .	454	Nitride of boron . . .	246
Magnetism . . .	101	Meridian, magnetic . . .	102	Nitride of silicon . . .	252
Magnetism, develop-		Mesotype . . .	470	Nitrides, metallic . . .	359
ment of electricity		Metaborates . . .	355	Nitrogen . . .	5, 207
by . . .	121, 131	Metallammoniums . . .	398	chloride . . .	211
Magnetism, induction		Metals . . .	7, 330	chlorophosphide . . .	235
of, by the electric		chemical properties		compounds of, with	
current . . .	130	of . . .	333	oxygen . . .	212
Ampère's theory of . . .	130	classification of . . .	335	with hydrogen . . .	208
Magnetism, terrestrial		electric precipitation		with boron . . .	246
Magneto-electricity . . .	131	of . . .	326	Nitrogen dioxide . . .	217
Magnets, induction of		physical properties		iodide . . .	211
electric currents		of . . .	330	monoxide . . .	216
by the action of . . .	131	table of specific		pentoxide . . .	213
Magnus, green salt of . . .	555	gravities of . . .	331	selenide . . .	223
Malachite . . .	437	Metantimonates . . .	533	sulphide . . .	223
Malleable iron . . .	488	Metaphosphates . . .	231, 352	tetroxide . . .	219
Malleability of metals		Metastannates . . .	518	trioxide . . .	218
Manganates . . .	480	Metathiophosphoryl		Nitrohydrochloric or	
Manganese . . .	476	bromide . . .	234	nitromuriatic acid . . .	215
chlorides . . .	477	Metatungstates . . .	510	Nitrosulphonic acid . . .	224
fluorides . . .	478	Metavanadates . . .	527	Nitrosyl bromide . . .	219
oxides . . .	478	Meteoric iron of Le-		chloride . . .	218
Manganese peroxide,		narto, occlusion of		Nitrous acid . . .	213
recovery of, from		hydrogen by . . .	139	oxide . . .	216
the waste liquors		Meteorites . . .	482	Nitroxypyrosulphuric	
of the chlorine		Methane . . .	255	acid . . .	224
manufacture . . .	141	Methide, aluminium . . .	291	Nomenclature . . .	7
Manganese salts, reac-		Meyer's method of de-		of salts . . .	8
tions of . . .	481	termining vapour-		Non-conductors of elec-	
Manganite . . .	478	densities . . .	70	tricity . . .	110
Marble . . .	405	Mica . . .	470	Nordhausen sulphuric	
Marriott's law . . .	28	Microcosmic salt . . .	394	acid . . .	195
Marl . . .	470	Mineral chameleon . . .	481	Notation, chemical . . .	7
Marsh gas . . .	255	Mineral waters . . .	168		
Marsh's test for arsenic		Miner's safety-lamp . . .	161		
Massicot . . .	423	Mixture and combina-		O.	
Maximum density of		tion, distinction		Occlusion of gases . . .	139
vapours . . .	58	between . . .	4	Oil gas . . .	257
Measures . . .	578	Molecular actions . . .	304		

	PAGE	Phosphorus—cont.	PAGE	Potassium—cont.	PAGE
Oil of vitriol . . .	194	oxides . . .	229	tetroxide . . .	364
Olefant gas. . .	255	selenides . . .	233	Potassium-salts, reac-	
Orpiment . . .	239	specific volume of	276, 279	tions of . . .	374
Orthophosphates . . .	231, 352	sulphides . . .	232	Potassoxyl . . .	238
Osmiatic acid . . .	574	Photography . . .	99	Praseocobaltic salts . . .	495
Osmium . . .	571	Photolithography . . .	100	Precipitate, red . . .	450
Osmose of gases . . .	138	Pitchblende . . .	512	white . . .	452
of liquids . . .	173	Plaster of Paris . . .	404	Prehnite . . .	470
Oxides . . .	7, 343	Plate glass . . .	383	Pressure, electricity	
metallic . . .	343	Platinous chloride,		developed by . . .	119
Oxygen . . .	5, 151	compounds of,		Pressure of the atmo-	
combination of, with		with CO and PCl ₃ . . .	550	sphere . . .	23
hydrogen . . .	164	Platinum . . .	548	Pressure, influence of,	
preparation of, for		ammoniacal com-		on chemical ac-	
industrial use . . .	175, 194	pounds of . . .	552	tion . . .	307
Oxygenated water . . .	177	chlorides . . .	550	Prism, Nicol's . . .	94
Oxygen-salts . . .	8, 345	metals . . .	293, 335, 544	Prisms, refraction	
Oxy-hydrogen flame . . .		oxides . . .	551	through . . .	85
and blowpipe . . .	161	salts, reactions of . . .	558	Proportions, multiple	
safety-jet . . .	162	sponge . . .	549	10, 267	
Oxynitrosulphonic an-		sulphides . . .	552	Prussic acid . . .	265
hydride . . .	224	surface-action of . . .	162	Puddling of iron . . .	489
Ozone . . .	283, 584	Platinum-black . . .	549	Purple of Cassius . . .	519, 547
		Platinum Metals . . .		Purpureocobaltic salts . . .	495
		293, 335, 544		Pyrites . . .	486
P.		Plumbago . . .	253	Pyroborates . . .	355
Palladium . . .	559	Plumbic compounds . . .	423	Pyrochlore . . .	523
ammoniacal com-		Pneumatic trough . . .	29	Pyro-electricity . . .	120
pounds of . . .	560	Polarisation of light . . .	93	Pyrolusite . . .	479
Paramagnetic bodies . . .	104	Polarisation, circular . . .	95	Pyrometer . . .	35
Paraphosphates . . .	354	Polariscope . . .	95	Pyrophorus of Hom-	
Pearl-ash . . .	371	Polarity, chemical . . .	321	berg . . .	468
Pentads . . .	282	diamagnetic . . .	106	Pyrophosphates . . .	231, 353
Pentathionic acid . . .	198	electric . . .	109	Pyrosulphuric acid . . .	195
Perbromates . . .	182	magnetic . . .	102	Pyrosulphuric chloride . . .	209
Perchlorates . . .	181	Poles, electric . . .	109, 313	Pyrothiophosphoryl	
Periodates . . .	182	Polybasic acids . . .	348	bromide . . .	233
Periodic law of the		Polythionic acids . . .	190		
atomic weights of		Porcelain . . .	470	Q.	
the elements . . .	289	Porphyry . . .	469	Quadribasic acids . . .	351
Perissads . . .	282	Potash . . .	364	Quantivalence . . .	281
Permanganates . . .	480	Potassium . . .	7, 469	of metals . . .	335
Peroxide of chlorine . . .	180	alum . . .	468	relation of, to atomic	
Persulphide of hydro-		arsenate . . .	376	weight . . .	289
gen . . .	187	arsenite . . .	376	variation of . . .	285
Petalite . . .	388, 470	borates . . .	370	Quadrivalent elements . . .	281
Petuntze . . .	472	bromate . . .	366	Quartz . . .	250
Pewter . . .	535	bromide . . .	364	Quartz, circular pola-	
Phenacite . . .	413	carbonates . . .	371	risation produced	
Phosgene gas . . .	258	chlorate . . .	365	by . . .	95
Phospham . . .	234	chloride . . .	362	Quicksilver . . .	446
Phosphamides . . .	234	chromates . . .	503	Quinivalent ele-	
Phosphates . . .	231, 351	cyanide . . .	342	ments . . .	281
Phosphide of calcium . . .	407	ferricyanide . . .	342		
Phosphine . . .	327	ferrocyanide . . .	342	R.	
Phosphoretted hydro-		hydroxide . . .	364	Radicles, compound	
gen . . .	227	iodate . . .	366	265, 288	
Phosphoric acid . . .	231, 351	iodide . . .	363	Realgar . . .	238
Phosphorite . . .	404	manganate . . .	480	Reaumur's thermome-	
Phosphorous acid . . .	230	nitrate . . .	367	ter scale . . .	34
Phosphorus . . .	6, 225	oxides . . .	364	Red fire . . .	409
amorphous . . .	227	perchlorate . . .	366	lead . . .	424
bromides . . .	229	permanganate . . .	481	oxide of manganese . . .	479
chlorides . . .	228	phosphates . . .	369		
hydride . . .	227	silicates . . .	370		
iodides . . .	229	sulphates . . .	367		
		sulphides . . .	372		

	PAGE		PAGE		PAGE
Refining of pig-iron . . .	488	Seggars	471	Sodium—cont.	
Reflection and refraction of light . . .	83	Selenic acid	203	alum	468
Refraction, double, of light	93	Selenides, metallic . . .	359	arsenates	380
Refrigerators	64	Selenides of phosphorus . . .	233	bicarbonate	388
Reinsch's test for arsenic	243	Seleniometted hydrogen . .	202	bisulphate	378
Repulsion, electric . . .	108	Seleniosulphuric acid . .	196	borates	381
magnetic . . .	102	Selenious acid	203	bromide	376
Residues	288	Selenite	403	carbonates	384
Reverberatory furnace . .	154	Selenium	200	chloride	376
Rhodium	564	Senarmontite	532	hydroxide	377
Rock-crystal, circular polarisation produced by	95	Serpentine	417	hypochlorite	377
Roman alum	468	Sexvalent elements . . .	281	hyposulphite	378
Rosecobaltic salts . . .	495	Shale	470	iodide	376
Rubidium	390	Siemens-Martin steel . .	491	nitrate	379
Rubidium alum	469	Silica	250	oxides	377
Ruby	466	Silicated hydrogen . . .	247	phosphates	379
Ruhmkorff's Induction-coil	133	Silicates	355	silicates	381
Rust	484	Silicates of aluminium . .	469	spectrum of	89
Ruthenium	568	of magnesium	417	sulphates	378
salts, reactions of . .	570	Silicic acid	250	sulphide	388
Rutile	520	Silicomethane	247	sulphites	378
		Silicon or Silicium . . .	6, 246	thiosulphate	379
S.		bromide	248	Solar spectrum	86
Saccharimeter (optical)	96	chloride	248	Solder	427
Safety-jet	162	chlorohydrosulphide .	252	Soleil's saccharimeter . .	84, 96
Safety lamp	160	fluoride	249	Soldification of liquids . .	46
-tube	144	iodide	249	of gases	60
Sal-alembroth	448	hydride	247	Solids, expansion of . . .	36
Sal-ammoniac	392	oxide	250	movement of the atoms of	
Sal volatile	395	oxychloride	251	specific gravity of . .	15, 18
Salsola Soda	384	specific heat of . . .	249	Solids, specific volume of . .	279
Salt, common	376	Silicon and Carbon, compounds containing	265	Solubility of salts	170
Salt, definition of . . .	7, 345	Silico-tungstates	510	Spar, calcareous	406
Salt-cake process	385	Silver	439	Spathose iron ore	486
Salts, acid	348	Silver alum	469	Specific gravities of gases	67
basic	349	ammonia-compound of	445	of metals	331
binary theory of constitution of	9, 348	carbonate	445	of solids and liquids .	15
deliquescence and efflorescence of	169	chlorides	442	of vapours	67
double	348	dithionate	441	Specific gravity and density, difference between	15
normal or neutral . .	348	fluoride	443	Specific heat	42
primary, secondary, and tertiary	348	hydrotrichloride . .	248	Specific heat and atomic weight of elements, relations between	272
solubility of	169	iodide	443	Specific volumes of compounds, liquid and solid	280
Saltpetre	367	nitrate	444	Specific volumes of elements, liquid and solid	279
Samarium	463	oxides	443	Specific volumes of gases	278, 285
Samarskite	457, 459, 463, 541	oxychloride	251	Spectra of incandescent vapours	88
Sapphire	467	sulphate	444	produced by absorption	91
Scaphola	404	sulphide	445	Spectroscope	88
Scandium	458	thiosulphate	444	Spectrum	86
Scheele's green	239	Silver chloride battery . .	324	Spectrum-analysis	88
Sea-water, composition of . .	168	Silver-salts, reactions of . .	445	Spectrum, solar, fixed lines in	87
Secondary batteries . . .	325	England	446	heating and chemical rays of . . .	93
Secondary electrolytic decomposition	316	Slate	470		
		Smalt	496		
		Smee's battery	324		
		Soap-stone	417		
		Soda	377		
		Soda-ash process	385		
		Soda solution, table of sodium hydroxide in	377		
		Sodium	7, 374		

	PAGE		PAGE		PAGE
Vapour of water, tension of	53, 57, 577	Water— <i>cont.</i>		Wire-drawing	331
Vapour-densities, anomalous	278	combination of, with salts	169	Witherite	411
Vapours, condensation of	50	distilled	167	Wolfram	508
Vapours, determination of the density of	67	expansion of, by heat	39	Wollaston's battery	125
latent heat of	50	freezing of, by the rapid evaporation of liquid ammonia	64	Wootz	491
maximum density of	58	by the cold resulting from its own evaporation	66	Work and heat, relation between	72
theoretical density of	277	hardness of	406	Wulfenite	505
tension of	86	heat developed by friction of	75	Wrought iron	488
Varec	354	maximum density of	39		
Varvicite	480	not an electrolyte	317	X.	
Verditer	437	of crystallisation	169	Xantho-cobaltic compounds	496
Vermillion	452	solution of gases in	174		
Victor Meyer's method of determining vapour-densities	70	solvent properties of	169	Y.	
Vitriol, blue	437	specific heat of	43	Ytterbia	468
green	485	synthesis of	165	Yttria	457
oil of	192	tension of vapour of	53, 57	Yttrium metals	456
white	419	Water, oxygenated	177	Ytthro-ilmenite	541
Volatility of metals	333	Water, sea, composition of	168	Ytthro-tantalite	538
Voltaic battery	123, 313, 318	Water-type	269, 343		
Voltameter	318	Water-vapour, composition of, by volume	167	Z.	
Volume, combination by	275	Weight, specific	15	Zaffre	497
specific or atomic	278	Weights and measures comparison of French and English	578, 580	Zeolites	470
		Weights, atomic	11, 269	Zinc	418
W.		physical and chemical relations of	272	alloys	420
Wash-bottle	144	table of	3	amalgamated	319
Water	164	Welding of iron	482	carbonate	419
absorption of gases by	174	platinum	548	chloride	419
action of, on oxides	166	Weldon's chlorine process	141	oxide	419
analysis of	164	White lead	426	sulphate	419
colour of	167			sulphide	419

