CUMULATIVE INDEXES

VOLUMES I—XIII (1947—1959)

CUMULATIVE INDEX OF AUTHORS

Abrahams, S. C., 10, 407 Abrikosova, I. I., 10, 295 Addison, C. C., 9, 115 Ahrland, S., 12, 265 Albert, A., 6, 197 Allen, G., 7, 255 Amphlett, C. B., 8, 219 Anderson, J. S., 1, 331 Angyal, S. J., 11, 212 Arnstein, H. R. V., 4, 172 Atherton, F. R., 3, 146 Avison, A. W. D., 5, 171

Bacon, R. G. R., 9, 287 Baddeley, G., 8, 355 Baddiley, J., 12, 152 Badger, G. M., 5, 147 Bagnall, K. W., 11, 30 Baker, W., 11, 15 Baltazzi, E., 9, 150 Barker, S. A., 7, 58 Barltrop, J. A., 12, 34 Barnartt, S., 7, 84 Barrer, R. M., 3, 293 Barton, D. H. R., 3, 36; **10**, 44; **11**, 189 Bassett, H., 1, 247 Bateman, L., 8, 147 Baughan, E. C., 7, 103 Baulch, D. L., 12, 133 Bayliss, N. S., 6, 319 Bell, R. P., 1, 113; 2, 132; 13, 169 Bentley, R., 4, 172 Bergel, F., 2, 349 Bethell, D., 12, 173 Bevington, J. C., 6, 141 Birch, A. J., 4, 69; 12, 17 Bircumshaw, L. L., 6, 157 Bockris, J. O'M, 3, 173 Bolland, J. L., 3, 1 Bond, G. C., 8, 279 Bourne, E. J., 7, 58 Bowen, E. J., 1, 1; 4, 236 Bradley, R. S., 5, 315 Braude, E. A., 4, 404 Bremner, J. G. M., 2, 1 Brink, N. G., 12, 93 Brown, B. R., 5, 131 Brown, R. D., 6, 63 Buchanan, J. G., 12, 152 Buckingham, A. D., 13, 183

Bu'Lock, J. D., 10, 371 Bunnett, J. F., 12, 1 Burkin, A. R., 5, 1 Burnett, G. M., 4, 292 Burton, H., 6, 302

Cadogan, J. I. G., 8, 308 Caldin, É. F., 7, 255 Challenger, F., 9, 255 Chatt, J., 12, 265 Coates, G. E., 4, 217 Collinson, E., 9, 311 Cook, A. H., 2, 203 Cook, J. W., 5, 99 Cookson, R. C., 10, 44 Cooper, C. F., 13, 71 Cottrell, T. L., 2, 260 Coulson, C. A., 1, 144 Cowdrey, W. A., 6, 358 Cox, E. G., 7, 335 Crawford, V. A., 3, 226 Crofts, P. C., 12, 341 Crombie, L., 6, 101 Cruickshank, D. W. J., **7**, 335 Curran, S. C., 7, 1 Cuthbert, J., 13, 215

Dainton, F. S., 12, 61 Dalgliesh, C. E., 5, 227 Davies, A. G., 9, 203 Davies, D. S., 6, 358 Davies, M., 8, 250 Davies, N. R., 12, 265 Davies, R. O., 11, 134 Dawton, R. H. V. M., 9, De Heer, J., 4, 94 de la Mare, P. B. D., 3, 126 de Mayo, P., 11, 189 Derjaguin, B. V., 10, 295 Dickens, P. G., 11, 291 Dubinin, M. M., 9, 101 Duncan, J. F., 2, 307; 12, 133 Dunning, W. J., 9, 23

Eley, D. D., 3, 181 Emeléus, H. J., 2, 132 Errede, L. A., 12, 301 Evans, M. G., 4, 94; 6, 186 Evans, R. M., 13, 61

Fensham, P. J., 11, 227 Ferrier, R. J., 13, 265 Foster, A. B., 11, 61 Freidlina, R. Kh., 10, 330

Gascoigne, R. M., 9, 328 Gaydon, A. G., 4, 1 Gee, G., 1, 265 Gent, W. L. G., 2, 383 Gibson, D. T., 3, 263 Gillespie, R. J., 2, 277; 8, 40; 11, 339 Gilman, H., 13, 116 Glenn, A. L., 8, 192 Goehring, M., 10, 437 Gold, V., 9, 51; 12, 173 Gowenlock, B. G., 12, 321 Gray, P., 9, 362 Greenwood, N. N., 8, 1

321 Gray, P., 9, 362 Greenwood, N. N., 8, 1 Griffith, J. S., 11, 381 Gunstone, F. D., 7, 175 Gutmann, V., 10, 451

Halpern, J., 10, 463 Hamer, F. M., 4, 327 Hardy, D. V. N., 2, 25 Harman, R. E., 12, 93 Harris, M. M., 1, 299 Hartley, G. S., 2, 154 Hassel, O., 7, 221 Hawkins, E. G. E., 4, 251 Hawkins, J. D., 5, 171 Haynes, L. J., 2, 46 Heaney, H., 11, 109 Hey, D. H., 8, 308 Hickling, A., 3, 95

Hey, D. H., **8**, 308 Hickling, A., **3**, 95 Holt, R. J. W., **13**, 327 Hughes, E. D., **2**, 107; **5**, 245; **6**, 34 Hush, N. S., **6**, 186

Ingold, C. K., 6, 34; 11,

Irving, H. M., 5, 200 Ivin, K. J., 12, 61

Jacobs, P. W. M., 6, 238 Jain, A. C., 10, 169 Janz, G. J., 9, 229 Jeffrey, G. A., 7, 335

Jenkins, E. N., 10, 83 Jennings, K. R., 12, 116 Jones, D. G., 4, 195 Kapustinskii, A. F., 10, 283 Katritzky, A. R., 10, 395; 13, 353 Kenyon, J., 9, 203 Khorana, H. G., 6, 340 Kipling, J. J., 5, 60; 10, 1 Kitchener, J. A., 13, 71 Lagowski, J. J., 13, 233 Lamb, J., 11, 134 Lamberton, A. H., 5, 75 Law, H. D., 10, 230 Lea, F. M., 3, 82 Leech, H. R., 3, 22 Leisten, J. A., 8, 40 Levy, N., 1, 358 Lewis, E. S., 12, 230 Lewis, J. 9, 115 Lifshitz, E. M., 10, 295 Linnett, J. W., 1, 73; 11, 291; 12, 116 Lister, B. A. J., 2, 307 Lister, M. W., 4, 20 Long, L. H., 7, 134 Longuet-Higgins, H. C., 11, 121 Loudon, J. D., 5, 99 Lüttke, W., 12, 321 Lythgoe, B., 3, 181 Maccoll, A., 1, 16 McCoubrey, J. 364; 11, 87 MacDiarmid, A. G., 10, 208 McGrath, W. D., 11, 87 McKenna, J., 7, 231 Maddock, A. G., 5, 270 Maitland, P., 4, 45 Manners, D. J., 9, 73 Marsh, J. K., 1, 126 Martin, F. S., 13, 327 Martin, R. L., 8, 1 Megson, N. J. L., 2, 25 Millar, I. T., 11, 109 Millen, D. J., 2, 277 Morgan, K. J., 8, 123; **12**, 34 Morrison, A. L., 2, 349 Musgrave, W. K. R., 8, 331

Nelson Smith, R., 13, 287 Nesmeyanov, A. N., 10, 330 Newth, F. H., 13, 30 Norrish, R. G. W., 10, 149 Nyholm, R. S., 3, 321; **7**, 377; **11**, 339 Ollis, W. D., 11, 15 Orgel, L. E., 8, 422; 11, 381 Orville-Thomas, W. J., **11**, 162 Overend, W. G., 11, 61; **13**, 265 Owston, P. G., 5, 344 Page, J. E., 6, 262 Paneth, F. A., 2, 93 Parsonage, N. G., 13, 306 Pauson, P. L., 9, 391 Pepper, D. C., 8, 88 Percival, E. G. V., 3, 369 Phillips, F. C., 1, 91 Pople, J. A., 11, 273 Praill, P. F. G., 6, 302 Reid, C., 12, 205 Richards, R. E., 10, 480 Riddiford, A. C., 6, 157 Riley, H. L., 1, 59; 3, 160 Rose, J. D., 1, 358 Rowlinson, J. S., 8, 168 Satchell, D. P. N., 9, 51 Saxton, J. E., 10, 108 Schofield, K., 4, 382 Seshadri, T. R., 10, 169 Sexton, W. A., 4, 272 Sharpe, A. G., 4, 115; 11, 49 Shchukina, L. A., 10, 261 Shemyakin, M. M., 10, 261 Sheppard, N., 6, 1; 7, 19 Sillén, L. G., 13, 146 Simes, J. J. H., 9, 328 Simons, P., 13, 3

Simpson, D. M., 6, 1; 7,

Smales, A. A., 10, 83

19

Smith, H., 12, 17 Smith, J. A. S., 7, 279 Smith, M. L., 9, 1 Springall, H. D., 10, 230 Stacey, M., 1, 179, 213 Staveley, L. A. K., 3, 65; **13**, 306 Stern, E. S., 5, 405 Stone, F. G. A., 9, 174 Sutton, L. E., 2, 260 Swallow, A. J., 9, 311 Symons, M. C. R., 12, 230; **13**, 99 Synge, R. L. M., 3, 245 Szwarc, M., 5, 22; 12, 301 Taylor, A. W. C., 4, 195 Thomas, S. L., 7, 407 Thomson, R. H., 10, 27 Thrush, B. A., 10, 149 Tipper, C. F. H., 11, 313 Tomkins, F. C., 6, 238 Topley, B., 3, 345 Trapnell, B. M. W., 8, 404 Trotman-Dickenson, A. F., **7**, 198 Truter, E. V., 6, 390 Turner, E. E., 1, 299 Turner, H. S., 7, 407 Ubbelohde, A. R., 4, 356; **5**, 364; **11**, 246 Ulbricht, T. L. V., **13**, 48 Uri, N., 6, 186 Walsh, A. D., 2, 73 Warburton, W. K., 8, 67 Warhurst, E., 5, 44 Waters, W. A., 12, 277 Weedon, B. C. L., 6, 380 Wells, A. F., 2, 185; 8, 380 Wells, R. A., 7, 307 Whiffen, D. H., 4, 131; **12**, 250 Whytlaw-Gray, R., 4, 153 Wilson, H. N., 2, 1 Wittenberg, D., 13, 116 Woodward, L. A., 10, 185 Yoffe, A. D., 9, 362 Zakharkin, L. I., 10, 330

CUMULATIVE INDEX OF TITLES

Acetylenes, as natural products, 10, 371

Acetylenes, infrared and Raman spectra of, 6, 1.

Acid, use of the term, 1, 113

Acids, carboxylic, anodic syntheses with, 6, 380

Acids, carboxylic, association of, 7, 255

Acids, straight-chain fatty, natural and synthetic, recent developments in the preparation of, 7, 175

Acid-base reactions, simple, rates of, 13, 169

Addition reactions, free-radical, of olefinic systems, 8, 308

Adsorption, of non-electrolytes from solution, 5, 60

Affinities, relative, of ligand atoms for acceptor molecules and ions, 12, 265

Age, geological, determination of, by

Age, geological, determination of, by radioactivity, 7, 1

Aldehydes, polymerisation of, 6, 141 Alkaloids, ergot, 8, 192

Alkaloids, indole, excluding harmine and strychnine, 10, 108

Alkaloids, steroidal, 7, 231.

Alkaloids, veratrum, 12, 34

Alkanes, infrared and Raman spectra of, 7, 19

Alkanes, tetra- and tri-chloro-, and related compounds, 10, 330

Analgesics, synthetic, 2, 349

Analysis, conformational, principles of, 10, 44

Analysis, inorganic, applications of solvent extraction to, 5, 200 Analysis, radioactivation, 10, 83

Anionotropy, 4, 404

Anodic syntheses, with carboxylic acids, 6, 380

Antibiotics, newer, chemistry of, 12, 93 Association, of carboxylic acids, 7, 255 Asymmetry: the non-conservation of parity and optical activity, 13, 48

Attraction, molecular, direct measurement of, between solids separated by a narrow gap, 10, 295

Base, use of the term, 1, 113 Biological reactions, rôle of phosphoric esters in, 5, 171

Bond, aromatic, 5, 147

Bonds, dissociation energies, of, 5, 22

Bonds, interpretation of properties of, 2, 260

Bonding, chemical, and nuclear quadrupole coupling, 11, 162

Boron hydrides, chemistry of, 9, 174 Boron hydrides, and related com-

pounds, 2, 132 Boron trifluoride, co-ordination compounds of, 8, 1

Carbides, of iron, 3, 160
Carbohydrate epoxides, 13, 30
Carbohydrate phosphates, 11, 61
Carbohydrate sulphates, 3, 369
Carbohydrates, newer aspects of stereochemistry of, 13, 265

Carbon, amorphous, and graphite, 1, 59

Carbon, and oxygen, surface compounds of, 13, 287

Carbon-carbon bonds, oxidative hydrolysis of, in organic molecules, 10, 261

Carbon-carbon double bonds, geometrical isomerism about, 6, 101

Carbon-hydrogen bond, polarity of, 2, 383
Carbon-hydrogen bonds, mechanism

of breakage of, 12, 230 Carbon-phosphorus bonds, com-

pounds containing, 12, 341

Carbonitrides, of iron, 3, 160

Carbonium ions, structure of, 12, 173
Carbons, active, study of porous structure of, by a variety of methods, 9, 101

Carbons, adsorbent, properties and nature of, 10, 1

Carbonyls, of metals, chemistry of, 1, 331

Catalysis, by metals, specificity in, 8, 404

Catalysis, of reactions involving hydrogen, mechanisms of, 3, 209

Catalysis, and semiconductivity, 11,

Catalysts, redox, initiation of polymerisations by, 9, 287

Cations, organic, reactions of, 6, 302 Charcoals, active, study of porous structure of, by a variety of methods, 9, 101

Chromatography, inorganic, 7, 307

Chromium, mechanisms of oxidation by compounds of, 12, 277

Collisions, in gases, energy transfer in, 11, 87

Colloidal electrolytes, state of solution of, 2, 154

Colour, and constitution, 1, 16

Combustions, slow, in the gas phase, elementary reactions in, 11, 313

Complex compounds, stabilities of, 5, 1 Conductance, ionic, in solid salts, 6, 238

Configuration, of flexible organic molecules, 5, 364

Conformational analysis, principles of, 10, 44

Conjugated compounds, free-electron approximation for, 6, 319

Co-ordination compounds, of boron trifluoride, 8, 1

Crystal structure, and melting, 4, 356 Crystal structures, of salt hydrates and complex halides, 8, 380

Crystals, location of hydrogen atoms in, 10, 480

Crystals, ionic, lattice energy of, 10, 283

Cyanine dyes, 4, 327

Cyclohexane, stereochemistry of, 7, 221

Decarboxylation, thermal, mechanism of, 5, 131

Degradation, biological of tryptophan, 5, 227

Densities, limiting, 4, 153

Dielectric absorption, 8, 250

Dihalogen compounds, Grignard and organolithium compounds derived from, 11, 109

Disproportionation, in inorganic compounds, 2, 1

Diterpenoids, chemistry of, 3, 36

Dyes, effect of light on, 4, 236 Dyes, cyanine, 4, 327

Dyes, organic, and their constitution, 1, 16

Earth, distribution of the elements in the, 3, 263

Electrode processes, in aqueous solutions, mechanism of, 3, 95

Electrolytes, effects of ultrasonic waves on, 7, 84

Electrolytes, colloidal, state of solution of, 2, 154

Electromagnetic separation, of stable isotopes, 9, 1

Electron correlation, and chemical consequences, 11, 291

Electrons, structures of molecules deficient in, 11, 121

Elements, terrestrial distribution of, 3, 263

Elements, heavy, radioactivity of, 5, 270 Elements, of Group VIII, recent stereochemistry of, 3, 321

Elements, of Groups IVB and IV, comments on the thermochemistry of, 7, 103

Elements, of the rare-earth series, separation of, 1, 126

Elements, transuranic, chemistry of, 4, 20

Energy, transfer of, in gaseous collisions, 11, 87

Enzymes, degradation of polysaccharides by, 9, 73

Enzymes, synthesis of polysaccharides by, 7, 58

Epoxides, of sugars, 13, 30

Equilibria, hydrolytic, quantitative studies of, 13, 146

Equivalent-orbital approach, to molecular structure, 11, 273

Ergot alkaloids, structure of, 8, 192

Esters, carboxylic, and related compounds, alkyl-oxygen heterolysis in, 9, 203

Exchange reactions, of hydrogen isotopes in solution, principles of, 9, 51

Extraction, liquid-liquid, in inorganic chemistry, 13, 327

Ferrocene, and related compounds, 9, 391

Flames, emission spectra of, 4, 1

Flash photolysis, and kinetic spectroscopy, 10, 149

Flavones, nuclear methylation of, 10, 169

Fluorescence, and fluorescence quenching, 1, 1

Fluorine, laboratory and technical production of, 3, 22.

Fluorine compounds, general aspects of the inorganic chemistry of, 11, 49 Fluorine compounds, laboratory and

technical production of, 3, 22 Fluorine compounds, organic, reactions of, 8, 331 Foaming, current concepts in theory of, 13, 71

Force constants, 1, 73

Forces, intermolecular, and the properties of matter, 8, 168

Free-electron approximation, for conjugated compounds, 6, 319

Friedel-Crafts reaction, modern aspects of, 8, 355

Furans, some aspects of the chemistry of, 4, 195

Gases, elementary reactions in slow combustions in, 11, 313

Gases, energy transfer in collisions, in 11, 87

Graphite, and amorphous carbon, 1, 59

Grignard reagents, derived from dihalogen compounds, 11, 109

Halides, reactions of, in solution, 5, 245

Halides, complex, crystal structures of, 8, 380

Halogens, kinetics of thermal addition of, to olefins, 3, 126

Heats of formation, of simple inorganic compounds, 7, 134

Heteroaromatic compounds, infrared spectra of, 13, 353

Heterogeneous reactions, transport control in, 6, 157

Heterolysis, alkyl-oxygen, in carboxylic esters and related compounds, 9, 203

Hydrocarbons, infrared and Raman spectra of Part I, acetylenes and olefins, 6, 1. Part II, paraffins, 7, 19

Hydrogen, molecular, homogeneous reactions of, in solution, 10, 463

Hydrogen atoms, location of, in crystals, 10, 480

Hydrogen catalysis, mechanisms of, 3, 209

Hydrogen isotope exchange reactions, in solution, principles of, 9, 51

Hydrogen peroxide, its radicals, and its ions, energetics of reactions involving, 6, 186

Hydrogenation, catalytic, and related reactions, mechanism of, 8, 279 Hyperconjugation, 3, 226

Ice, structure of, 5, 344

Immuno chemistry, aspects of, 1, 179, 213

Indole alkaloids, excluding harmine and strychnine, 10, 108

Induction, asymmetric, and asymmetric transformation, 1, 299

Inorganic chemistry, and magnetism, 7, 377

Inorganic compounds, disproportionation in, 2, 1

Inorganic compounds, Raman spectra of, 10, 185

Inorganic compounds, stereochemistry of, 11, 339

Inorganic compounds, simple, heats of formation of, 7, 134

Inositols, 11, 212

Insecticides, synthetic, structure and activity in, 4, 272

Interhalogen compounds, and polyhalides, 4, 115

Intermolecular forces, and some properties of matter, 8, 168

Iodine compounds, inorganic, some reactions of, 8, 123

Ion exchange, 2, 307

Ionisation potentials, and far ultraviolet spectra, their significance in chemistry, 2, 73

Iron, carbides, nitrides, and carbonitrides of, 3, 160

Isoflavones, 8, 67

Isomerism, geometrical, about carbon-carbon double bonds, 6, 101

Isotopes, exchange of, between different oxidation states, in aqueous solution, **8**, 219

Isotopes, synthesis of organic compounds labelled with, 7, 407

Isotopes, tracer techniques involving, 4, 172

Isotopes, stable, electromagnetic separation of, 9, 1

Lactones, physiologically active, unsaturated, 2, 46

Lanthanons, separation of, 1, 126 Lattice energy, of ionic crystals, 10, 283

Ligand atoms, relative affinities of, for acceptor molecules and ions, 12, 265

Ligand-field theory, 11, 381 Light, absorption of, and photochemistry, 4, 236

Liquids, transitions in, 3, 65

Liquids, ultrasonic analysis of relaxation processes in, 11, 134

Magnetic resonance absorption, nuclear, 7, 279

Magnetism, and inorganic chemistry, 7, 377

Manganese, mechanisms of oxidation by compounds of, 12, 277

Manganese dioxide, oxidations by, in neutral media, 13, 61

Mass spectrometry, application of, to chemical problems, 9, 23

Mass spectrometry, of free radicals, 13, 215

Melting, and crystal structure, 4, 356 Meso-ionic compounds, 11, 15

Metal-amine solutions, reduction by; applications in synthesis and determination of structure, 12, 17

Metal-ammonia solutions, reduction of organic compounds by, 4, 69 Metals, nature of solutions of, 13, 99

Metals, specificity in catalysis by, 8, 404

Methyl radicals, reactions of, 7, 198 Methylation, biological, 9, 255

Methylation, nuclear, of flavones and related compounds, 10, 169

Molecules, determination of structure of, by X-ray crystal analysis: modern methods and their accuracy, 7, 335

Molecules, molecular-orbital and equivalent-orbital approach to structure of, 11, 273

Molecules, electron deficient, structures of, 11, 121

Molecules, electronically excited, reactions of, in solution, 13, 3

Molecules, flexible organic, configuration of, 5, 364

Molecules, organic, oxidative-hydrolysis of carbon-carbon bonds in, 10, 261

Molecules, simple, representation of, by molecular orbitals, 1, 144

Molecular-orbital approach, to molecular structure, 11, 273

Molecular-sieve action, of solids, 3, 293

Morphine, synthetic approaches to structure of, 5, 405

Nitramines, some aspects of the chemistry of, 5, 75

Nitration, of aromatic compounds, 2, 277

Nitration, of heterocyclic nitrogen compounds, 4, 382

Nitrides, of iron, 3, 160

Nitro-compounds, aliphatic, 1, 358

Nitrogen, active, 12, 116

Nitrogen compounds, heterocyclic, nitration of, 4, 382

Nitrogen dioxide-dinitrogen tetroxide system, structure and reactivity of, **9**, 362

C-Nitroso-compounds, structure and properties of, 12, 321

Nitrosyl group, chemistry of, 9, 115

Non-electrolytes, adsorption of, from solution, 5, 60

Non-electrolytes, theories of solutions of, 13, 306

Nuclear chemistry, quantitative, 12, 133

Nuclear magnetic resonance absorption, 7, 279

Nuclear quadrupole coupling, and chemical bonding, 11, 162

Nucleation, in phase changes, 5, 315 Nucleotide coenzymes, recent developments in biochemistry of, 12, 152

Oceans, salt deposits from, 1, 91 Olefinic systems, free-radical addition reactions of, 8, 308

Olefins, infrared and Raman spectra of, 6, 1

Olefins, kinetics of oxidation of, 3, 1 Olefins, kinetics of thermal addition of halogens to, 3, 126

Olefins, oxidation of, 8, 147

Optical activity, and non-conservation of parity, 13, 48

Orbitals, molecular, approach to molecular structure through, 11, 273

Orbitals, molecular, and organic reactions, 6, 63

Orbitals, molecular, representation of simple molecules by, 1, 144

Organic compounds, action of ionising radiations on, 9, 311

Organic compounds, behaviour of, in sulphuric acid, 8, 40

Organic compounds, estimation of thermodynamic properties for, 9, 229

Organic compounds, polarography of, 6, 262

Organic compounds, reduction of, by metal-ammonia solutions, 4, 69

Organic compounds, isotopically labelled, synthesis of, 7, 407

Organic reactions, and molecular orbitals, 6, 34

Organolithium reagents, derived from dihalogen compounds, 11, 109

Organometallic compounds, of the first three periodic groups, 4, 217

Organosilylmetallic compounds, formation and reactions of, 13, 116 5-Oxazolones, chemistry of, 9, 150

Oxidation, by compounds of chromium and manganese, mechanisms of, 12, 277

Oxidation, of olefins, 3, 1; 8, 147

Oxidation-reduction potential, of quinones, relation of, to chemical structure, 4, 94

Oxides, of metals, structures of, 2, 185 N-Oxides, aromatic heterocyclic, chemistry of, 10, 395

Oxygen, and carbon, surface compounds of, 13, 287

Parity, non-conservation of, 13, 48 Penicillins, chemistry of, 2, 203 Peptides, methods of synthesis and

terminal-residue studies of, **10**, 230 Peptides, structural investigation of, **6**, 340

Peptides, naturally occurring, 3, 245 Perfluoroalkyl derivatives, of metals and non-metals, 13, 233.

Peroxides, organic, and their reactions, 4, 251

Phase changes, nucleation in, 5, 315 Phenols, tautomerism of, 10, 27

Phosphates, of carbohydrates, 11, 61 Phosphates, condensed, 3, 345

Phosphoric esters, rôle of, in biological reactions, 5, 171

Phosphorus oxyacids, some aspects of the organic chemistry of derivatives of, 3, 146

Photochemistry, and light absorption, 4, 236

Photography, cyanine dyes in, 4, 327 Photopolymerisation, 4, 236 Polarity, of the carbon-hydrogen bond, 2, 383

Polarography, of organic compounds, 6, 262

Polonium, chemistry of, 11, 30

Polyhalides, and interhalogen compounds, 4, 115

Polymerisation, initiation of, by redox catalysts, 9, 287

Polymerisation, of aldehydes, 6, 141 Polymerisation, addition, some thermodynamic and kinetic aspects of, 12, 61

Polymerisation, induced by light, 4, 236

Polymerisation, ionic, 8, 88

Polymerisation, radical, rate constants in, 4, 292

Polymers, based on silicon, chemistry of, 2, 25

Polymers, high, thermodynamic properties of, and their molecular interpretation, 1, 265

Polysaccharides, enzymic degradation of, 9, 73

Polysaccharides, enzymic synthesis of, 7, 58

Portland cement, constitution of, 3, 82 Proteins, structural investigation of, 6, 340

Pteridines, 6, 197

Purines, some aspects of the chemistry of, 3, 181

Pyrans, some aspects of the chemistry of, 4, 195

Pyrimidines, some aspects of the chemistry of, 3, 181

Pyrrole pigments, biogenetic origin of, 4, 45

Quadrupole coupling, nuclear, and chemical bonding, 11, 162

Quadrupole moments, molecular, 13, 183

Quenching, of fluorescence, 1, 1 Quinones, relation between the oxidation-reduction potential and chemical structures of, 4, 94

Radiations, ionising, action of, on organic compounds, 9, 311

Radicals, free, electron resonance spectroscopy of, 12, 250

Radicals, free, mass spectrometry of, 13, 215

Radioactivation analysis, 10, 83

Radioactivity, determination of geological age by, 7, 1

Radioactivity, of the heavy elements, 5, 270

Rearrangements, aromatic, 6, 34

Redox potentials, of quinone, relation of, to chemical structure, 4, 94

Reduction, by metal-amine solutions; applications in synthesis and determination of structure, 12, 17

Reduction, by metal-ammonia solutions, of organic compounds, 4, 69 Relaxation processes, molecular in liquids, ultrasonic analysis of, 11, 134

Salt hydrates, crystal structures of, 8, 380

Salts, deposits of, from oceans, 1, 91 Salts, basic, structure of, 1, 247

Salts, solid, ionic conductance in, 6, 238

Sandmeyer reactions, 6, 358

Semiconductivity, and catalysis, 11, 227

Sesquiterpenoids, recent advances in chemistry of, 11, 189

Silicon, chemistry of polymers containing, 2, 25

Silyl compounds, 10, 208

Sodium "flame" reactions, 5, 44 Solids, molecular-sieve action of, 3,

293
Solids, thermal transformations in, 11,

246 Solids, transitions in, 3, 65

Solids, separated by a narrow gap, direct measurement of molecular attraction between, 10, 295

Solutions, aqueous, mechanism of electrode processes in, 3, 95

Solutions, of non-electrolytes, theories of, 13, 306

Solvation, ionic, 3, 173

Solvent extraction, and its applications to inorganic analysis, 5, 200.

Solvents, ionising, non-aqueous, reactions in, 10, 451

Specificity, in catalysis by metals, 8, 404

Spectra, charge-transfer, and related phenomena, 8, 422

Spectra, emission, of flames, 4, 1 Spectra, far ultraviolet, ionisation potentials, and their significance in chemistry, 2, 73 Spectra, infrared and Raman, of hydrocarbons. Part I, acetylenes and olefins, 6, 1. Part II, paraffins, 7, 19

Spectra, infrared of heteroaromatic compounds, 13, 353

Spectra, Raman, of inorganic compounds, 10, 185

Spectra, rotation, 4, 131

Spectroscopy, electron resonance, of free radicals, 12, 250

Spectroscopy, kinetic, and flash photolysis, 10, 149

Stabilities, of complex compounds, 5, 1 Stereochemistry, of inorganic compounds, 11, 339

Stereochemistry, of cyclohexane, 7, 221

Stereochemistry, of elements of Subgroup VIB of the Periodic Table, 10, 407

Stereochemistry, of elements of Group VIII of the Periodic Table, 3, 321

Steric hindrance, 2, 107; 11, 1

Steroidal alkaloids, 7, 231

Substitutions, aromatic nucleophilic, mechanism and reactivity in, 12, 1 Sugar epoxides, 13, 30

Sulphur nitride, and its derivatives, 10, 437

Sulphuric acid, behaviour of organic compounds in, 8, 40

Surface compounds, the chemistry of carbon-oxygen, 13, 287 Sydnones, 11, 15

Tautomerism, of phenols, 10, 27

Thermochemistry of the elements of Group IVB and IV, comments on, 7, 103

Thermodynamic properties, estimation of, for organic compounds and chemical reactions, 9, 229

Thermodynamic properties, of high polymers, and their molecular interpretation, 1, 265

Tracers, radioactive, preparation of, 2, 93

Transformation, asymmetric, and asymmetric induction, 1, 299

Transformations, thermal, in solids, 11, 246

Transitions, in solids and liquids, 3, 65 Transport control, in heterogeneous reactions, 6, 157

Triplet state, 12, 205

Triterpenes, tetracyclic, **9**, 328 Tropolones, **5**, 99 Tryptophan, biological degradation of, **5**, 227

Ultrasonic analysis, of molecular relaxation processes in liquids, 11, 134

Ultrasonic waves, effects of, on electrolytes and electrolytic processes, 7, 84

Veratrum alkaloids, 12, 34

Wool wax, constitution of, 5, 390

X-Ray crystal analysis, modern methods of determination of molecular structure by, and their accuracy, 7, 335

p-Xylylene, chemistry of, and of its analogues and polymers, **12**, 301