COMMUNICATIONS TO PROCEEDINGS: INDEX OF SUBJECTS, 1961

The following index relates to Scientific Communications published in Proceedings of The Chemical Society, 1961.

A

Acetic acid, dimeric, structure in aqueous solution, 73.

Acetic anhydride and analogous compounds, acid-catalysed self-condensation of, 112.

Acetoxylation accompanying nitration with nitric acidacetic anhydride mixtures, 369.

Acetylene, monofluoro- and monoiodo-, infrared spectra, 13. Acetylenes, new prep., 302.

photo-addition to benzene, prep. of cyclo-octatetraenes by,

Acetylenic bonds, new synthesis, and biosynthetic implications, 245.

Acids, α-hydroxyamino-, α-amino-acids and α-keto-acid oximes from, 375.

Acrylonitrileiron, tetracarbonyl-, crystal structure, 466.

Adsorption of hydrocarbons on a silica—alumina catalyst, study by electron-spin resonance, 70.

Alcohol-hydrogen chloride systems, hydrogen dichloride (HCl_2^-) ion as a reagent in, 467.

Alkaloids, of the Amaryllidaceae, biosynthesis, 243, 254. of calabash curare, 17, 223, 412, 413.

calycanthaceous: chimonanthine, 465.

diterpenoid, hetero-ring of, 461.

Alkyl radicals in γ -irradiated alkyl halides, electron-spin resonance spectra, 247.

Allenes, addition of carbenes to, 246.

cyclic, prep., 143.

Allyl chloride, (+)-1-phenyl-, prep. and rearrangement, 334.

complexes, σ -bonded, unusual protonation reaction of, 378. vinyl ethers, gas-phase Claisen rearrangement of, mechanism, 141.

Aluminium, complex pseudohalides of, prep., 203.

chloride, interaction with aromatic hydrocarbons, 142.

Amaryllidaceae alkaloids, biosynthesis, 243, 254.

Amines, liquid, nuclear magnetic resonance study of hydrogen bonding in, 118.

Anthracene-tetracene mixed crystals, intermolecular interactions in, 253.

Arbuzov rearrangement, anti-, 12.

Aromatic compounds, biosynthesis from acetyl- and malonylcoenzyme A, 209.

free-radical alkylation and aroylation of, induced by gammaradiation, 212.

Arsenic: Tertiary arsine chelate group, olefinic, complexes involving, 220.

Tertiary arsine-halogen adducts, 65.

Arylation and aroylation of aromatic compounds, free-radical, induced by gamma-radiation, 212.

Arylmethyl ions, electronic spectra, 386.

Ascaridole, reduction with ferrous sulphate solution, 83.

Atisine, stereochemistry of the E- and F-rings: relation to the atisine-isoatisine isomerisation, 14.

Azulene, electronic excitation in, 11.

В

Benzene, derivatives of, Dewar structures as intermediates in, prep., 312.

1,3,5-trimethoxy-, kinetics and equilibria of protonation in concentrated aqueous acid, 81.

nitro-, carbon-basicity of halide and halogenoid ions in, 371. nitro-, nature of first absorption band of, 171.

Benzhydryl chloride, p-chloro-, racemization and radiochloride exchange with mercuric chloride, 241.

Benzoic acids, substituted, steric effects in, 162.

Benzophenone, photochemical reduction, 301. Beryllium, coloured bipyridyl complexes of, 376. nitrate, basic, structure, 242.

Biosynthesis: Amaryllidaceae alkaloids, 243, 254.

Chrysanthemum-monocarboxylic acid, 452. Implications of a new synthesis of acetylenic bonds, 245.

Biphenyl, crystalline, structure, 122.

Biphenylene, structure, 163. Bipyridyl complexes of beryllium, coloured, 376.

π-Bonding and hindered rotation in inorganic systems, 421.
Borazoles, unsymmetrically substituted, and bicyclic derivatives thereof, 425.

Born-5-en-2-one, 5-phenyl-, intensification of absorption and rotation of the carbonyl chromophore in absorption spectrum, 423.

Boron, complex pseudohalides of, prep., 203.

organic compounds of, polymer from reaction with diazomethane, end groups in, 117.

Hexachlorodiborate anion, B₂Cl₆²⁻, 220.

Phosphinoborine derivatives, dimeric, prep., 432.

Bromination, allylic, by *N*-bromosuccinimide, mechanism, 80, 199.

Bromine, addition to trans- and cis-cyclodecene, 199.

Bufotenin, dehydro-, structure, 310.

Butoxy. See t-Butoxy. Butyl. See also t-Butyl.

n-Butyl radicals, dimerisation and disproportionation of, 18.

C

Cactus, sterol (peniocerol) from, structure, 450.

Calabash curare, alkaloids from, 17, 223, 412, 413.

Calythrone, prep., 374.

Camphane, (-)-2-bromo-2-nitro-, stereochemistry, 306.

Caracurine-II (alkaloid of calabash curare), 412, 413.

structure, 416.

Carbene, a new, formed by decomposition of quinone azine, 309.

ethoxycarbonyl-, reactions of, steric discrimination in, 443. Carbenes, addition to allenes, 246.

Carbon tetrachloride, solutions in benzene, thermal diffusion

in, 201. Carbonium ions, alkyl and double-bond, electronic spectra,

256. Carbonyl chromophore, intensification of absorption and rotation by mixing $n \longrightarrow \pi^*$ with $\pi \longrightarrow \pi^*$ transitions, 423.

Carbonyls, metal, fluorocarbon derivatives of, 69. Carbonylation of platinum and palladium organo-complexes,

67.

ζ-Carotene, structure, 261.

Catalysts, anionic, catalytic action of, 339.

Cedrelone (a triterpene), structure, 444, 446.

Cephalosporin P₁ (antibiotic), 257.

Chain inhibition of a non-chain reaction, 301.

Charge-transfer bonds in solids: crystal structure of oxalyl bromide, 343.

Chimonanthine, a new calycanthaceous alkaloid, 465.

Chlorine atoms, abstraction from gaseous t-butyl hypochlorite by methyl radicals, 338.

Chloride, radio-, exchange between p-chlorobenzhydryl chloride and mercuric chloride, 241.

Cholest-5-ene, 3β -hydroxymethyl- Δ -nor-, toluene-p-sulphonate, solvolysis, 422.

Cholest-8-ene-3 β ,6 α -diol, from cactus, 450.

Chrysanthemum-monocarboxylic acid, biosynthesis, 452.

Claisen rearrangement of allyl vinyl ethers, gas-phase, mechanism, 141.

Clerodin, structure, 75.

constitution, 76.

Cobalt: Complexes of type [Co₃(CO)₅(CY)], prep. and structure, 169.

Cobalt(II), bonding of the selenocyanate ion in complexes with, 213.

Cobalt(II), tetrahedral and bridged octahedral complexes of, 372.

Cobalt(II) ions, rate of association of thiocyanate ions with, 380.

Coenzyme A, acetyl- and malonyl-, biosynthesis of aromatic substances from, 209.

Cohulupone, prep. from colupulone, 315.

Columbin, stereochemistry, 211.

Colupulone, prep. of cohulupone from, 315.

Complexes, of the early cations of the first transition series, stability constants of, 336.

of olefins with palladium(II) chloride, reaction with nucleophiles: a new vinylation, 370.

metal, perchlorate co-ordination in, 335.

tervalent-metal, application of high-speed digital computers to the calculation of formation constants for, 340.

Computers, high-speed digital, application to calculation of formation constants for tervalent-metal complexes, 340.

Conessine, prep., 206.

Copper: Copper(II), so-called trico-ordinated complexes of, anomalous magnetic behaviour and binuclear structure, 264.

Cupric dithizonate, primary, crystal structure, 203.

Cupric halides, reactions with aromatic hydrocarbons, 307. Corrole, derivatives of, prep., amendment, 168.

Crystal field stabilisation as a factor in surface processes, 424.

Crystals, mixed anthracene-tetracene, intermolecular interactions in, 253.

 (\pm) -Cuparene, prep., 74.

Cyclic systems, orientation in some elimination reactions, 314. Cyclobutene, 3,4-dimethylene-, prep., 332.

Cyclodecane ring, conformation, 463.

trans- and cis-, addition of bromine to, 199.

Cyclohexane and related molecules, ring inversion in, studied by nuclear magnetic resonance, 418.

Cyclohexylammonium salts, trimethyl-2-methyl-, eliminations from, orientation in, 314.

 ${f Cyclo-octate traenes}$, prep. by photo-addition of acetylenes to benzene, 333.

Cyclopentadienide anion that is stable in water, 117.

D

Decalin, cis- and trans-perfluoro-, from fluorination of tetralin, 138. Nuclear magnetic resonance spectra, 139.

trans-Decalin, 10-acetyl-1α-halogeno-, reactions of: evidence for an unusual neighbouring-group effect, 451.
 Dewar structures as intermediates in prep. of benzene deriv-

Dewar structures as intermediates in prep. of benzene derivatives, 312.

Diazomethane, monomethylenation and polymethylenation by, in the presence of boron compounds, 172.

Diazotisation at intermediate acidities, mechanisms, 173.

Diels-Alder addition, gas-chromatographic study of rate, 316.

Dissymmetry, molecular, due to symmetrically placed hydrogen and deuterium, 333.

Diterpenoid alkaloids, hetero-ring of, 461.

Dithizone: Cupric dithizonate, primary, crystal structure, 203.

E

Echitamine, reactions, 62. structure, 63.

Elimination and substitution, merged, mechanism, 252.

Elimination reaction, novel base-catalysed (conversion of an amide into a cycloheptatrienone), 248.

reactions in cyclic systems, orientation in some, 314.

Esters, β -keto-, reaction with hydroxylamine, 387.

Ethers, allyl vinyl, mechanism of gas-phase Claisen rearrangement of, 141.

Ethyl radicals, kinetics of addition to vinyl monomers, 259. reaction with isopropyl radicals, 68.

chloro-, excited ($C_2H_xCl_{5-x}^*$), 244.

Eucarvone, photoisomerisation to 1,5,5-trimethylnorborn-2-en-7-one, 116.

F

Flavan derivatives, stereochemistry and conformation, 165.
Fluorine: "Halogen monofluorides", addition to fluoroolefins, 113.

Metal carbonyls, fluorocarbon derivatives, 69.

Perfluoroalkylnitroso-compounds, prep. from perfluoroacyl nitrites, 64.

Polysulphuryl fluorides, 428.

Formates, irradiated, radicals in, 66.

Formation constants for tervalent-metal complexes, application of high-speed digital computers to calculation of, 340.

Fumagillin (an antibiotic), configuration, 331.

G

Germanium: Germanes, volatile, prep. and identification, 379.

Germane, mono- and di-fluoro-, prep., 205. Germyl fluoride, microwave spectrum, 456.

L-Glucose, 3-amino-3,6-dideoxy-, derivatives of, 255.

H

Halide and halogenoid ions in nitrobenzene, carbon-basicity of, 371.

"Halogen monofluorides", addition to fluoro-olefins, 113.

Hofmann elimination, ylide mechanism in, 458.

Hofmann versus Saytzeff elimination in the interaction of t-pentyl chloride and acetyl chloride, 382.

Hydrides, inorganic complex, solvent effects in the infrared spectra of, 431.

Hydride-ion substitution in metal complexes, 72.

Hydrocarbons, adsorption on a silica-alumina catalyst, study by electron-spin resonance, 70.

aromatic, use of magnesium compounds in alkylation of, 245.

interaction with aluminium chloride, 142.

reactions with cupric halides, 307.

Hydrocarbon-sulphonyl radicals, trapped, electron-spin resonance investigation, 71.

Hydrogen bonding, in gaseous mixtures, infrared detection: origin of broad bands, 121.

in the hydrogen malonate ion, 373, 464.

in liquid amines, nuclear magnetic resonance study, 118.

dichloride (HCl₂⁻) ion as a reagent in alcohol-hydrogen chloride systems, 467.

exchange, of 1,3,5-trimethoxybenzene in concentrated aqueous acid, kinetics and equilibria, 81.

aromatic, and other proton transfer reactions, H_0 function and general acid catalysis in, 453.

Hydroxide and thiophenoxide ions, relative thermodynamic affinities for carbon, 305.

Hydroxylamine, reaction with β -keto-esters, 387.

I

Ion-exchanger of new type, fractionation of ribonucleic acids by 78

Iron: Tetracarbonylacrylonitrileiron, crystal structure, 466.
Isobutene, chain-transfer by anisole in cationic polymerisation of, 311.

Isoindoline, 1,3,4,7-tetramethyl-, novel prep. by reductive condensation of 2,5-dimethylpyrrole, 119.

Isopropyl radicals, reaction with ethyl radicals, 68.

K

 \mathbf{K}_2 , ionisation potential, and rotational analysis of the $C^1\Pi_u - X^1\Sigma_a^+$ system of, 329.

L

Linderone and methyl-linderone, structures, 455. Lithium aluminium hydride reductions, stereospecificity, 388. Lycorine, incorporation of norbelladine into, 243.

M

Macusine-A, structure, 223.

Macusine-B, structure, 17.

Magnesium compounds, use in alkylation of aromatic hydrocarbons, 245.

Malonic acid, acid ion, hydrogen bonding in, 373, 464.

Manganese: Nitratopentacarbonylmanganese(1), prep., 202. Maytenone, pyrolytic decomposition: a model system, 265.

Menschutkin reaction, reverse, transition-state volume change in 389.

Mercury electrode, anodic capacity in aqueous sodium fluoride solutions, 239.

Metals, complexes of, hydride-ion substitution in, 72.

evaporated films of, surface photolysis on, 337.

transition, nitrites of, prep., 306.

Methane, tetradeutero-, measurement of vibrational rela

Methane, tetradeutero-, measurement of vibrational relaxation time of, 114.

nitroso-, vapour-phase addition of methyl radicals to, 204. **Methyl**, triphenyl-, electron-spin resonance spectrum, 16.

groups, internal rotation of, as detected by band contours in infrared spectra of solutions and gases, 420.

in aromatic positive ions, hyperfine interactions from,

ions, aryl-, electronic spectra, 386.

radicals, addition to nitrosomethane in the gas phase, 204.

Methylation, homolytic aromatic, 240. Monolayers, oriented, molecular interactions in, observed by infrared spectroscopy involving total internal reflection, 461. Mycaminose, prep. and stereochemistry, 430.

Naphthalene, a dichloro-, X-ray study, 78.

Naphthalenes, triaza-, three new, prep., 459.

Neurosporene, structure, 261.

Nickel: Nickel(II) complexes, Lifschitz, solution spectra and crystal structure, 297.

Nickel(II) ions, rate of association of thiocyanate ions with, 380.

Nitration with nitric acid-acetic anhydride mixtures, acetoxylation accompanying, 369.

Nitro-compounds, aromatic, reduction by sodium borohydride catalysed by transition-metal complexes, 161.

Nitrogen: Dinitrogen tetroxide, σ -electron delocalisation and electronic structure, 216.

Nitrites, perfluoroacyl, prep. of perfluoroalkylnitrosocompounds from, 64.

Nitrites of transition metals, prep., 306.

Nitroso-compounds, perfluoroalkyl-, prep. from perfluoroacyl nitrites, 64.

Norbelladine, incorporation into lycorine and norpluvine, 243. Norborn-2-en-7-one, 1,5,5-trimethyl-, photoisomerisation of eucarvone to, 116.

Norcarane-7-carboxylic acid: steric discrimination in reactions of ethoxycarbonylcarbene, 443.

Norpluvine, incorporation of norbelladine into, 243.

Nucleoside, crystalline, isolation from the vitamin B_{12} coenzyme, 447.

Nucleosides, sulphonium, alkali hydrolysis of, 449.

0

Olefins, fluoro-, addition of "halogen monofluorides" to, 113. Olefin-palladium(II) chloride complexes, reaction with nucleophiles: a new vinylation, 370.

Oxalates, irradiated, radicals in, 66. Oxalyl bromide, crystal structure, 343.

P

Palladium, organo-complexes of, carbonylation, 67.

Palladium(II) chloride-olefin complexes, reaction with nucleophiles: a new vinylation, 370.

Penicillic acid, rôle of acetate and malonate in biosynthesis of, 111.

Peniocerol, sterol from cactus, structure, 450.

Pentyl. See t-Pentyl.

Perchlorate co-ordination in metal complexes, 335.

Perylene, 1,12-o-phenylene-, crystals isolated during prep., X-ray study, 115.

Phenalenyl radical, detection in pyrolysed hydrocarbons by electron-spin resonance, 144.

Phosphazenes, alkoxy-, rearrangement, 258.

Phosphorus: Phosphinoborine derivatives, dimeric, prep., 432.

Phosphinothiolic acid, ethylphenyl-, optical resolution, 145.

Phosphorane, methoxycarbonylmethylenetriphenyl-, reaction with hindered ketones, 454.

Photolysis, surface, on evaporated metal films, 337.

Phytoene, structure, 261.

Phytofiuene, structure, 261.

Platinum, five-co-ordinated compound of, stereochemistry, 170.

organo-complexes of carbonylation, 67.

Bipyridyl-(1-acetylacetonyl)trimethylplatinum(IV), structure, 166.

Podophyllotoxin, stereospecificity of reduction with lithium aluminium hydride, 388.

Polymerisation, cationic, of isobutene, chain-transfer by anisole in, 311.

cationic, of styrene, transfer mechanisms in, 460.

Polysaccharides, application of the Weermann reaction to, 300.

Potassium: K_2 , ionisation potential, and rotational analysis of the $C^1\Pi_u^-X^1\Sigma_g^+$ system of K_2 , 329.

Proton transfer reactions, H_0 function and general acid catalysis in, 453.

Protonation of 1,3,5-trimethoxybenzene in concentrated aqueous acid, kinetics and equilibria, 81.

Pteridines, 8-substituted, nucleophilic additions of, and their biochemical significance, 260.

Pyrrole, 2,5-dimethyl-, reductive condensation of: novel isoindoline prep., 119.

Pyrroles, 1-alkyl-, new type of addition to, 164.

Q

Quinolizidine stereochemistry, 218.

Quinone azine, decomposition to give a carbene, 309. Quinoxalinecarboxyanilides, rearrangement of, 167.

R

Radicals in irradiated formates and oxalates, 66.

1-β-D-Ribofuranosylimidazole-4-carboxylic acid 5'-O-phosphate, 5-amino-, prep., 381.

Ribonucleic acids, fractionation by a new type of exchanger, 78.

Ring inversion in cyclohexane and related molecules, as studied by nuclear magnetic resonance, 418.

Rotation, hindered, and $\bar{\pi}$ -bonding in inorganic systems, 421. Rotenoids, determination of geometry of B/c fusion by means of long-range asymmetric magnetic shielding of the carbonyl group, 299.

reactions of, prefaced by alkaline attack, 19.

Ruthenium: Nitratonitrosylruthenium complexes, 251.

Selenium: Selenocyanate ion, bonding in complexes with cobalt(II), 213.

Semiquinones, electron-spin resonance spectra in sulphuric acid, 385.

Shifts, chemical, of nitrogen-14 nuclei bonded to protons, measurement by nuclear magnetic double resonance, 303.

Sodium borohydride, reduction of aromatic nitro-compounds by, catalysed by transition-metal complexes, 161.

Solvolysis by S_N mechanisms, entropies and heat capacities of activation in, 222.

Spectra:

absorption: carbonyl chromophore, intensification of absorption by mixing of $n \longrightarrow \pi^*$ and $\pi \longrightarrow \pi^*$ transi-

Lifschitz nickel(II) complexes in solution, 297.

nitrobenzene, nature of first (absorption) band, 171.

electron-spin resonance: alkyl radicals in γ -irradiated alkyl halides, 247.

hydrocarbons, study of adsorption on a silica-alumina catalyst, 70.

hydrocarbons, aromatic, study of interaction with aluminium chloride, 142.

hydrocarbon-sulphonyl radicals, trapped, investigation of, 71.

methyl, triphenyl-, 16.

phenalenyl radical, detection in pyrolysed hydrocarbons,

semiquinones in sulphuric acid, 385.

sulphur nitride ions, 377.

p-xylene positive ion, 174.

electronic: arylmethyl ions, 386.

infrared: acetylene, monofluoro- and monoiodo-, 13.

hydrides, inorganic complex: solvent effects, 431.

hydrogen bonding in gaseous mixtures: detection, and origin of broad bands, 121.

metal-chlorine stretching frequencies, infrared active,

methyl groups, internal rotation detected by band contours in spectra of solutions and gases, 420.

monolayers, oriented, observations of molecular interactions in, by infrared spectroscopy involving total internal reflection, 461.

thiocyanic acid in solution, rotational structure of a bending vibration, partial resolution, 342.

microwave: germyl fluoride, 456.

nuclear magnetic resonance: amines, liquid, hydrogen bonding in, 118.

cyclohexane and related molecules, ring inversion in, 418. dehydrobufotenin "hydrochloride", 310.

cis- and trans-perfluorodecalin, 139.

Shifts, chemical, measurement by double-resonance, 303. Spin decoupling and relative chemical shifts of dissimilar nuclei measured by using frequency related oscillators, 426.

steroid D-homoannulation (proton magnetic resonance shifts), 214.

thallium trialkyls, proton magnetic resonance, 208.

ultraviolet: carbonium ions, alkyl and double-bond, 256.

Stability constants of some complexes of the early cations of the first transition series, 336.

Steroid D-homoannulation, proton magnetic resonance shifts in, 214.

Steroid 3-ketones, 4,4-dimethyl-, conformation of ring A in some, 464.

Steroids, 5,9-cyclo-, prep., 207. Δ^4 -Steroids, 4-methyl-3-oxo-, new route to, 114.

Styrene, cationic polymerisation of, transfer mechanisms in,

polymerisation by perchloric acid, 200.

Substitution, and elimination, merged, mechanism, 252. nucleophilic aromatic, transition state in, 341.

Succinic anhydrides, catalytic hydrogenation of, 313.

Sugars, amino-, sulphur substitution compounds of. Part III, 429.

with sulphur in the ring, 417, 418.

Sulphur, in ring of sugars, 417, 418.

nitride, ions, electron-spin resonance spectra, 377.

Disulphoxide and thiolsulphonate formulations, chemical distinction between, 250

Polysulphuryl fluorides, 428.

Thiolsulphonates, structure, and chemical distinction between disulphoxides and, 250.

Sultones, unsaturated, irradiation of, 238.

Surface processes, crystal field stabilisation as a factor, 424. Sydnone, structure of a, 120.

L-Talose, 3-amino-3,6-dideoxy-, derivatives of, 255.

t-Butoxy-group, novel hydroxyl-protecting group in peptide synthesis with hydroxy-amino-acids, 249.

t-Butyl hypochlorite, gaseous, abstraction of chlorine atoms by methyl radicals, 338.

Tetracene-anthracene mixed crystals, intermolecular interactions in, 253.

1-Tetralone, 2-benzyl-2-bromo-4,4-dimethyl-, decomposition, mechanism of merged substitution and elimination, 252.

Thallium trialkyls, proton magnetic resonance spectra, 208. Thiocyanic acid in solution, partial resolution of the rotational

structure of a bending vibration, 342. Thiocyanate ions, rates of association with nickel(II) and

cobalt(II) ions, 380. Thiolsulphonates, structure and chemical distinction between

disulphoxides and, 250. Thiophenoxide and hydroxide ions, relative thermodynamic

affinities for carbon, 305. **Thiourea** as a leaving group from carbon in S_N displacements,

214 Tin: Dialkyltin(IV) compounds, structure of intermediates in hydrolysis of, 457.

Distannoxanes, dimerisation by co-ordination, 383.

Stannite ion, trichloro-, pyramidal configuration, 304. t-Pentyl chloride, Hofmann versus Saytzeff elimination in the

interaction with acetyl chloride, 382. Transition series, first, stability constants of some complexes

of the early cations of, 336. Triterpenoid 3-ketones, conformation of ring A in some, 464.

Vinyl allyl ethers, gas-phase Claisen rearrangement of, mechanism, 141.

Vinyl monomers, kinetics of addition of ethyl radical to, 259. Vinylation, new: reaction of olefin-palladium(II) chloride complexes with nucleophiles, 370.

Vitamin B₁₂ co-enzyme, crystalline nucleoside isolated from,

Wave functions, molecular, new method for deriving, 427. Weermann reaction, application to polysaccharides, 300. DL-Willardiine, prep., 216.

X

p-Xylene positive ion, electron-spin resonance spectrum, 174. D-Xylothiapyranose: a sugar with sulphur in the ring, 417.

Y

Ylide mechanism in Hofmann elimination, 458.

 \mathbf{z}

Zierone, constitution, 308.