

COMMUNICATIONS TO PROCEEDINGS: INDEX OF SUBJECTS, 1962

The following index relates to Scientific Communications published in *Proceedings of The Chemical Society*, 1962.

A

- Acetylenes**, synthesis from enol phosphates, 149.
Acids, convenient procedure for decarboxylation, 309.
 $\alpha\beta$ -acetylenic, and their derivatives, reaction with sodamide, 283.
 α -amino-, new aspects of the Meerwein arylation route to, 117.
 α -amino-polycarboxylic, infrared and nuclear magnetic resonance studies in aqueous solutions, 336.
oxy-, and their derivatives, infrared method of isotopic analysis of oxygen in, 109.
Dual-acid systems, direct comparison of proton availability in, 296.
Alcohols, aromatic tertiary acetylenic, formation of indenenes, dimethylenecyclobutanes, and rubrenes from, 77.
Aldehyde hydrogenation, homogeneous, with cobalt carbonyl as catalyst, kinetics and mechanism, 67.
Aliphatic systems, saturated, signs of nuclear resonance coupling constants in, 213.
Alkali chloride crystals, influence of pre-irradiation treatment on the chemical effects of the $^{35}\text{Cl}(n,p)^{35}\text{S}$ reaction in, 275.
Alkaloids, of the Amaryllidaceae. Part X, 80.
calycanthaceous, total synthesis: chimonanthine, 383.
N(b)-epimeric quaternary, occurrence in *Hunteria eburnea*, 355.
Aluminium-nitrogen system, new, 366.
Amaryllidaceae alkaloids. Part X, 80.
biosynthesis, multiple labelling experiments in, 179.
biosynthesis, evidence for intact incorporation of norbelladine into lycorine, crinamine, and belladine, 180.
Amines, dehydrogenation to imines, 113.
Amino-groups, new procedure for protection of, 363.
Aniline, *p*-nitro-, effect of solvent on the electronic absorption spectrum of, 78.
Anthranilic acid, oxidation by manganese dioxide, 73.
Antimony, pentaphenyl-, structure, 251.
Arsenic, pentaphenyl-, structure, 251.
L-Aspartic acid, 5'-*O*-phosphate, *N*-(5-amino-1- β -D-ribofuranosyl-4-imidazolylcarbonyl)-, prep., 115.
Atrovetin and herqueinone, structures, 352.
Azabenzene anions, electronic spectra, 61.
Azulene, 1-nitro-4,6,8-trimethyl-, evidence for carbon-1 protonation of, 364.

B

- Benzene**, *m*-bromonitro-, intermolecular charge-transfer bonds in, 221.
hexafluoro-, new syntheses, 281.
m-dinitro-, deuterium exchange in, 176.
Benzocyclobutene, prep. from cyclo-octane derivatives, 334.
Benzofuroxan, 5-methyl-4-nitro-, rearrangement, 257.
Benzophenone, ketyls of, electron-spin resonance spectra, 229.
Benzyl-oxygen bond, hydrogenolysis by boron trifluoride-sodium borohydride, 357.
Berberine, biosynthesis, 228.
Biosynthesis: Amaryllidaceae alkaloids, 179, 180.
narcotine, 365.
Bismuth, perfluoroalkyl derivatives, 224.
Borazynes, tetrameric: a new boron-nitrogen ring system, 69.

- Boron**: Boron-hydrogen bond, unusual formation of, 153.
Prediction of a stable, planar molecule, $\text{N}(\text{BF}_2)_3$, 351.
Butyric acid, *threo*- $\alpha\beta$ -dihydroxy- α -methyl-, absolute configuration, 307.

C

- Calycanthidine**, structure, 148.
Calycanthine, absolute configuration, 362.
Capsorubin, stereochemistry, and synthesis of its optically inactive epimers, 215.
Carvone, reactions with hydroxylamine and its *O*-methyl derivative, 145.
Cascarillin, 329.
Catalysts, anionic, catalytic action of, 226, 338.
Charge-transfer bonds, intermolecular, in *m*-bromonitrobenzene, 221.
Chimonanthine (calycanthaceous alkaloid), prep., 383.
structure, 148.
Chlorine, atom, abstraction by methyl radicals from methyl chloroformate, 141.
molecule, rotational analysis of the $A^3\Pi_0+, u-X^1\Sigma_g^+$ system of, 297.
Chlorination by the $\text{ClO}\cdot$ radical: gas-phase reaction of chlorine monoxide with hydrocarbons, 294.
Cholest-5-ene, 3 α -hydroxymethyl- Δ -nor-, toluene-*p*-sulphonate of, hydrolysis, 330.
Chromatography, gas-liquid, separation of diastereoisomers by, 146.
Chromium, unusual valency state in oleum, 23.
Chromium(II), reactions with cobalt(III) tetrammines, 306.
Cobalt: Cobalt(III) tetrammines, reactions with chromium(II), 306.
Nonacarbonyl(vinylsilicon)tricobalt, 82.
(-)-Trisoxalatocobalt(III), structure, 388.
Complexes, metal, contribution of π -bonding to stabilities in solution: a correlation with Hammett's σ -factor, 250.
metal, dihedral, new criterion for absolute configuration of, 331.
Co-ordination compounds, free-radical reactions: pentane-2,4-dione chelates, 328.
Copper: Cu_2 , gaseous, internuclear distance in, 64.
NN'-Ethylenebis(acetylacetonimine)copper(II) structure, 143.
Corymine [an alkaloid isolated from *Hunteria corymbosa* (Apocyanaceae)], reactions, 298.
Crystals, molecular, calculation of photoelectric thresholds and electron affinities of, 71.
Cubane, octaphenyl-, convenient new prep., of the hydrocarbon reported to be, 330.
Cyclitols, stereospecific epimerisation, 337.
Cyclobutanes, dimethylene-, formation from aromatic tertiary acetylenic alcohols, 77.
Cyclobutenes, prep., by photoisomerisation, 334.
Cycloclorenone, stereochemistry, 280.
Cyclodiazomethane (diazirine), formation of methylene by photolysis of, 79.
Cycloheptatriene and related compounds, 1,5-transannular shift of hydrogen in, 359.
Cycloheptatrienyl (tropyli) radical, absorption spectrum, 339.
Cyclopentene, 4-methyl-, steric control in addition to, 74.
Cyclopropenes, alkyl-, carbon-13 splittings in proton magnetic resonance spectra of, 152.

Cyclopropyl conjugation, a stereochemical factor in, 25.
Cyclotriphosphazatriene, hexachloro-, reaction with piperidine in toluene, kinetics and mechanism, 390.

D

Dalbergiones: a new group of natural products, 301.
Deuterium exchange in *m*-dinitrobenzene, 176.
Diastereoisomers, separation by gas-liquid chromatography, 146.
Diazine radical anions, electron-spin resonance spectra of some, 60.
Diazirine (cyclo diazomethane), formation of methylene by photolysis of, 79.
Dienes, conjugated, addition of the ethyl radical to, kinetic study, 81.
Diginin and diginigenin, structure, 65.
1,5-Diketones, photochemical prep., and cyclisation: new annulation process, 119.
1,4-Dioxan, 1:1 molecular compound with dinitrogen tetroxide, X-ray investigation, 379.
Dolichodial, natural, synthesis of the enantiomer of, 380.

E

Electrolytes, organic, ion-pair formation in aqueous solutions of, 220.
Epicycloclorenone, prep., 280.
Ergosta-3,6,22-triene, 3-acetoxy-5 α ,8 α -epidoxo-, alkaline hydrolysis, 183.
Esters, α -hydroperoxy-, 150.
Ethyl radical, addition to conjugated dienes, kinetic study, 81. radicals, structure of the transition state in the disproportionation and combination of, 304.

F

Fenton's reagent, action on acidic polysaccharides, 68.
Ferrocene substituents, displacement by protons, 177.
Fluorescence, delayed, from solutions of anthracene and phenanthrene, 147. delayed, sensitised anti-Stokes, 386.
Fluorine: $\cdot\text{CHF}\cdot\text{CO}\cdot\text{NH}_2$ radical, electron-spin resonance spectrum, 252. Hexafluorobenzene, new syntheses, 281. Osmium oxide pentafluoride, OsOF_5 , 277. Perfluoroalkyl-bismuth and -thallium compounds, 224.
Formaldehyde, inversion doublet interactions in, 248.
Formamide, light-induced addition to esters of maleic, fumaric, and acetylenedicarboxylic acid, 225.

G

Gallium: Trimethylamine-gallane and -trideuterogallane, vibrational frequencies, 249.
Gedunin (lactone), structure, 222.
Geigerin series, synthetic studies in, 112.
Germanium, tetrafluoride, co-ordination with nitrogen, phosphorus, oxygen, and sulphur donors, 20.
Gibberellic acid, structure and stereochemistry, 185.
(\pm)-Gibberic acid, total synthesis, 230.
Glauconic acid, stereochemistry, 385.
Gomphoside (cardiac glycoside), unique carbohydrate portion of, 214.
Grignard reagents, addition to $\alpha\beta$ -unsaturated ketones catalysed by copper salts, 356.

H

Haemanthamine, biosynthesis of, 80.
 Halogenomethyl radicals, energised, production of CF, CCl, and CBr through the decomposition of, 62.
L-Hamamelose and its epimer, prep., 181.
Hecogenin derivatives, photochemistry of: novel cyclisation reaction of C-seco-steroids, 225.

Herqueinone and atrovetin, structures, 352.
Heterocyclic rearrangement, new, 257.
Hexatriene, 1,6-diphenyl-, negative and positive ions of, 139.
D-Hexopyranoses, 2,3,4-tri-*O*-acetyl-1,6-anhydro-, proton magnetic resonance spectra: a long-range coupling, 382.
Hunterburnine, structure, 72.
Hunteria eburnea, occurrence of *N(b)*-epimeric quaternary alkaloids in: hunterburnine α - and β -methiodide, 355.
Hydrazoic acid solutions, nitrogen-forming reactions in the decomposition of, 142.
Hydride ion, abstraction from some σ -bonded iron-alkyl complexes, 74.
Hydrogen, atoms, rate of some reactions of, in water at 25° C, 223. exchange, electrophilic, in pyridine derivatives, mechanism, 114. "Hydrogen atom" formed by the action of ionising radiation on aqueous solutions, evidence for the unit negative charge on, 140.

Hydrogenation, of an olefin, improved platinum catalyst for, 337. of propionaldehyde with cobalt carbonyl as catalyst, homogeneous, kinetics and mechanism, 67.
Hydroperoxides, radiation-induced formation from olefinic compounds, 22.
 α -**Hydroperoxides** of ketones and esters by autoxidation in alkaline media, 279.
Hydroxylamine and its *O*-methyl derivative, reactions with carvone, 145.
Hydroxylation, aromatic: electrophilic character of the hydroxyl radical, and its significance in biological hydroxylation, 138.

I

Imines, dehydrogenation of amines to, 113.
Indenes, formation from aromatic tertiary acetylenic alcohols, 77.
Indoles, recognition of a general reaction of, 247.
Ion-pair formation in aqueous solutions of organic electrolytes, 220.
Ion-sieve properties of zirconium phosphate, 276.
Iron, carbonyl, binuclear complexes of $[(\text{RC}\equiv\text{CR}')\text{H}_2\text{Fe}_2(\text{CO})_8]$, geometry, 256. Iron-alkyl complexes, σ -bonded, abstraction of a hydride ion from, 74. Pentacyanonitrosylferrate(II) anion, 361.
Isophotosantonic lactone, stereochemistry, 111.
Isotopic analysis of oxygen in oxy-acids and their derivatives, infrared method, 109.

K

Keten, diphenyl-, unusual product from reaction of ethoxyacetylene with, 21.
Kolbe reaction, significance of the critical potential in, 121.

L

Light emission, stimulated, in organic molecules, 26.

M

Magnetic-dipole-allowed electronic transitions in polyatomic molecules, new criterion for, 137.
Manganese, unusual valency state in oleum, 23. tricarbonyl- π -pyrrolyl-, prep., 326.
Mercury, di-isopropyl-, dual mechanism in the pyrolysis of, 24.
Metals of Group IVB, organometallic systems of, metal-metal conjugation in, 300.
Methoxyl radicals, reactions with methyl formate: comparisons between alkoxy and alkyl, 295.
Methyl radicals, chlorine atom abstraction from methyl chloroformate by, 141.

- Methylene**, formation by the photolysis of diazirine (cyclo-diazomethane), 79.
Methylenedioxy-groups, origin in Nature, 340.
Molybdenum, dihydridodi- π -cyclopentadienyl-, molecular structure, 357.
Mycarose, absolute configuration, 254.

N

- Narcotine**, biosynthesis, 365.
Nickel, dichloronitrosyl-, 305.
 Nickel(II) chelates, tetrahedral, existence of, 255.
Nitration, substituent effects of the NH_3^+ and the NMe_3^+ group in, 228.
Nitro-compounds, reduction by triethyl phosphite: new cyclisation reaction, 361.
Nitrogen: Dinitrogen tetroxide-1,4-dioxan, 1:1 molecular compound, X-ray investigation, 379.
 NH radical, dissociation energy, 227.
 Nitric oxide, kinetics of reaction with hydrogen iodide [and dissociation energy $D(\text{H}-\text{NO})$], 75.
 Nitric oxide, reduction and oxidation in the system diethyl peroxide-nitric oxide: reactions of HNO , 354 (*Erratum*, 390).
 (NSF)₄, (NSCl)₃, and α -(NSOCl)₃, comparison of the bond lengths in, 387.
C-Nitroso-compounds, aromatic, deoxygenation of, 78.
Nucleoside synthesis, mechanism: pyrimidine $O \rightarrow N$ -glycosyl rearrangement, 298.

O

- Oestrone**, total synthesis, 356.
Olefinic compounds, radiation-induced formation of hydroperoxides from, 22.
Osmium, oxide pentafluoride, OsOF_6 , 277.
 Hydridobromocarbonyltris(triphenylphosphine)osmium(II), 333.
Overhauser effect, relative couplings between free radicals and hydrogen and fluorine nuclei by, 119.
Oxyanions of chlorine and chlorine dioxide, photochemical decompositions of aqueous solutions of, 141.
Oxygen: Oxide anions, ease of displacement from methyl groups: carbon basicities of anions of oxygen, 303.

P

- Palladium**: π -Allylic complex $[\text{PdCl}(\text{C}_3\text{H}_5)]_2$, crystal structure, 66.
Penta-1,2-diene, 1-chloro-3,4,4-trimethyl-, absolute configuration, 182.
Pentane-2,4-dione chelates, free-radical reactions, 328.
Peresters, reactions catalysed by copper salts, mechanism, 63.
Phenols, *meta*-substituted, fourteen-membered hydrogen-bonded dimers of, 219.
Phosphazenes, alkoxy-, conversion into 1,3,5-triazines, 340.
Phosphorus, pentaphenyl-, structure, 251.
 Alkyl phosphinates, mechanism of reaction with carbonyl chloride, 217.
 Cyclotriphosphazatriene, hexachloro-, reaction with piperidine in toluene, kinetics and mechanism, 390.
 Phosphoryl centre, transition state of a displacement at, stereochemistry, 307.
 P-N ring system, a trimeric, novel synthesis, 308.
Photoelectric thresholds and electron affinities of molecular crystals, calculations, 71.
 β -Pinene, photochemical synthesis, 245.
Planar stable molecule, $\text{N}(\text{BF}_2)_3$, prediction of, 351.
Platinum, complexes with phosphorus, nuclear-spin coupling constants and π -bonding in, 184.
 Dioxygenyl hexafluoroplatinate(V), $\text{O}_2^+[\text{PtF}_6]^-$, 115.
 Platinum(II), association in displacements at, kinetic evidence, 278.
 Tris(tri-*p*-fluorophenylphosphine)platinum(0), 218.
 Xenon hexafluoroplatinate(V), $\text{Xe}^+[\text{PtF}_6]^-$, 218.
Polysaccharides, acidic, action of Fenton's reagent on, 68.
Prostaglandin F_{2-1} , absolute configuration, 332.

- Pyrazolines**, prep. from tetracyanoethylene, 216.
Pyridine, mechanism of electrophilic hydrogen exchange in, 114.
 dihydro-derivatives, two novel rearrangement reactions, 122.
Pyrimidine $O \rightarrow N$ -glycosyl rearrangement: mechanism of nucleoside synthesis, 298.
1-Pyrroline 1-oxides, azo-, stable radicals derived from, 360.

Q

- Quinones**, extended, biosynthesis, 117.

R

- Radiation**, ionising, evidence for the unit negative charge on the "hydrogen atom" formed by the action on aqueous systems, 140.
Radicals, transient aryloxy and arylamino, electron-spin resonance spectra, 253.
Radiolysis of aqueous solutions, effect of alkali on the reducing species produced in, 381.
Reduction with hydriodic acid, rearrangement caused by, 118.
Rotational-vibrational energy transfer, 17.
Rubrenes, formation from aromatic tertiary acetylenic alcohols, 77.

S

- Santonin**, absolute configuration of the asymmetric centre at position 11 of, 151.
 α -Santonin, stereochemistry, 335.
Semiquinone, 2-*t*-butyl- and 2-*t*-[β - ^{13}C]butyl-, electron magnetic resonance spectrum, 136.
1,2-Shift, new type, 277.
Silicon: Nonacarbonyl(vinylsilicon)tricobalt, 82.
Spectra:
 absorption: tropyli (cycloheptatrienyl) radical, 339.
 electron magnetic resonance: 2-*t*-butylsemiquinone and 2-*t*-[β - ^{13}C]butylsemiquinone: model for carbon-carbon hyperconjugation, 136.
 electron-spin resonance: radical $\cdot\text{CHF}\cdot\text{CO}\cdot\text{NH}_2$, 252.
 aryloxy and arylamino free radicals, transient, 253.
 diazine radical anions, 60.
 ketyls of benzophenone, 229.
 electronic: azabenzene anions, 61.
p-nitroaniline, effect of solvent on, 78.
 infrared: trimethylamine-gallane and -trideuterogallane, vibrational frequencies, 249.
 nuclear magnetic resonance: Nuclear-spin coupling constants and π -bonding in platinum complexes, 184.
 ^{17}O -proton spin-spin coupling in water, direct measurement, 353.
 Determination of the relative signs of proton spin coupling constants from double-quantum spectra, 144.
 Signs of nuclear resonance coupling constants in saturated aliphatic systems, 213.
 nuclear resonance: Relative couplings between free radicals and hydrogen and fluorine nuclei by the Overhauser effect, 119.
 proton magnetic resonance: alkylcyclopropenes, carbon-13 splittings in, 152.
 D-hexopyranoses, 2,3,4-tri-*O*-acetyl-1,6-anhydro-: a long-range coupling, 382.
 ultraviolet: Inversion doublet interactions in formaldehyde, 248.
Steroids, *c*-seco-, novel cyclisation reaction: photochemistry of hecogenin derivatives, 225.
Substitution, homolytic aromatic, by radicals derived from sulphonyl halides, 186.
 nucleophilic aromatic, effected in organic solvents, copper-catalysed, 113.
 α -Sulphanuric chloride, 282.
Sulphur, new organic compounds of, novel reactions in prep., 18.
 $^{35}\text{Cl}(n,p)^{35}\text{S}$ reaction in alkali chloride crystals, influence of pre-irradiation treatment on the chemical effects of, 275.

Sulphur, (NSF)₄, (NSCl)₃, and α -(NSOCl)₂, comparison of the bond lengths in, 387.

RS⁻ ions, oxidation by electron-accepting species, 384.

Thiol anions, ease of displacement from methyl groups: carbon basicities of anions of sulphur, 303.

Trisulphides, nucleophilic displacements by thioanions on, 18.

Surface-potential measurements during the oxidation and subsequent reduction of nickel and iron films, 246.

T

Thallium, perfluoroalkyl derivatives, 224.

Thioanions, nucleophilic displacements on trisulphides by, 18.

Thiobenzophenone, 4,4'-dihydroxy-, monohydrate, crystalline, hydrogen bonding in, 302.

Tin: Aminostannanes, stannylamines, and stannazanes, 358.

1,3,5-Triazines, conversion of alkoxyphosphazenes into, 340.

Triterpenes: A 2,3-seco-triterpene in Nature, 27.

Tropine, reaction with benzoyl chloride and alkali: novel hydrogen transfer reaction, 19.

Tropone derivatives, convenient prep., 282.

Tropyl (cycloheptatrienyl) radical, absorption spectrum, 339.

V

Vibrational-rotational energy transfer, 17.

Vinyl polymerisation, activated initiation by metal carbonyls, 110.

X

Xanthopterin, biosynthesis, 151.

Xenon tetrafluoride, simple prep., 389.

hexafluoroplatinate(v), Xe⁺[PtF₆]⁻, 218.

Xylindein, structure, 327.

Z

Zinc: Di(histidino)zinc(II) pentahydrate, crystal and molecular structure, 178.

Di-(L-histidino)zinc(II) dihydrate, crystal and molecular structure, 177.

Zirconium phosphate, ion-sieve properties, 276.

Tetranitratozirconium(IV), a new volatile complex, 76.