SUBJECT INDEX

Volume 24, 1968

Abieslactone, structure and stereochemistry, 2859 Acacia gums, structures, 6967

Acanthasterol, 5831

Acenaphthenequinone, reaction with cyclic and acyclic triaminophosphines, 2275

Acetamide, N-methyl-, as a donor in C-T complexes, 3625

Acetic acid

addition to olefins, 561

a-phenethylsulphide, sulphoxide and sulphone derivs, prep and NMR spectra, 6197 trichloro-, reactions with enamines, 7

Acetoacetate, ethyl, reaction with maleic anhydride, 1199

Acetone, enamines, autocondensation, 6735, 6741 Acetones, substituted photochemical reaction with triethyl phosphite, 5739

Acetonitrile, alkylation, 175

Acetophosphides, 2995

Acetylacetone

B and Be chelates, 2499

boronium salts from, 1133

reaction with maleic and citraconic anhydride,

Acetylene, dicyano-, Diels-Alder adducts and their electronic spectra, 1529

Acids

carboxylic aliphatic, charge distribution and electric moments, 167

hydroxy, intramolecular acylation, 553

long chain hydroxy, gas chromatographic and mass spectrometric studies, 5929

stronger than acetic, vinyl interchange with vinyl acetate, 2205

nitric and trichloroacetic, complexes with alpha-trihalogenomethylamines, 513

unsaturated and brominated unsaturated, reduction of unsaturation, 1341

Acridines, (9-(a-hydroxyalkyl) 9,10-dihydro-, conversion into 5H-dibenzo[b,f]azepines, 1289 Acrylamides, dimerization, 5763

Acrylonitrile

a-acetoxy, reaction with ergosteryl acetate, 5215

a-chloro-, reaction with enamines and with dienamines, 3369

Activation parameters, addition of bromine to substituted stilbenes, 3799

Acyl fluoride, unsaturated, reaction with triethylamine fluorohydrate, 1341

Acviation

intermolecular, lactones, hydroxy acids and esters, 553 of cycloheptene, 545

of retroaldol cleavage, 2049

Adamantane

and derivs, oxidation to adamantanone by sulphuric acid, 5361

1,4-disubstituted, prep, 5369

Adamantanones, β -substituted optically active, circular dichroism and UV spectra, 4543

Adamantyl

carbonium ion, dehydrogenations, 6773 cation, hydride transfer reactions in sulphuric acid, 5361, 5369

Addition reactions

cycloaddition, azide-olefin, 349, 2757

1,3 cycloaddition of diarylnitrile imines, 3787 electrophilic, bromide to olefinic compds, 4733 substituted stilbenes with bromine, 3799

Michael, stereochemistry, 357

photosensitized addition of oxygen to various compounds between +20 and -150° . 6295

Adenine, a facile one-step synthesis from formamide and phosphorous oxychloride, 5731

Aezicerin, 30-oxo-, 1377

Affatoxins, production by Aspergillus flavus, 717 Aimalicine, zinc-acetic acid reduction, 5115 B-Alanine derivs, 6935

alicyclic, reaction with lead tetraacetate, 4947 aliphatic saturated, reaction with lead tetraacetate, 6959

optically active, synthesis, 3299

saturated, IR study of conformational heterogeneity, 4759

unsaturated, conformation and frequency shift by intramolecular O-H . . . π interaction, 1905

Aldehydes

o-hydroxy aromatic, condensation with methyl substituted N-heteroaromatics, 471

reaction with steroidal bicyclobutanes, 601 α,β-unsaturated, formation of cyano-enamines

or cyanoimines by the reaction with aaminoisobutyronitriles, 4677 Alder ene reactions, of acrylonitrile and a-

acetoxyacrylonitrile with ergosteryl acetate, 5215 Aldol-type condensation, dehydroacetic acid,

6897

Aldopyranoses, conformation, 289

Aldopyranosyl halides, acetylated, molecular rotations, 1559

Algar-Flynn-Oyamada oxidation of 2-carboxy-2'-hydroxy-chalkones, 3237

Alkaloids

amaryllidaceae, 2463 amaryllis, 2825

Aikaioius (continuea)	Ambrosia cumanensis, constituents, 5625
amurine and nudaurine, structures 4459	Amides
ciliaphylline, rhynchociline, specionoxeine,	N,N-disubstituted, reaction with phosgene
isospecionoxeine, rotundifoline and iso-	4217
rotundifoline, absolute configuration,	effect of non-bonded interactions on structure
523	6423
daphniphyllium, 5691	unsaturated, 1341
gentioflavine, structure, 1323	Amines
indole, configuration, 2681	autoxidation, 4649
jervine and 11-deoxojervine, configuration of	Cotton effect, 4299
C-9, 3461	3-phenyl-2-propynyl multi amines, synthesi
majdine and isomajdine, structures, 4641	and chemistry, 2767
mesembrine, synthesis, 6583	reaction with dichloromaleimides, 4051
methosalts, demethylation, 5493	
morphine, 255, 261	a-trihalogeno ethyl-, acceptor properties, 513
new, from Crotalaria mucronata, 6319	Amino acids, 4315 a-Amino acids, hypothalite induced oxidative
indole, 4223	
	decarboxylation, 687
quinoline type, 3011	Amino ketones, unsaturated, 4713
oxindole, NMR spectra, 6093	α-Amino nitriles, N,N-dialkyl and N-monoalkyl
Papaver nudicaule, 2297	formation by the reaction of aldehyde
quinazoline, from Glycosmis arborea, 1	and ketones with alkyl-a-amino nitriles
saracocine and saracodine, 7013	4677
steroid, veralkamine, 4865	ortho Amino phenols, by rearrangement, 999
tetrahydroisoquinoline, 5785	Amino phosphoranes, 2275
tetrahydro-β-zinc-acetic acid reduction, 5115	Aminolysis, kinetics, 2367
tuberostemonine, structure, 2631	Ammeline, from hydrolysis of melamine, 2701
synthesis of a structurally definitive indole,	Ammonium salts, quaternary demethylation, 549:
2645	Ammoxidation
Veratrum album, 6839	of ethylbenzene over chromium oxide, kinetic
Alkanes, branched, change of enthalpy between	of catalytic vapour-phase, 6277
anti-gauche-conformers, 6495	of toluene over chromium oxide, kinetics o
Alkenes	catalytic vapour-phase, 4881
evaluation of solvent effects, 6777	Amurine structure, 4459
from carboxylic acids, 2215	Amurolin, 2297
Alkyl	Amuronin, structure and stereochemistry o
chains, unsymmetric o-electron distribution in,	Papaver nudicaule alkaloids, 2297
5601	Amylose, conformation of O-methylated derive
halides, β-substituted, 3503	803
migration, induced by 70 eV electron impact,	Analysis diterpene hydrocarbons, quantitative by
3407	
Alkylation	gas chromatography-mass spectrometry
dehydroacetic acid, 6897	633
	Andrographis serpyllifolia, isolation and structur
of sulphur compounds, 6485	of serpyllin, 7027
Alkylcycloheptanes, syntheses, physical data,	5β -Androstanes, 2β -bromo-3-keto, synthesis, 297
6941	Androsten-5-one, optically active $(-)-17\beta$ -hy
Alkylcycloheptanols, tertiary, rearrangement to	droxy-△9(10)-des A-, total synthesis, 2039
6-membered ring olefins, 6941	trans-Anethole, photochemistry, 2183
Alkylcyclohexanes, C _f -C _g , synthesis, conforma-	Aniline, 4-chloro-, oxidation by peroxidase
tion and physical constants, 3607	mechanism, 585
(+)- and (-)-Alkylsulphinylacetates, prep di-	
cyclohexylammonium salts and correla-	Anilines, aminolysis of phenyl N-phenyl- carba
tion of sulphoxide configurations with	mates, 2367
(+)-S-methyl-L-cysteine S-oxide, 3747	a-Anilinoisobutyric acid, 575
Allo-gibberic acid, 8S,15-epoxide, rearrangement	Anions
73	of nitriles, activity in alkylation, 175
Allohimachalol structure, 3869	pyrrole, all valence SCFMO treatment, 4689
Allyl migration, photochemical, 3955	Anisatin
Alumina induced oxirane rearrangement, 5817	abnormal deshielding effect to a methine by
Aluminium hydride and chlorohydrides, 4489	neighbouring acetoxyl group in the NMF
Amaryllidaceas alkaloids, 759, 2465, 2825	spectra, 1267
aromatic contribution to rotatory power,	facile acetylation of a tertiary hydroxyl, 126
4460	structure 190

Anisatinic acid, isomerization product of anisatin, structure, 1255

Annonacae, structure of senepoxide and seneol, 1633

[10]Annulenes, 1,6-imino-, 1,6-methylimino-, and 1,6-ethyleno-, ¹H-NMR spectra, 7033

Anomeric effect

in 2-oxy-substituted tetrahydropyrans, 1707 remote effect of vicinal large groups, 6873

Anthocyanidins, electronic structure and spectra, 2255

Anthracene

and meso substituted derivs, photo-demerization, 3517

9-cyano-, 9,10-dicyano-, 9-methyl- and 9,10dimethyl-, 3517

9,10-diphenyl-, Diels-Alder adducts with dicyanoacetylene, 3241

Anthranilic acid, N-methyl-, reaction with cyanogen bromide, 5547

Anthraquinone, mono-substituted, electronic spectra, 933

Anthrasteroids

formylation of cyclic α,β - and β,γ -unsaturated ketones, 771

prep of anthraestrone and anthraequilenine derivs, 779

prep of 3-phenyl-2,4-diaza-anthraestranes, 789
Anthrone reaction with anthranol, 5311

Antibiotics, grifolin, 945

julimycin B-III, structure, 1765

stereochemistry, 4233
Apetalic acid, structure, 6411

Apoferredoxin, solid phase peptide synthesis, 4853

Araucaria imbricata diterpenes, C₁₈-configuration, 3417

Arborine, demethylation, oxidation, 1 Arbutin, galloyl deriv, synthesis, 4015

Aromatic compounds

benzenoid rings, fixation of double bonds, 6719 bridged, physico-chemical properties, 1171 overcrowded molecules, conformational analysis, 5917 sulphonation, 6543

Aromatic sextet, subdivision into 3 pairs of **-orbitals, one belonging to a double bond, 6719

Aromaticity

criterion for, 1215

of 4-pyrones, 923

Aroylation, dehydroacetic acid, 6897 Arundoin, structure, 735

Aryl halides, reduction to arenes, 3503

 α- and β-Aryl alkylamines, optical rotatory dispersion, 1327

Arylation, stereospecific, of olefins, 5791 α-Aryl ethyl series, ORD and CD studies, 5839 Arynes, 3717

n-Ascorbic acid, kinetics of autoxidation, 4057 Asymmetric induction

in Meerwein-Ponndorf reduction of α-phthalimido-β-substituted-propiophenones, 3053 Asymmetric induction (continued)

with (+) and (-)-diisopino-camphenyl boranes, 6365

Asymmetric synthesis, solvent effect, 2907

Atractyligenin, stereochemistry of atroctylanic acid, 2533

Aurone, 4',6-dihydroxy- and derivs, syntheses, 6-glucoside, derivs and isomers, syntheses, 4213

Autoxidation, 4649

of m-ascorbic acid, kinetics, 4057

Avicine, new synthesis, 1467

Azaaromatics, MO calculations for nucleophilic substitution, 3043

1-Azabicyclo[4.3.0]nonanes

configuration and conformation by PMR and IR, 2485

8-oxo-, configuration and conformation by NMR and IR, 1997

7-Azaindole-2,6-dione, 3,3a,4,5-tetrahydro-, prep and spectrum, 2583

Azapropellanes, 975

Azaridine formation, stereochemistry, 5677

Azasteroids, 845

6-Azasteroids, ring A-oxygenated, 845

Azcarpine, hydrolysis products and structure, 6417

Azetidinium salts, 2357

Azides

addition to olefins and dienes, 349 addition to unsaturation, 2757

Azimdiol, N-methyl-, 6417

Azimic acid, methyl ester, and hydrochloride, 6417

Azimine, structure and N,N'-dimethyl-deriv, 6417

Azimol, chloro-, N-methyl- malonyl-, N-methyl-, and diethyl ester, 6417

Aziridines

formation, 3681, 4605, 6177

by LAH reduction of dibenzo[a.c]cycloheptadien-6-one oxime, 1727 prep, 2757

Azomethinimines, from 1-alkyl-, and 1-aralkyl
3-pyrazolidones by dehydrogenation, 6809
8-Azonium tricyclol 2 2 1 12 8 noneme salts 8-

β-Azonium tricyclo[2.2.1.12,8]nonane salts, 8methyl, 2357

Azulene

1,6-dihydro-, synthesis, 2079

1-methylene-1,6-dihydrolactaro-, isolation, 2079

Bark beetles, (*Ips confusus*), synthesis of attractants, 4249

Barringtogenol B, new triterpenoid, 1113

Basidiomycete, Scleroderma aurantium, a triterpene metabolite from, 3949

Beam test, chemistry, 5615

Benzaldehyde

anil, photochemical hydrolysis, 3085

2,6-dimethyl-4-methoxy-, reaction with MeMgI, 2091

Benzaldehyde (continued)

substituted, coordination complexes with chromic chloride, 6999

Benzene

1,2-dihydroxy-3, 5-dimethoxy-, 6527 hydrogenation of phenylcyclohexane, 4525 induced shifts of methoxyl resonances, 1407

Benzenoid rings, fixation of double bonds, 6719

Benzil, reaction with trisdimethylaminophosphines and with derivs of the 1,3,2-diazaphospholane ring system, 2275

Benzimidazoles

from nitro comps by reduction, 4581 mass spectra, 1875

3H-Benz[g]indoles from 1-naphthylisocyanide and aliphatic ketones, 6663

5,6-Benzochrysene from photocyclization of 1,3-distyrylbenzene, 6845

1:12-Benzocoronene, NMR spectrum, 2817

Benzocycloheptatriene, prep of 7-methyl ether and reaction with McMgI, 609

Benzofuran

5,6-dimethoxy-2-isopropenyl- from *Ligularia* stenocephala, 2177

2-phenyl-2,3,4,5,6,7-hexaphydro-, prep from enamines and styrene oxide, 3671

Benzofurazan

4-amino-5,7-dinitro deriv, 6145

oxide, 7-ethoxycarbonamido-4,6-dinitro deriv, rearrangement into 5-ethoxycarbonamido-4,6-dinitro deriv, 6145

4-ethoxycarbonamido-5-nitro, 6-ethoxycarbonamido-5-nitro, 7-ethoxycarbonamido-4,6-dinitro and an aminodunitro deriv, 6145

Benzoic acid, reaction with phenyl glycidyl ether, 6433

Benzonitrile

formation, from ethylbenzene by ammoxidation, 6277

from toluene by ammoxidation, 4881

1:12-Benzoperylene

3,10-dimethyl-, synthesis, NMR spectrum, 2817

from photocyclization of 1,4-distyrylbenzene and 3-styrylphenanthrene, 6845

3-methyl- and 4-methyl-, syntheses, NMR spectra, 2817

NMR spectrum, 2817

1:12-Benzoperylene-4-aldehyde, synthesis, 2817 Benzo[c]phenanthridines, synthesis, 1467

Benzophenones from diethynylketones, 4285

5-Benzolci phenoxazones, 7-substituted-12a-hydroxy- or 12a-methoxy-, 3725

Benzopyrylium salts

perchlorates, derivs, 5029, 5037 synthesis involving hydride transfer, 949 Benzo(f)quinolines, NMR spectra, 3069

Benzo(a)quinolizines, prep of derivs, 4713

Benzoquinone, 2,3-dichloro-5,6-dicyano-, dehydrogenation of saturated steroidal lactones, 2851 p-Benzoquinones, substituted from dialkylphenols, 5145

Benzothiazole

derivs, synthesis, 471

2-o-hydroxystyryl, 5023

reactions with thiols, 6791

2-sulphenamides, N-cyclohexyl-, thermal decomposition, 6791

Benzothiazolium ethylsulphate, 2-(2-hydroxy-1naphthyl)vinyl-N-ethyl and derivs, 5017

N-Benzothiazolylcyclohexylamine, new synthesis,

Benzo(b) thiophene 1,1 dioxide, self-condensation,

Benzothiophene sulphone, 2-deutero-, prep and mass spectrum, 3255

1,2,5-Benzotriazepine, 4-keto, 1*H*-4,5-dihydroand derivs, synthesis and chemical behaviour, 6395

Benzotropenium ion, reactions with MeMgI and NaOMe and reduction with LAH, 609

1H-2,3-Benzoxazine, 4-chloro-, 4-bromo-, 4-methylthio- and 4-carbamyl derivs, synthesis, 4923

1H-2,3-Benzoxazine-4-carboxylic acid, prep and derivs, 4923

4H-3,1-Benzoxazinones, 2-(2-ureidophenyl)-, 5529

Benzoyl nitrate, free radical decomposition, 4913 Benzoylacetone

B and Be chelates, 2499

boronium salts from, 1133

Benzyl cyanide

deuterated cyanotropylium ion, 1435 3,5-dihydroxy-, synthesis, 2289

Benzyl hydroxymethylsulphone, product of hydrolysis of benzylsulphonyldiazomethane, 1737

Benzyl methyl ketone, photoinduced reactions, 1617

Benzyne

addition of vinyllithium reagent, 5791 and substituted derivs, 3717, 4589 intramolecular hydride transfer, 6223

Bergapten from Seseli sibiricum, 3247

Bervllium chelates, NMR spectra, 2499

Bianthraquinonyl pigment, from streptomyces metabolites, 1765, 4233

Bicyclic systems, NMR studies of conformational equilibria in bicyclic tetrahydropyridazine and piperidazine systems, 123

Bicyclobutane

bonding, 1083

intermediates in the photolysis of transdienes, 4437

reaction with carbonyl compds, 601 thermal rearrangement, 1083

Bicyclo[2.2.1]-2-heptene, 1,2,3,4,7-hexachloro-5endo-acetoxy, reduction, 6007

Bicyclo[3.1.0] hex-2-en-4-one, 1,3,6-triphenyl-6-acyloxy-, 5385

Bicyclo[3.2.1]octane, 2-phenyl-4(N-pyrrolidinyl) 8-oxo- and methiodide, 3337

Bicyclo[3.2.1]octan-7-one derivs, synthesis, 6653 Bicyclo[3.2.1]oct-2-ene derivs, PMR, 2927

Bicyclo[3.2.1]octenyl bromide, metal hydride reduction, 2921

Biogenesis

relationship between some gentiana alkaloids, 1323

simple 4-quinazolones, 1

Biphenyl from reaction of benzoyl nitrate with benzine, 4913

Biphenyls

acetoxy- and hydroxy-, synthesis, 2289 2-chloro-2'-iodo-, 3717

difluoro-, 6883

doubly bridged, rates of inversion of NMR, 2377 substituted and bridged, synthesis and spectroscopic properties, 2795

Biscycloalkeno[a,c]benzenes, 2307

1,4-Bis[a-diazobenzyl]benzene, reaction with sulphur dioxide, 3267

Bis(1,3-diketonate)boronium salts prep, IR and UV spectra, 1133

Bisflavenylidenes, from flavylium salts by reduction with metals, 2801

1.4-Bis[a-methoxysulphonylbenzyl]benzene, formation, 3267

1,5-Bismethylenecylooctane, 3445

Bis-1.2.4-oxadiazoles, electronic structure, 485

1,2-Bis[2-(1,3-oxazolidine-4,5-dione)] ethanedilylidene, prep and reaction with hydrazine, 2583

1,4-Bis[α-sulphobenzyl]benzene, formation, 3267 [2',2''-Bithienyl-(5')]-butadiene, synthesis, 1899

Bond angle, relation of cyclic and bicyclic olefins and oximes, IR stretching frequencies, 381

Bond indices 1083

Bonds

double, fixation, 1215

p for C—C, C—H, B—B and B—H, 4595

Borates, cyclopropylcarbinyl, thermal and BF3 catalysed rearrangement, 6339

Boretane, calculation of geometry and energy,

Bornane derivs, NMR, long range coupling and solvent shifts, 1663

Boron

chelated bis(1,3-diketonate)boronium salts with acetone, benzoylacetone and dibenzoyl-methane, 1133

boron bonds, 4595

heteroaromatic compds, mass spectra, 6755 tribromide, demethylation of ethers, 2289

Bostrycoidin, 4745

Bridged ferrocenes, conformational properties of [m]ferrocenophanes, 6111

Bridged ions, 4595

Bromination, enzymatic, of a-hydroxymethylene keto steroids, 2979

Bromotoluenes, isomerization under the influence of Al-Br-.HBr, 1835

Brucine, conversion from strychnine, 4573

Butan-2-ols, 1.2-diaryl-4-dimethylamino-, elimination, 3031

1-Butenes

1,2-diaryl-4-dimethylamino-3-methyl-. figuration, 3031

3,3-dimethyl-electrolysis of potassium acetate in the presence of, 1163

2-Butenoic acid-y-lactone. 4-acetamido-4hydroxy-, synthesis from 4-bromo-2butenoic acid-y-lactone and acetamide, mass and NMR spectra, 1225

Cacalia decomposita constituents, 477

(\pm)-Callitrisic acid, synthesis, 6573

Calophyllum brasiliense, isopentenylated xanthones from, 1601

Calophyllum scriblitifolium Hendersin and Wyatt-Smith, extractives, 3059

Camphanols, oxidation with Pb1V acetate, 3201

Camphor amino, reaction with nitrous acid, 4353

transformations, 1655 D,L-Cannabichromene, synthesis, 4825

Cannabidiolic acid, esterified with a tetrahydrocannabitriol, 5379

Cannabinoids, 5615

Cannabinol, tetrahydro isomers, synthesis, 2897 Cannabitriol, tetrahydro-, alcoholic moiety of a

dimeric hashish constituent, 5379 Carbamates, phenyl N-phenyl-, aminolysis, 2367 Carbanions, stability, 459

Carbenes

dibromo-, reaction with △3-carene, 6075 stable, chloromethyllithium and bromomethyllithium, 4343

7-chloro-7-norcaryllithium, 4327

Carbenoid reactions, asymmetric induction in, 3655

Carbohydrates, 2125

PMR spectra, 4517

 β -Carbolines, 2591

tetrahydro-, 403

Carbonates, cyclic, mass spectrometry, 2949

Carbonium ions

classical, the ground state of cyclobutyl ion, 2063

electrolytically produced, 1163 ethyl ion, 4595

Carbonyl compds, o-hydroxy-, NMR spectra, 1869

Carbostyril, 4-phenyl-3,4-dihydro- and derivs, 5595

△3-Carene

reaction with CBπ₂, 6075

stereochemistry of electrophilic substitution,

△4-Caren-2-one, 3-methyl-, rearrangements, 247 Carpaine, structure and N,N'-dimethyl- deriv,

Carpamic acid and N-methyl-, methyl esters, 6417

Casein peptides, L-val-L-asp-L-glu-L-glu-L-glu-L-glu-L-lys synthesis by the Merrifield method, 6619

Catafusenes, 2505

Catalysis

bifunctional, mutarotation of tetrameythl glucose, 6643

copper salts, with peroxides, 5099

Catecholtripheno xyphosphorane, 5041

Cations

energy of, 1083

nonclassical, calculations on cyclobutyl cation, 2063

trimethylpyrylium, proton transfer to pyridine, 4741

8.S.14-Cedranediol, 3399

8.14-Cedranolide, 3399

8,14-Cedranoxide, 3399

8-Cedren-13-ol, 3399

Cedrolic acid, 3399

Chamazulene

5,6-dihydro-, isolation, 2079

3,6-dihydro-, isolation and structure detn, 2079

Chamazulenogen, structure, 2079

Charge distribution

and electric moments of aliphatic acids, 167 in naphthoxazoles and naphthiazoles, 5569

Charge-transfer

complexes of amides, 3625

in organic reactions, 5509

interaction of dithienyls and cyclopentadithiophenes, 3881

Chelates of B and Be with diketones, 2499

Chemical shifts, proton, in carbohydrates, 4517

Chinolizidines, 1-hydroxy derivs, configuration and conformation, 6813

Chinoxalino[2·3·b]chinoxalin, radical anion, 1843 Chiral spiran with a twofold axis of symmetry, 6977, 6983

Chlorination

of 2,2'-bipyridyl, 5633

of phenols to cyclohexenone derivs, 6265

Chlorpromazine, 4267

Cholanic acid and derivs, C-nor-D-homo-rearrangement, 2789

Cholesterol, microbial hydroxylation of side chain, 1595

Cholic acid, transformation by mycobacterium N 1210, 2145

Chroman salts, synthesis involving hydride transfer, 949

Chroman-7-one, 4a,5,6,7-tetrahydro-, synthesis, 2495

Chromatography

gas, of indoles, 2227

quantitative analysis, 633

gas-liquid, applied to structure determination of *Acacia* gums, 6967

Chromenes

natural, in Wars, 497 synthesis, 4825 Chromic chloride, coordination complexes with aromatic aldehydes, relevance to Etard's reactions, 6999

Chromophores, optically active aromatic, 5519, 5839

Chromous complexes, as reducing agents, 3503 Chromyl chloride

kinetics of oxidation of substituted toluenes, 389

oxidations, decalines, 4667

Chrysene, derivs, 4373

a-Chymotrypsin action, general base-general acid mechanism, 3453

Cinnamanilide and nuclear substituted derivs, cyclization, 5595

cis-Cinnamic acid, synthesis, application of a specific method, 3589

Circular dichroism

and optical rotatory dispersion, 5469

in the a-arylethyl series, 5839

measurements of optically active aromatic chromophores, 1231

of N-chloropiperidines, 99

of limonoids, 3273

of some 1-keto-steroids, 5169

of some A-secosteroids, 2899

of substituted adamantanones, 4543

Citraconic anhydride, reaction with acetylacetone, 1199

Clausena dentala, coumarins, 753

Coclaurine

3',5'-di-t-butyl- and N-alkyl derivs, synthesis and dehydrogenation, 103

hydrobromide, structure, conformation, 5785

Codaphniphylline, structure, 5691

Codeinones, 14-alkyl-, reduction by sodium borohydride, 1829

Coenzyme A analogs, α-carboxy-, 3'-dephosphoα-carboxy-, α-methyl-, β-methyl-, homocoenzyme A, synthesis and activity in the phosphotransacetylase system, 5241

Coenzyme-I, reduction of quinoline analogs of model compds, 1923

Configuration

absolute, ciliaphylline, rhynchociline, specionoxeine, isospecionoxeine, rotundifoline and isorotundifoline, 523

coclaurine, 5785

diastereoisomeric methodides, 2463

 (\pm) -7,7a-dihydro-1β-hydroxy-7aβ-methyl-5 (6H)-indanone, 2039

fusidic acid methyl ester, 3-p-bromobenzoate, 909

(+)-1-(3-trifluoromethylphenyl)-2-ethylaminopropane and (+)-1-(3-trifluoromethylphenyl) 2-aminopropane, 1283

and conformational studies by NMR and IR, 4423

hindered lone pair, in 5th group elements, 2995 isomeric hydroxychinolizine derivs, 6813 oxetanodihydrofurans, by NMR pseudocon-

tact shifts, 1299

Configuration (continued) tertiary alcohols in 17 alkyl estradiol and 17 alkyl 19 nortestosterone series, 2339 Conformational analysis, 3347, 3557, 3361, 3907, 3923 alcohols by IR, 4759 Conformational analysis (continued) aldopyranoses (theoretical), 289 aliphatic diazoketones, by dipole moments, 4751 and frequency shift, by intramolecular O H.. π interaction in olefinic alcohols, 1905 N-aryl lactams, 1237 axial and equatorial steroid 17-thiols, 1441 behaviour of dihydro-1,4-thiazines, 2985 1,8-diazabicyclo[4.3.0]nonanes, by NMR and IR, 6327 enthalpy of Me- and Et-group in cyclohexanes, 6495 ethyl-, isopropyl-, and benzyl-groups in 3Hindoles, 6825 [5]ferrocenophanes, 3219 [m]ferrocenophanes, 6111 gafrinin, 1701 Griesenin, dihydrogriesenin and derivs, 6045 3-halogeno- and trans-3,4-dihalogenotetrahydrofurans, 3019 halogeno-tetrahydrofurans, 3019 A-homo-B-nor and A-nor-B-homo steroids, 5337 isomeric hydroxychinolizine derivs, 6813 isomerization of hexahydropyrimidines and hexahydro-s-triazines, 829 O-methylated amylose and cyclodextrins, 803 NMR study of rate processes, in bicyclic tetrahydropyridazine and piperidazine systems, 123 in di-, tetra- and hexahydropyridazine systems, 137 non-aromatic ring compds, 4967 octahydropyrido[1.2-c][1.3]oxazines by NMR and IR, 4423 of overcrowded aromatic molecules, 5917 8-oxo-1-azabicyclo[4.3.0]nonanes by NMR and IR, 1997 2-oxy-substituted tetrahydropyrans, 1707 perhydrodipyrido[1.2-c; 2'.1'-e]imidazoles by NMR and IR, 4411, 6625 pulegone oxides, octant rule reversal, 4933 relation of physical constants of alkylcyclohexanes, 3607 remote effect of large groups on anomeric effect in tetrahydropyrans, 6873 ring D in steroids, 13 A-seco-steroids, 2899 3,3'-spirobi[benzo-[2H.4H]-[1.5]-dioxepine] ring system, 6983 8 thia-1-azabicyclo[4.3.0]nonanes, 2485 Conjugate addition, dehydroacetic acid, 6897

Conjugated 14-membered ring system, synthesis,

Constitution, tetranortriterpenoids, 1489, 1507,

1397

1517, 1525

```
Cope reaction on germacranolides, 4091
(—)-Corbasil, absolute configuration, 3499
Coriose, structure and some reactions, 6907
Cotton effect, 4315
  of amines, 4299
  of some A-secosteroids, 2899
  of substituted adamantanones, 4543
Coumarin
  6-hydroxy-7-methoxy-4-(3-hydroxy-4
       oxyphenyl) new, from Dalbergia baroni,
       Baker, 2617
  7-methoxy-5-acetoxy-4-(p-methoxyphenyl).
       6527
Coumarins of Clausena dentata, 753
Coupling constants
  geminal, in methylene groups adjacent to O
       and N atoms, 2385
  in -S-CH2-groups, 1989
  proton-proton, in carbohydrates, 4517
Cryptopine, some derivs, chemistry, 1455
Crystal structure of fusidic acid methyl ester,
       3-p-bromobenzoate, 909
Cumambrins, isolation and structure, 5625
Cyanine dyes, cis-fixed, prep and electronic
      spectra, 6685
Cyano carbons as stabilizing groups for stable
       free hydrozyle radicals, 1063
Cyanovinylation of alkylmalonic esters, 1851
Cyasterone structure, 4895
Cycad, aflatoxin production of A. flavus, 717
Cyclamen europaeum I
  sapogenins, 1377
  triterpenes, 5649
Cyclamigenins A1, A2, C and D, 5649
Cyclamigenin B, structure, 1377
Cyclization
  intramolecular, in aliphatic saturated alcohols,
  of geraniolene (2,6-dimethyl-1,5-heptadiene)
      and some phenyl derivs catalysed by
      H<sub>2</sub>SO<sub>4</sub> and BF<sub>3</sub>, 2155
  of 14,15,16-trisnor-labd-8(17)-ene-6a, 13-diol,
      yielding 6α- and 6β-hydroxy-8,13-oxido-
       14,15,16-trisnor-labdane, 1357
  with titanous chloride, 4581
Cycloadditions see under Addition reactions.
Cycloalkanols, reaction with lead tetraacetate,
Cycloalkenobenzenes, conformations, 2307
Cycloalkylation, of aromatic derivs of geraniolene
      (2,6-dimethyl-1,5-heptadiene) by catalysed
      H<sub>2</sub>SO<sub>4</sub> and BF<sub>3</sub>, 2155
Cyclobutadienes
  condensed, MO calculations, 6215
  1-ethyl-2,3-dimethyl-irontricarbonyl, prep and
      spectral data, 4861
  structure and electronic spectra, 2401
Cyclobutanone, calculation of the geometry and
```

energy, 2063

tronic spectra, 2401

Cyclobutene, dimethylene-, structure and elec-

Cyclobutyl cation, 1083

calculation of the geometry and energy, 2063 58.78-Cyclocholestane. 4437

Cyclodecapentaenes, 1,6-bridged, NMR-spectra, 7033

Cyclodehydration of keto pyridines, 4083

Cyclodextrins, conformation of O-methylated derivs. 803

Cyclododecanones, 2937

1,3-Cycloeliminations, of **2,5-diaryltetrazoles**, 3787

Cycloheptanes, dimethyl-, cis-trans, syntheses, conformation, physical data, 6941

Cycloheptanols

cis and trans 2-t-butyl, 4403

2-, 3- and 4- t-butyl derivs and 3,3,5- and 3,5,5-trimethyl derivs, 4403

Cycloheptanone, cis-2,7-dichloro-conformation, dipole moments, IR and UV spectra, 65

Cyclohepta-1,3,5-trienes, 7-monosubstituted, ¹H-NMR-spectra, 5665

2-Cycloheptatrienylideneindane, synthesis, 1945 Cycloheptene, intermolecular acylation, Wagner Meerwein rearrangement, 545

Cyclohexadiene, kinetics of the formation of the endoperoxide, 6295

2,4-Cyclohexadienones, 2,4,6-trialkyl-6-acetoxy-, photochemical reaction, 6157

2,5-Cyclohexadienones, 4-hydroxy- and 4-acetoxy-, photochemical reaction, 6167

Cyclohexane-1,2-diol, 1-phenyl-4-t-butyl-, diastereoisomers, 1755

Cyclohexane-3-one, 1-(2,2,6,6-tetramethyl-4-oxocyclohexyl)-5,5-dimethyl- from acetone enamines, 6741

Cyclohexanes, di- and trialkylsubstituted, enthalpies and entropies of cis-transisomerizations, 6495

Cyclohexanones, substituted, reduction, 5399 Cyclohexene oxide, cis and trans 1-phenyl-4-tbutyl, 1755

Cyclohexenone derivs, via chlorination of phenols, 6265

Cyclonucleosides, purine, with 8,2-O-anhydro linkage, 3489

Cyclooctanes, 1,5-bismethylenecyclooctane, 3445 Cyclooctanone, absence of transannular Hbonding in, 4257

Cyclooctyl tosylates, stereochemistry of solvolysis, 4699

Cyclooctylamines, stereochemistry of deamination, 4699

Cyclopentadiene, kinetics of the formation of the endoperoxide, 6295

Cyclopenta-1,3-dien-1-ol, 3,5-diphenyl-2-benzoyl, 5385

Cyclopentadienone

3,5-diphenyl-2-benzoyl, dimer, 5385 phenyl-substituted, by oxidation of phenylsubstituted resorcinols, 4393 tetraphenyl-, reactions with azynes, 4589 Cyclopentadithiophenes

charge-transfer interaction, 3881 synthesis, 3381

Cyclopentane geometry occurring in steroid-like compds, 13

1-Cyclopentenecarboxylic acid, 5-hydroxy-2methyl-3-oxo, methyl ester, preparation and characterization, 5421

Cyclopentenones from diethynylketones, 4285

Cyclopiazonic acid, metabolite of Penicillium cyclopium, 2101

Cyclopropanedimethanol, trans-α,α,α',α'-tetramethyl-, methanolysis, 729

Cyclopropanes, novel synthetic route from olefins, by reaction with dialkylzinc and methylene iodide. 53

Cyclopropanones

addition of acids and bases, 6029

2,2-dimethyl-, methyl-, and tetramethyl-, 6017, 6029

synthesis, 6017, 6029

Cyclopropyl ketones, base-catalysed deuterium exchange, 6287

Cyclopropylcarbinyl

carbonium ions, rearrangement, 6339 cation, 1083

a-(p-substitute phenyl)-p-nitrobenzoate, solvolysis, 421

Cyclopropyldiazomethane, prep and reactions, 2881

Cyclopropylmethyldiazotate, prep and reactions, 2881

Cyclo-oct-3-enone, (-) 3,4,7-trimethyl-, synthesis from pulegone, 4353

3,5-Cyclo-6-oxosteroids, 7-methylated, stereochemistry and spectroscopy, 4041

3,5-Cyclosteroids, 7-methylene-6-oxo-, 7α-methyl-6-oxo- and 7β-methyl-6-oxo-, 4033 5β,7β-Cyclosteroids, 4437

Cylindrin, structure, 735

Cynanchogenin, structure, 4143

Cyperus, identification of ketones, NMR and mass spectral examination of the 2,4-dinitrophenylhydrazones, 3891

L-Cysteine S-oxides, (+)-and (-)-N-acetyl-Salkyl-, correlation of sulphoxide configuration with (+)-S-methyl-L-cysteine S-oxide, 3747

Dalbergia baroni, structure of melannein, 2617 Daphniphylline structure, 5691 Decalins

distortion of chair conformations in closure of lactones, 5769

9-methyl-, acid-catalysed migration, 3753

Decarboxylation of α-amino acids, 687

3,3,3-Decastarphene, synthesis, UV spectrum, 6719

Dehalogenation, reductive stereochemistry, 6007
Dehydroacetic acid, condensations at 6-methyl position, 6897

Dehydroascorbic acid by autoxidation of L-ascorbic acid, 4057

Dehydrocyclization, o organic compds by iodine, 4833

Dehydrocycloguanandin from Calophyllum brasiliense, 1601

Dehydrofuropelargones, 2055

synthesis of enamines, 2049

Dhydrogenation, of organic compds by iodine,-4833

Dehydropeltogynandiones, synthesis, 3237

6-Dehydroxyjacareubin from Kielmeyera speciosa and Calophyllum brasiliense, 1601

Demethylation, of quaternary ammonium salts, 5493

5-Deoxy-5-thio-D-xylose derivs, 1973 Deuterium

exchange, base-catalysed, cycloalkyl methyl ketones, 6287

isotope effects, 1247

in abstraction from benzaldehyde, 4793

labelling, allyl derivs, 3955

phosphoranes, 3289

pyridine and pyridine carboxylic acids, 2269 study, 3965

vobasine-type compds, 4177

mass spectrometry, 2809

Diastereoisomers

by NMR spectra, 3053

methiodides in the lycorine-type alkaloids, 2463

Disastereoisomerism of 2'-O-tetrahydropyranyl derivs of uridine and adenosine, 639

1,8-Diazabicyclo[4.3.0]nonanes, and configurational and conformational studies by NMR and IR, 6327

1,4-Diazepino[1.2.3.4-lmn] 1,10-phenanthrolinium dibromide, 5H-6,7-dihydro-, synthesis and herbicidal activity, 5433

Diazo compounds

aliphatic, rate constants of proton transfer in hydrolysis, 59

salt effects in acid-catalysed hydrolysis, 59 cyclopropyldiazomethane, 2881

decomposition, homogeneous catalysis by dissymmetric copper chelates, 3655

reactions with azodibenzoyl or azodiacetyl, 1011

Diazo ketones, aliphatic, dipole moments, 4751 1,2,4-Diazolyl-ethylenes, electronic structure, 485 Diazomethane, dideutero-, reaction with allene, methylene cyclopropane and vinylcyclopropane, 6863

Diazonium ions

displacement of nitrogen by intramolecular hydride transfer, 6223

intermediates in acid-catalysed hydrolysis of a-diazosulphones, 1737

a-Diazosulphones, mechanism of the acid-catalysed hydrolysis, 1737

Diazotate salts, cyclopropylmethyl, 2881

5H-Dibenzo[b.f]azepines

7-chloro-5-methoxy-, prep and props, 1289 from 9-(a-hydroxy alkyl-9,10-dihydroacridines, 1289

Dibenzo[a.h]quinolinizines, attempted prep, 2517 Dibenzothiophene

dioxide and related compds, decomposition in molten alkali, 1311

octafluoro-, synthesis, nucleophilic substitution, ¹⁹F NMR spectrum, desulphurization, 3997

Dibenzoylmethane

B and Be chelates, 2499

boronium salts from, 1133

Dibenzylketoxime and its O-substituted derivs, 6177

Diborane

model for C₂H₅+, 4595

reducing agent for acyl and formyl indoles and pyrroles, 1145

Dichlorocarbene ¹⁴C, 491

Dichroism, study of the nitrone chromophore, 6747

Dicyanoacetylene, double addition to 9,10diphenylanthracene, 3241

Dicyclohexlcarbodiimide, reactions, 6935

Dielectric constant, as factor affecting reaction between benzoic acid and phenyl glycidyl ether, 6433

Diels-Alder

adducts of dicyanoacetylene and their electronic spectra, 1529

reactions, between ergosteryl acetate and maleic anhydride, 297

between styrene and trans, trans hexa-2,4diene, 1025

between styrene and methyl sorbate, 5711

of dihydro- aromatic compds, 4535 theory, 2575

Dienamines

of isophorone, reaction with dienophiles, 1445

reaction with a-chloroacrylnitrile, 3369

Dienes, optical activity, 5803

synthesis, with nitroso compounds, orientation in, 1043

unsymmetrical, 2575

trans-Dienes, photochemical conversion to B-isteroids, 4437

Dienophiles

reaction with dienamines isophorone, 1445 unsymmetrical, 2575

Diequatorial diols, prep, 5701

1,8-Diethynylnaphthalene, synthesis, 1397

Digitanol glycosides, 4359

Di-n-hexynylketone, polyalkyne, addition to, 4285

Dihydroaromatic compounds in Diels-Alder reactions, 4535

(-) and (+)-Diisopinocamphenyl boranes asymmetric induction, 6365

a-Diketones	Distemonanthin
new synthesis, 2419	analogues, synthesis, 3237
reactions with triaminophosphines, 2275	tetramethyl ether, synthesis, 3237
β-Diketones	Distortion energy, 3517
B and Be chelates, 2499	Diterpenes
boronium salts from, 1133	alkaloids, NMR, 2019
enolic, photochemical reaction with cyclo-	from Araucaria imbricata, C13-configuration
olefins, 1821	3417
NMR spectra, 1869	from Goodenia ramelii, 795
Dimedone, 4315	from Sideritis sicula, 4073
Dimerization of acrylamides, 5763	lactones, synthesis, 3113
Dimroth rearrangement, of unsubstituted amino-	
pyridines and their nitro and benzo	tetracyclic, synthesis, 3095
analogs studied with ¹⁵ N, 441	Diterpenoids
Dinucleotide	from A. imbricata β -(R)-configuration at C ₁₃
	3417
diphosphates, prep, 2537	heterolytic fragmentation of bromo derivs
phosphates, synthesis, 2'-O-acyl ribonucleo-	4631
sides as intermediates, 3533	synthesis, 5959
Dioscorea tokoro, steroidal sapogenin of female	tetracyclic, chemistry, 2527, 2533
flowers, 6535	Dithienyls, charge-transfer interaction, 3881
Diosgenin, synthesis, 899	Dithiocarbamoyl, 6485
1,3-Dioxalanes, NMR spectra and dipole	Duff reaction, kinetics and mechanism, 5001
moments, 4377	Dyes, cyanine prep and electronic spectra, 6685
1,3-Dioxans, 5,5-disubstituted, NMR, 4559	
1,3,2-Dioxaphospholes, with pentavalent phos-	E ₂ reaction of p-substituted- β -phenylmercaptor
phorus, 1785, 3153	chlorides and oxygen analogues, 5721
Dioximes isomeric, from 3-methyl-4-hydroxy-	Echinoderm pigments, electronic spectra, 6053
imino-isoxazolin-5-one, structure, 395	Echinoid pigments, 2969
Diphenic acid derivs, mass spectrometry, 3407	Electrolyses, controlled potential, of aliphatic
Diphenyl ethynyl ketone, alkyne addition to,	tertiary nitro compounds in acetonitrile
4285	1717, 5075
2,2'-Diphenyl sulphide, diquaternary salts, prep	Electron affinities of polynuclear acceptors, 721
and evaluation as herbicides, 2697	pi-Electron densities and amino proton shifts
Diphenylamine, 4,4'-dicarboxylic acid, halogena-	3595
tion, 6449	Electron diffraction, 2425
Diphenyldiazomethanes,	Electron-rich, three center bonding, 5899
correlation between half-wave potentials and	Electronegativity, 459
	Electrophilic substitution, in indoles, 403
rate constants, 5123	Electrostatic control of stereoselectivity and in
polarographic oxidation, 5123	
Diphenylmethane , 4,4'-dihydroxy-(2-pyridyl)-,	carbanion reactions, 2907
new synthesis, 619	Elimination, of aryl groups during Friedel
Diphenylurea, formation, 2367	Crafts cyclization, 5595
Dipole moments	of nitriles from 4-benzylideamino-1,2,4-tri
of aliphatic diazoketones, 4751	azoles, 1031
of 2-substituted 1,3 dioxalanes, 4377	reductive, with Cr ¹¹ complexes, 3503
of 5-substituted isoxazoles, 151	Elm, lignan from heartwood, 1475
Dipyrido [2.1-b:1'.2'-f]1,3,6-thiadiazepinium di-	Empirical calculations, aromatic chromophore
bromide , 6,7-dihydro-, prep and evalua-	5469
tion as a herbicide, 2697	Enamines,
6H-Dipyrido[2,1-b:1',2'-e]-1,3,5-thiadiazinium di-	basicities, 185
	a-chloro-β-chlorocarbanyl-, formation, 4217
bromide, prep and evaluation as a herbi-	hydrogenolysis, 4489
cide, 2697	Michael reactions with nitroolefins, 1187
Di-ribonucleoside phosphates, synthesis from	of acetone, autocendensation, 6735, 6741
2'-O-tetrahydropyranyl-5'-O-pivaloyl-uri-	of cyclohexanone, reaction with nitropropenes
dine and -adenosine, 639	1889
Disproportionation	photochemical reactions with benzophenone
of 1- and 2-hydroxyadamantane in sulphuric	6577
acid, 5369	reactions, with a-chloroacrylonitrile, 3369
of 2-hydroxyadamantane in acidic media, 5361	with styrene oxide, 3671
Dissociation constants, excited state of some	with trichloroacetic acid, 7
quinolinols, 1777	syntheses, 2481
· · · · · · · · · · · · · · · · · · ·	-

Energy Ferrocenes, bridged, 3219 [5] Ferrocenophanes, 3219 of exchange reactions, 459 symmetrical distribution in initially unsym-[M] Ferrocenophanes, conformational properties, metrically excited products, 6863 6111 Field effect in substituted α,β -ethylenic acids, 3583 Enzyme model, for a-chymotrypsin, 3453 Epicryptopines, structure, 1455 Flavone 5-hydroxy-7,8,3',4'-tetramethoxy- from berga-7-Epicudesmane based 1,2-epoxides, BF₈-induced rearrangement, 3775 mott oil, 2121 $[\pm]$ -4-Epidehydroabietic acid, synthesis, 6573 3-methoxy-, photoxidation, 6615 Epoxides new, synthesis, isolation and structure, 7027 abnormal opening, 5847 scaposin, 3675 cis-and trans-1,2-diphenyl-1,2-ditolylethylene solvent shifts in NMR spectra, 1407 oxides, 6851 Flavylium salts hydrogen peroxide oxidation products, 4449 Epoxides (continued) 1,2 natural, senepoxide isolation from Uvaria reductive dimerization by metals, 2801 catocarpa (Annonacee), 1633 Flemingins, structure, 497 Flindersine, occurrence in Haplophylum tuberreduction to alkenes, 3503 Epoxyeudesmanolides, prep and cleavage of the culatam, 3011 Fluorene, synthesis of 1,2,3,4,4a,9a-cis-hexaepoxide ring, 5847 2,10-Epoxypinanes, synthesis, 1193 hydro-1β,4aα-dimethyl-9-one-1α-carboxy-Ergosteryl acetate, lic acid, 1577 Fluorine compds, addition reactions with maleic anhydride, 297 reactions with acrylonitrile and a-acetoxyaromatic polyfluoro- containing functional groups, nitration, 5913 acrylonitrile, 5215 Esadeca-3,15-dione, 2,6,10,14-tetramethyl-6-7o-bromotetrafluorophenyl-organometallic com oxido-, from incensole oxide, 6519 pounds, 2783 Esters fluorohydrocarbons, mass spectra, 1811 cleavages by HBr, kinetic study, 5645 polyfluoro-2,2'-bipyridyls,synthesis and nucleointramolecular acylation, 553 philic substitutions, 5633 tetrafluoro-4-formylunsaturated; reduction, 1341 and 4-carboxytetra-Estradiols 17-alkyl-, configuration of tertiary fluoropyridines, 877 alcohols in the series, 2339 polyfluoroheterocyclic, synthesis, 3997 Estrogen catechols, NMR, 2199 4[5]-Formylimidazole, spectrum, dissociation Estrone, 2-t-alkyl, 6773 constants kinetics and mechanism of reac-49(11)-Estrone, 6773 tion with hydroxylamine, 2407 Etard Franklinone, synthesis, 4825 complexes of decalines, 4667 Free radicals, see Radicals reaction, relevant coordination complexes Friedelane-3,7-dione, 1205 of chromic chloride with aromatic alde-Friedelanol acetate, 6259 hydes, 6999 Friedel-Crafts cyclization, by polyphosphoric Ethanediols, 1-phenyl-2-pyridyl, 1959 acid, 5595 Ethers **Friedel-7-ene** and 3α -and 3β -acetoxy, 6259 aryl methyl, demethylation, 2289 Friedel-7-en-3-one, 6259 Fujenal, stereochemical studies, 2527 cyclic, intramolecular formation, 6959 Ethyl cation, diborane as a model for, 4595 Fukinone, structure, 5871 Eudesmane base 1,2-epoxides, BF3-induced re-Fulvene hydrocarbons, naturally occurring, 2079 arrangement, 3775 Furane, and different derivs, photoreactions to Eudesmanes, 2-keto and related compds, endoperoxides, 6295 synthesis from 3-ketoeudesmanes, 5227 Furanosesquiterpene, 625 Eudesmanolides, prep of epoxide derivs and their **Furans** electronic structure including all valence opening reactions, 5847 (+)-4 (H)-Eudesman-2-one, and its $7\beta(H)$ electrons, 3285 epimer, 5227 3-halogeno- and trans-3,4-dihalogenotetrahydro-, carbon-halogen stretching fre- $[\pm]$ - β -Eudesmol, total synthesis, 1801 Eupatorium liqustrinum, constitutent, 6087 quencies, 3019 reactions with arynes, 4589 Exostemin, synthesis, 6527 Extractives from Guttiferae, 3059 stereochemistry of cis andtrans-2,5- diferrocenyl-tetrahydrofuran, 3615 tetrahydro- see Tetrahydrofurans Farnesol acid-catalysed cyclization, 859 Furopelargone, 2055 Fernenol, structure, 735 [4.5-c] Furotropone, a new heterocyclic system,

4501

Ferredoxin, total synthesis, 4853

Furoxanes isomeric, from dioximes, structure and spectra, 395

Fusarium nivale, isolation of mycoloxin, 1225
Fusarium solani, quinones isolated from, 4745
Fusarium trictinctum strains, structure of toxins,
3329

Fusarubin, 4745

Fusidic acid, methyl ester, 3-p-bromobenzoate, crystal structure and absolute configuration, 909

Fustin-3-O-glucoside, a new dihydroflavonol glycoside, 823

Gafrinin

conformation by NMR, 1701

sesquiterpenoid lactone from Geigeria africana Gries, 1687

Geigeria africana Gries, constituent, 1687, 6037 Gentiamidine, prep from gentioflavine, 1323

Gentiaridine bromo-, prep from gentioflavine, 1323

Gentioflavine structure, 1323

Germacronolide from Ambrosia confertiflora, tamaulipin-A, 4091

Gibbane system, location of double bond, 2327 Gibberella fujikuroi

in the biosynthesis of gibberellins, 231 transformation of steviol, 6291

Gibberellic acid

biosynthesis, 231

8S,15-epoxide, rearrangement, 73

Gibberellin

Aa, biosynthesis, 231

A₁₆, methyl ester, a new metabolite of Gibberalla fujikuroi, 1337

Gibberellins

rearrangement of 8S,15-epoxides, 73 synthetic studies, 1577

Gibberellins-II, mass spectrometry, 2327

Ginseng glucosides probable structure of true aglycones, 5483

D-Gluconic-δ-lactam, synthesis, 2125

D-Glucopiperidinose synthesis, 2125

Glucose,

IR spectra of O-methyl derivs, 4021 tetramethyl-, acid catalysed mutarotation, 6643 D-Glucose, 2,0-α-L-rhamnopyranosyl, see Neohesperidose, 4963

Glycine

[N(3,4-dihydro-β-carboline-3-carbonyl) methyl ester, synthesis, 2591

in peptides, PMR spectra, 2773

Glycorine, prep from arborine, demethylation, 1 Glycosides,

dihydro-flavonol from Baptisia lecontei, 823 Ginseng, probable structure of true aglycones, 5483

Glycosmicine, prep from arborine, 1

Glycosminine, prep from arborine, methylation, 1 Glycosmis arborea, quinazoline alkaloids, interrelationship, 1

Goodenia ramelii diterpenes, 795

Graphs, chemical, 2505 Griesenin

and dihydro-, conformation by NMR, 6045 sesquiterpenoid lactones from Geigeria africana Gries, 6037

Grifolin, antibiotic synthesis, 945

Grignard reagents, reaction of MeMgI with 2,6-dimethyl-4-methoxy-benzaldehyde, 2001

Guanandin from Calophyllum brasiliense, 1601 Guanines, synthesis of 1,methyl,-N²-alkyl-, 2611 Gums, of Acacia podalriaefolia and A. elata, 6967

Guttiferae

extractives, 3059 isopentenylated xanthones, 1601

Halogenation, of tetrafluoro-4-methylpyridine, 877

Halonium salts, 3717

Hammett constants

and amino proton shifts, 3595

and IR carbonyl frequencies in substituted oxindoles, 6093

Hammett correlation in the dissociation of α - β -substituted cinnamic acids, 3583

Hammett plot, for nitrile elimination of 4benzylidene-amino-1,2,4-triazoles, 1031

Haplophylum tuberculatum, alkaloids, 3011 Hashish 5615

identification of constituents, 1021

new constituent, structure elucidation, 5379

1,5-Heptadiene, 2,6-dimethyl-, cyclization and competitive cyclization-cycloalkylation of some phenyl derivs, 2155

Herbicides

evaluation of 5,6-dihydro-5-hydroxypyrazino-[1.2.3.4-lmn]-1,10-phenanthrolinium dibromide and pyrazino[1.2.3.4-lmn]-1,10phenanthrolinium dibromide, 6453

evaluation of diquaternary salts of 2,2'dipyridyl sulphide, 2697

N-Heteroaromatic compounds, -deficient H-bonding, basicity by H-bonding method, 5991

Heteroatomic plotting as data presentation in mass spectrometry, (a) technique (b) applications, 5749

Heterocyclic compounds

from isocyanides, 6663

steroids, N-methyl-6-aza-8(14)-dihydro-estrone methyl ether, N-ethyl-6-aza-8(14)-dihydroestrone methyl ether, 5881

N-methyl-6-aza-8(14)dihydro-19-nor-testosterone, 5893

Heterocyclic systems, NMR study of conformational equilibria in di-, tetra- and hexahydropyridazine systems, 137

Heterolytic fragmentation of 6a-bromo-7-oxototarol, 4631

β-Heteropolar compounds, evaluation of solvent effects, 6777

trans,trans-Hexa-2,4-diene, Diels-Alder reaction with styrene, 1025

Hexamethylenetetramine, kinetics of the reaction with β -naphthol, 5001

High frequency titration, addition of bromine to olefins, characterizing the intermediate state, evidence of ion pairs and self-solvated ions, 4733

Himachalanes synthesis, 3829

Himachalene monohydrochloride and prep of trans himachalenes, 3853

ar-Himachalene, synthesis, 3829

Himachalenes

stereochemistry, 3841 structure, 3809

Himachalol, 3861

Hindered rotation, 6485

around benzene nitrogen bond in quinone aniles and amides by NMR, 1857

Hippeasterine 759

Hirsutine, configuration, 2681

Hispidol and derivs, synthesis, 6-glucoside, derivs and isomers, synthesis, 4213

Homoallylic, thermal and BF₈-catalysed, rearrangement of cyclopropylcarbinyl borates, 6339

Homopantethine

4',4''-diphosphate, synthesis, 5241 phosphorylation with 2-cyanoethyl phosphate and dicyclohexylcarbodiimide, 5241

Hormones, juvenile, synthesis, 3127 Hudson's isorotation rule, 1559

Humic acid, fusion with KOH, and reduction with HI, 5155

Hybridization 459

Hydrazine

1,1-diphenyl-, reaction with cyano halobenzenes and oxidation of products to stable free radicals, 1063

tetrafluoro-, reactions with saturated hydrocarbons and dialkyl ethers, 5089

Hydrazino-pyridines, 3-(β-formyl-β-alkyl), from s-triazolo-[4.3b]-pyridazines, 2687

Hydrazyles, 1,1-diphenyl-2-cyanophenyl-, with one, two, and three unpaired electrions, formation and properties, 1063

Hydride transfers

intermolecular, in disproportionation of 1and 2-hydroxyadamantane in sulphuric acid, 5369

in disproportionation of 2-hydroxyadamantane, intramolecular, of the adamantyl cation (1,2-shift), 5361

steric effects in strongly acid soln, 4941

1,2-Hydride shift of the adamantyl cation in sulphuric acid, 5361

Hydroboration 5701 of longifolene, 3167

Hydrocarbons

alternant, study by SCF-LCAO-MO method with vibronic CI, 5575 aromatic polycyclic, nomenclature, 2505 Hydrocarbons (continued)

fulvene, naturally occurring, 2079 non-alternant, 5943

double bond fixation, 1215

tricyclic, 5943

Hydrodimerization of activated olefins, mechanism, 1097

Hydrogen, formation, UV-photolysis of deuterated isopropanols, 117

Hydrogen abstraction

by trichloromethyl radicals, 4793 from benzaldehydes, polar effects, 4793

Hydrogen bonding

absence in cyclooctanone, 4257

in oxindole, 6093

NMR spectra of Schiff bases of β -diketones and o-hydroxycarbonyl compounds, 5655 pyridines and π -deficient N-hetero aromatics, 5991

to a-diazosulphones in acidic soln, 1737

Hydrogen exchange, during acid-catalysed hydrolysis of α-diazosulphones, 1737

Hydrogenation catalysts, supported alkali metals, 4525

Hydrogenolysis, hydrogenation of enamines, 4489 Hydrolysis

of 4-dichloromethyltetrafluoropyridine and trichloromethyltetrafluoropyridine, 877 of malamine, 2701

photochemical of N-substituted imines, 3085 **Hydroquinone-**methyl-alkyl-diethers, nitration in different solvents, 5601

Hydroxamic acid acetates, by rearrangement of geminal nitrosoacetates, 5251

Hydroxylamine, kinetics and mechanism of reaction with 4(5)-formylimidazole, 2407

Hydroxylation of the aromatic ring of strychnine, 4573

Hymenoxin, a new flavone from Hymenoxys scaposa, 3675

L-Idonic-δ-lactam, synthesis, 2125

Igagenin, structure, 6535

Imidazoline-2,4,5-trione, 1,3-adipoyl-, prep and reaction with hydrazine and aniline, 2583

Imidazo[1,2-b]pyridazines

electrophilic substitutions, 239 methyl substituted, synthesis, 2623

5H-Imidazo[1'.5':1.2]pyrido [3.4-b]indole, 6,11-dihydro-3-methyl-, and 3-methyl-5-methoxycarbonyl-, syntheses, 2591

Imides, substituted, skeletal rearrangement on electron impact, 1051

Imines, photochemical hydrolysis, 3085

Imperata cylinderica var. koenigii, triterpenoids, 735

Imperatorin from Seseli sibiricum, 3247 Incensole oxide, structure, 6519

Indane, 3-ethyl-5,6-dihydroxy-2-methyl-1-(3',4'-dihydroxyphenyl)-, synthesis, 2289

5[6H)-Indanone, (\pm) -7,7a-dihydro-1 β -hydroxy-7a β -methyl-, absolute configuration, 2039

Indans, conformation of trans-1,2-dihalogenoindans, 4967

Indole

alkaloids, biogenesis, 403 configuration, 2681

alkylation, electrophilic substitution, PMR and mass spectra, 2227

carbonyl compounds, diborane reduction of indoles, electrophillic substitution in, 1145 2,3-dimethyl-, mechanism of reaction with 14C-dichlorocarbene, 491

electrophilic substitution, 403

Indole (continued)

3-vinyl-, reaction with nucleophiles, 6377

3H-Indoles, magnetic nonequivalence of geminal groups, 6825

Indolenines.

3-dichloromethyl-2,3-dimethyl-, from 2,3-dimethylindole, 491

3,3-spirocyclic and acid catalysed rearrangements, 403

Indolimines, prep of 3,3-dialkyl-, polymeric character, mass and PMR spectra, migratory aptitude of substituents in acid catalysed rearrangement to indoles, 2227

Indolines

conversion to indoles by hydride transfer, 6223 3,3-spirocyclic and 2-hydroxy-3,3-spirocyclic,

a-Indolmycinic acid, (±)—synthesis, NMR spectrum, configuration, methyl ester, methylation of methyl ester, methylamide, 6131

β-Indolmycinic acids, synthesis, NMR spectrum, configuration, methyl ester, methylation of methyl ester, methylamide, 6131

Indolmycins, synthesis biological activity, NMRspectrum, configuration, tautomeric equilibrium, predominant conformers, picrate, hydrolysis, 6131

Indolylbutanol, cyclization to tetrahydrocarbazole, 6119

Indones, conversion to quinoline and isoquinoline derivs, 4981, 4993

Insect-metamorphosing substance, 4895

Interaction, O—H...., in olefin alcohols, 1905
Intermediate state, of electrophilic bromine addition, characterized with high frequency titration, dependence of solvents, equilibrium between ion pairs and self-solvated ions, 4733

Iodine, use of for dehydrogenation and dehydrocyclization of organic compds, 4833

Ionization potentials, of mono-, bis,- and triscycloalkenobenzenes, 2307

Ions, dipolar triaminooxyphosphonium, 2275

Ips confusus attractants, synthesis, 4249

Iropones, aromaticity of bicyclic systems, 4501
Isatylidene-3-acetate, trans-1-benzyl ethyl and methyl, Michael addition of malonate to, 3337

Isoanisatinic acid, isomerization product of anisatin, structure, 1255

Isoanisatinic (continued)

Isobenzofuran 1,3-diphenyl-, reactions with arynes, 4589

Isobutyronitriles

N-alkyl substituted a-amino-, reaction with carbonyl compds, 4677

a-amino N-alkyl substituted, reaction with aldehydes and ketones, 4677

Isocarbostyrils, N-β-arylethyl, action of POCl₃ 2517

Isocyanates

benzoyl- and thiobenzoyl-, reaction with hydrazines, 5205

diol diisocyanates, aliphatic and aromatic, synthesis, 2583

Isocyanide, reaction with carbonyl compds, formation of cyclic adducts, 3795

Isoduanandin from Calophyllum brasiliense, 1601 Isoflavonoids, optically active aromatic chromophores, 5519

Isogermafurene, components of Lindera strychnifolia, 625

Isoindole

N-alkyl, 4649

1,3-diphenyl-N-methyl-, reactions with benzyne, 4589

Isoindoline, N-alkyl, 4649

Isoindolmycin, synthesis, biological activity, NMR, spectrum configuration, tautomeric equilibrium, predominant conformers, picrate, hydrolysis, 6131

Isomajdine structure and stereochemistry, 4641

Isomerization

α- and β-methylcinnamic acids, 3569

bromotoluenes under the influence of Al₂Br₆,HBr, 1835

cis-trans, enthalpies and entropies of di- and trialkyleyclohexanes, 6495

orthanilic acid to sulphenilic acid, 5011

Isomers of polycyclic aromatic hydrocarbons, 2505
Isomorphinan 3-methoxy-6-oxo-N-methyl derivs,
reduction, methylation and Wittig reaction, 255

Isonarthogenin, synthesis, 905

Isopropanol deuterated, UV-photolysis, hydrogen formation, 117

2-Isopropylidene-4-alkylpseudoxazolones, 575

Isopulegone, methyl, circular dichroism and photochemistry, 4353

1,2-dihydro, 1467

Isoquinolines

acylation, 6703

cis- and trans-6-t-butyldecahydro- and derivs,

benzylation, 427

rearrangement, 6695

3,4-dihydro, reactions with, 4713

N-oxides, mass spectra, 3139

Isoquinoline-4-acetic acids, prep, 1467

Isothiazoles, 3-phenyl-, mass spectra, 6237

Isoverbanone, aminomethylation, conformation and NMR spectral data, 1611

Isoxazoles Ketoximes derivs from 2.4.6-triphenylpyrylium salts, 5059 aralkyl alkyl and their tosylates, 5677 3-phenyl-4,5-diamino-, synthesis, 4907 of bridged ring systems, 4605 5-substituted, dipole moments, 151 Kielmeyera corymbosa and K. Specura isopentenylated xanthone from, 1601 Isoxazolidines synthesis, 6951 Isoxazolin-5-one, 3-methyl-4-hydroxyimino-, **Kinetics** opening with bases, 395 and mechanism of base catalysed decarboxylation, effect of a-mercapto groups on the Isoxazolo[4.5-b]pyrazines, 4907 rate, 5271, 5283, 6293 Isoxazolo[4.5-b]quinoxalines, prep. 4907 isotope effect in elimination of nitriles from Jaborosa integrifolia, further jaborosalactones, 4-benzylidene-amino-1,2,4-triazoles, 1031 of four possible isomers of Diels-Alder reac-Jaborosalactones C,D,E, structure elucidation, tion, 5711 5169 oxidation of substituted toluenes by Jacareubin from Calophyllum brasiliense, 1601 chromyl chloride, 389 Javanicin, 4745 of phenol, acid-catalysed proton exchange in Jervine and 11-deoxojervine, configuration of methanal, 2603 C-9, 3461 of photosensitized peroxide formation be-Juglones, electronic spectra, 6053 tween + 20 and - 150°, 6295 Julimycin B-II of piperidino dechlorination of 2-aryl-5stereochemistry, 4233 chloro-1,3,4-thiadiazoles, 3209 structure, 1765 of thermal decomposition of 2,5-diaryltetra-Juniperus foetidissima, cedrane derivs, 3399 zoles, 3787 1 ± 1 -Juvabione, synthesis, 3127 Kolbe electrolysis, addition of methyl radicals to 3,3-dimethyl-1-butene, 1163 Kauranes, lactonic, 3113 (\pm) -Kaur-16-en-19-oic acid, synthesis, 3095 Kuhn-Roth, C-methyl estimation in sesquiterpenes, 3767 Kaurenolide derivs, in biosynthesis of gibberellins, Kyrptogenin, synthesis 899 (\pm) -Kaur-16-3n-19-ol, synthesis, 3095 Lactams, mass spectrometry, 6797 Kessane- 2β ,7-diol, 3147 β-Lactams, N-phenyl,-stereochemistry and cona-Kessyl alcohol, microbiol transformation, 3147 formation from X-ray analysis, 1275 Kessyl glycol, 3147 δ-Lactams, N-tosyl, in synthesis of ornithine Ketene. derivs and peptides, 6351 intermediate, photolysis of 2,4,6-triphenyl-o-Lactarofulvene, structure, 2079 quinol esters and thermal rearrangements Lactones of 1,3,6-triphenyl-6-acyloxy-bicyclo[3.1.0] intramolecular acylation, 553 hex-2-4-ones, 5385 of octa and decahydro-8-hydroxynaphthoic reactions, 1341 acids NMR spectra and conformations, Keto-enol equilibrium, 4779 5769 β-Keto thiolesters, syntheses, reaction with hydro-Lacustrine sediments, 5000 year old hydroxy gen sulphide, 5323 fatty acids, 5929 Lanosterol *ξ*-23 hydroxy, a fungal metabolite, 3949 Ketones brominated, brominated cyclic, cyclic and Lapachenole dimer, (isolapachenole), structure, cyclic unsaturated, 1341 correlation of cyclic and bicyclic C=O Laurencin and derivs, 4193 Lead tetraacetate stretching frequencies with related olefins and oximes, 381 decarboxylation, 2215 cyclic, vibrational frequencies, 2595 oxidation of camphanols, 3201 cycloalkyl methyl, base-catalysed deuterium of longifolene, 3177 exchange, 6287 reaction with cycloalkanols, 4947 hydroxymethylene, NMR spectra, 1651 Lecontin, a new dihydroflavonal glycoside, 823 in Cyperus, identification NMR and mass L-Leucine in peptides with glycine, PMR spectra, spectral examination of the 2,4-dinitrophenylhydrazones, 3891 Leucocyanidin, tetramethyl, condensation with medium ring, absence of H-bonding in, 4257 phloroglucinol and resorcinol, 2653 unsaturated a, \beta-dihydroxy, synthesis via pen-Lichen substances, 2707 tavalent phosphorus, 3153 Lignan, unsaturated disyringyl free acid, 1475 thermolysis and photolysis, 5971 Ligularia stenocephala, presence of 5,6,-di-

methoxy-2-isopropenylbenzofuran

roots, 2177

Ligustrin, structure, 6087

a,β-unsaturated, optical activity, 5803

6725

 β , γ -unsaturated, photochemical isomerization,

Limonoids, ORZ and CD, 3273 Merrifield synthesis, of the casein peptide L-val-L-Linalool, phosphate esters, cyclization on solvoasp-L-glu-L-glu-DL-ser-L-ile-L-ala-Llysis, 43 met-L-glu-L-lys, 6619 Linderoxide, components of Lindera strychnifolia. Mesembrine, synthesis of alkaloid, 6583 625 Metacyclophanes, physico-chemical properties, Lithium aluminum hydride, reduction of oximes, 2681 [2.2]Metacyclophanes, di-, tetra- and hexamethylorganic compds, polarity, 459 medium-sized cyclophanes, 5557 orthobromotetrafluorophenyl applications, Metal hydride reduction of bicyclic allylic bro-3997 mides, 2921 Lithium (continued) Metallic organo pentafluorophenyl compounds. phenylsydnone reactions, 33 2783 Longicyclene tetracyclic sesquiterpene, 4099 7-Methoxychroman, reduction with lithium and Longifolene amonia, 2495 hydroboration, 3167 Methoxyl groups, solvent shifts in NMR, 1407 oxidation of longifolols with PbIV-acetate, Methylacetophenones, photochemical rearrange-3177 ment of benzyl methyl ketone, 1617 ψ-Longifolic acid structure, 4105 Methylbicyclooctanols, tertiary, prep, 1537 Lossen-type, rearrangement, 6935 Methylbicyclooctyl cations, tertiary, stereo-Lycorenine series, alkaloids, 2825 chemistry, 1537 Lycorine, Methylene dideutero-, reaction with allene and transformation into hippeasterine, 759 methylene cyclopropane and vinylcyclotype alkaloids, 2463 propane, 6863 Mexicanolide, constitution and stereochemistry, Macrolides, zearalenone, absolute configuration 1489 and total synthesis, 2443 Michael reactions Magnetic nonequivalence between enamines and nitrooelefins, 1187 by hindered rotation in chiral molecules and in stereochemistry of 4-t-butyl-1-cyanocyclo-hexquinone aniles and amides, 1857 ene addition with diethyl malonate, 705 of geminal groups in 3H-indoles, 6825 thermal modification, 4565 Magnetic susceptibility of 2,6-diaryl-4-pyrones, Mitraciliatine, configuration, 2681 Molecular orbital calculations, 5601 Majdine, structure and stereochemistry, 4641 characteristics of non-alternate hydrocarbons. Maleic anhydride condensed cyclobutadienes, 6215 addition reactions with ergosteryl acetate, 297 extended Huckel, 3517 maleimides or iso-maleimides, stable P-ylides, for S_NAr reactions, 3043 Huckel, on some quinolinols, 1777 reaction with acetylacetone and ethyl acetoon substituted stilbenes, 5499 acetate, 1199 method, CNDO, 1083 Maleimides dichloro-, reaction with amines, 4051 omega, and Pariser-Parr-Pople calculations of Manganese dioxide oxidations, 1293 anthocyanidins, 2255 Mannich bases, thermal reaction with ketones, omega-Huckel, calculated reactivities, 1673 4565 reactivity indices in excited state and reactivity, Mechanisms 6845 photochemical cyclization, 5499 SCF, furan (including all valence electron), photomethylation of pyrimidines, 5861 3285 Melamine, mechanism of hydrolysis, 2701 a-orbital participation in thiophene, 2663 Mercapto chlorides, p-substituted-β-phenyl-, E₂ thiophene and nemic thienothiophenes, 2567 reaction, 5721 theory, 6889 β -Mercaptothiolcrotonates, see β -Thioketothiolon diborane, 4595 esters, 5323 perturbation, applied to mass spectra, 6755 Mercury Molecular rotation of acetylated aldopyranosyl 1-acetoxy-2-pivaloxymercury-1-pivaloxyethane halides, 1559 synthesis, NMR spectral data, 3887 Molecular structure, 2425 1-acetoxy-2-propionoxymercury-1-propionoxy- (\pm) -Monogynol, synthesis, 3095 ethane, synthesis, NMR spectral data, Monoterpenes, (\pm) -"orthodene", synthesis, 2435 Morphinan 2-acetoxymercury-1-acetoxy-1-pivaloxyethane, 14-hydroxy-3-methoxy-N-methyl-acetylation. synthesis, NMR spectral data, 3887 syntheses of derivs, 6185

2-acetoxymercury-1-acetoxy-1-propionoxyeth

Morphine alkaloids, 255, 261

Mössbauer resonance line, shift with increasing chain length, 5601

Mucronatinine, new alkaloid from Crotalaria mucronata, 6319

Mutarotation, of tetramethylgiucose, 6643 Mycobacterium

N 1210, transformation of cholic acid, 2145 sp. 2104, hydroxylation of cholesterol side side chain, 1595

Mycotoxin, structure, 1225

1-Naphthaldehyde, 2-hydroxy-, formation from β-naphthol and hexamine, 5001

Naphthalene dialdehydes, dioxy, intended synthesis, 2293

Naphthazarin synthesis, 2969

Naphthazarins, electronic spectra, 6053

Naphthimidazoles, 4581

2-Naphthoic acid and lactone, 4a,6-dimethyl-8ahydroxy-decahydro-, formolysis and synthesis, 4917

β-Naphthol, kinetics of the Duff reaction, 5001 Naphtho[2.1-b]pyrylium perchlorates derivs, 5029, 5037

1,2-Naphthoquinones, halogeno-, synthesis and spectroscopic properties, 4067

1,4-Naphthoquinones, 2-(N-substituted anilino)-, 3725

Naphthothiazoles, UV spectra, 5569 Naphthoxazoles, UV spectra, 5569

1-Naphthylmethylamine, 2-hydroxy-, kinetics of formation of 2-hydroxyl-1-naphthalde-hyde from, 5001

Narciclasine, structure 1119

Narciprimine, structure, 1119

Neoanisatin, structure 199

Neohesperidose, synthesis, 4963

Nerol, phosphate esters, cyclization on solvolysis, 43

Nerolidol acid, catalysed cyclization, 859

Nimbin, constitution and stereochemistry, 1517 Nitidine, new synthesis, 1467

Nitration of aromatic polyfluoro compds concontaining functional groups, 5913

Nitrenes, MO calculations on stabilization of singlet states, 5899

Nitric acid, oxidation of trialkylamines, 3425 Nitrile oxides

by lead tetracetate oxidation of syn-aldoximes, 5251

by thermal rearrangement of aldazine-cis-Novides, 5251

Nitro compounds

aliphatic tertiary, electrolytic reduction in acetonitrile, 1717

generation of free radicals by electrode reductionin acetonitrile, 5075

nitromethane, addition to 5,17(20)-pragnadien- 3β -01-16-ones stereochemistry, 893

nitro olefins, Michael reactions with anamines,

Nitro compounds (continued)

nitropropenes, reaction with cyclohexanone enamines, 1889

nitroxides, acyl-alkyl, 1623

Nitrogen, isotope ¹⁵N in isotope exhange and rearrangement of aminopyridines and nitro- and benzo-analogs, 441, 451

Nitrones steroidal, dichroim study, 6747

Nitroso compounds

diene syntheses, orientation, 1043

N-nitrosoacetamide, deriv of (+)-1-(3-trifluo-romethylphenyl)-2-aminopropane, 1283

Nitrosamines, photochemistry, mechanism studies, 5775

N-nitrosoamine derivs of (+)-1-(3-trifluoromethyl-phenyl)-2-ethylaminopropane and ethyl and methylamphetamine, 1283

nitrosoacetates, geminal, by lead tetraacetate oxidation of anti-aldoximes, 5251

reaction with acyl radicals, 1623

Nojirimycin, structure and synthesis, 2125

Nomenclature of polycyclic aromatic hydrocarbons, 2505

2,3,3-Nonastarphene, synthesis, UV spectrum, 6719

Non-bonded interactions, importance in amide structures, 6423

Norbornadiene, diadducts from reaction with methyl diazoacetate, 5067

Norbornane

2-aminoemthyl-2-methyl-, exo, endo deamination, prep and stereochemistry, 1537

derivs, ring enlargement, 1537

2-hydroxymethyl-2-methyl-, exo, endo, tosylate, prep. solvolysis and stereochemistry, 1537

Norbornyl chloride, solvolysis, 1247

Norbornylmethyl cations, stereochemistry, 1537 C-Nor-D-Homo-rearrangement, of cholanic acid and its derivs, 2789

19-Nortestosterone, 17-alkyl-, configuration of tertiary alcohols in the series, 2339

Nucleophilic reactions

aromatic substitution, MO calculations, 3043 dequaternization of condensed azetidinium salts-II, 2357

displacement, internal, in epoxy-eudesmanolides, 5487

in ethylenic derivs, 663

substitution in 2-aryl-5-chloro-1,3,4-thiadia-zoles, 3209

in s-triazinic systems, 2701

Nucleosides

acetylation, 6987 acetyl migration, 6987

and nucleotides, 3489

Nudaurine, structure, 4459

2,7-Octadien-4-ol, 2-methyl-6-methylene-, synthesis, 4249

Octalins, distortion of chair conformations in closure of lactones, 5769

5361

decarboxylation of a-amino acids, 687

ethylbenzene over chormium oxide, 6277

chalcone phenylhydrazones, 1293

phenyl-substituted resorcinols, 4393

Octant rule, for the thiocyanate chromophore, Oxidation (continued) products of perezinone, 4007 7-Octen-4-ol, 2-methyl-6-methylene-, synthesis, pyrazolines, 1293 4249 substituted toluenes by chromyl chloride, Odoratin, absolute configuration, 3273 kinetics, 389 **Olefins** trialkylamines with nitric acid, 3425 addition of acetic acid, 561 Oxidative dehydrogenation, 4649 correlation of cyclic and bicyclic methylene Oximes C=C stretching frequencies with related cyclic and bicyclic, C=N IR stretching freketones and oximes, 381 quency and correlation with ketones and light-induced addition to 2-pyrrolidone, 4509 olefins, 381 stereospecific arylation, 5791 1,3-dipolar, addition to α,β-unsaturated kesubstitution by aromatic compds, 4819 tones in their nitronic tautomeric form, Oleoresin, conversion of 19-oxo-labd-8(17)-eneol-15 into 17-nor-8-oxo-138-labdan-15-oic Oxindole-3-acetate-3-malonate, 1-benzyl, triacid, 3407 ethyl, trimethyl and ethyl dimethyl, 3337 Oligonucleotides synthesis, 2537 Oligoribonucleotides, synthesis, 3533 alkaloids, absolute configuration of diliaphylline, rhynchociline, specionoxeine, iso-Oligosaccharides, mass spectra 5587 Optical rotatory dispersion specionoxeine, rotundifoline and iso- α - and β -arylalkylamines, 1327 rotundifoline, 523 cyclopropyl ketones, 4041 majdine and isomajdine, 4641 3,3-spiropyrrolidino- and 3,3-spiropiperidino-, dihydroflavonol glycosides, 823 in a-arylethyl series, 5839 3-(2'-aminoethyl), 403 limonoids, 3273 substituted, prep, IR, NMR and UV spectral 7-methylated 3,5-cyclo-6-oxo-steroids, 4041 data, Hammett constants, 6093 Optically active compds Oxirane, alumina-induced rearrangement, 5817 amines, 4299 Oxygen biradicals, as intermediate in oxidation aromatic chromophores, 1231 of phenyl substituted resorcinols, 4393 α.β-unsaturated ketones and dienes, 5803 Oxyphosphoranes Ornithine, peptides, lactam derivs, 6351 from a-diketones, unsaturated aldehydes and Orthanilic acid, rearrangement to sulphanilic trialkyl phosphites, 3153 acid, 5011 stereochemistry, 3735 (\pm) -"Orthodene", synthesis, 2435 Ozonolysis solvent effects and concentration Osthol from Seseli sibiricum, 3247 effects, 4347 1,2,4-Oxadiazole, electronic structure, 485 Oxapropellanes 975 Palladium 1,2-Oxazines, 3,6-dihydro-, prep, NMR spectra acetate, catalyst for aromatic substitution of and reactions, 1043 olefin, 4819 1.3-Oxazines chloride-styrene complex, 4819 Pantethine, phosphorylation with 2-cyanoethyl 2-ethyltetrahydro-, and 2-ethyl-3-nitroso-tetrahydro-, prep and NMR spectra, 53 phosphate and dicyclohexylcarbodiimide, tetrahydro-, NMR spectra and conformation, 5241 Pantethine 4',4"-diphosphate, synthesis, 5241 4625 3-Oxazolin-5-ones, 575 Parcostin, and structure, 4143 Pariser-Parr-Pople calculations on electronic Oxetanodihydrofurans, oxetane, the photochemical adducts of furan and carbonyl structure, 485 compds, 1299 Pentcillium cyclopium, toxinfrom, 2101 Oxibase scale, application to acid-catalysed Penta-2,4-dien-1-carboxamide, 5-acetoxy-N,N-dimethyl-1,3,5-triphenyl-, 5385 hydrolysis of a-diazosulphones, 1737 a-Pentathienyl, synthesis, 1899 Oxidation Peptide, 4315 o-aminobenzylidene anils and o-hydroxybenzlidene anils, 1293 of glycine and L-leucine, PMR spectra, 2773 by chromyl chloride, 4667 ornithine, synthesis through lactam derivs, by periodate-permangate reagent, 4091 6351 by sulphuric acid, adamantane to adamantan-N-terminal bonds, hydrolysis cleavage, 6995 one via 1- and 2-hydroxyadamantane, Peracetic acid, decomposition in Ac₂O-AcOH-

HNO₈, 6387

5099

Peracetyl nitrate, in peracetic acid decomposition

Perester reaction, low temperature initiation,

in Ac₂O-AcOH-HNO₃, 6387

Perezone, chemistry, 4007

Perhydrodipyrido[1.2-c, 2'.1'-e|imidazoles, configurational and conformational studies by NMR and IR, 4411, 6625

Perinaphthenones, electronic spectra, basicity and and quantum chemical calculation, 3001

Peroxidase, oxidation of 4-chlorouniline mechanism, 585

Peroxides, copper catalysed decomposition, 5099 Perylene, 3,10-dimethyl-, synthesis, reaction with maleic anhydride, 2817

Petasites japonicus, a constituent, 5871

1,10-Phenanthroline, synthesis and herbicidal activity of diquaternary salts, 5433

Phenol and amino derivs, calculation of bond lengths, pi-electron densities, bond orders and electronic singlet transitions, 6833

Phenois

chlorination to cyclohexenone derivs, 6265 dialkyl, oxidation with chromyl chloride, 5145 hydroxylation induced by photodecomposition of H₂O₂ in aqueous media, 3475

Phenothiazines, 4267

Phenoxy radicals, hindered rotation around the carbon phosphorus bond, 5133

Phenyl chromophores, UV and CD measurements, 1231

Phenyl glycidyl ether, reaction with benzoic acid, 6433

Phenylacetonitrile, alkylation, selectivity, 175 Phenylcyclohexane, via hydrogenation benzene, 4525

o-Phenylenediamine derive as intermediate in the synthesis of 4-keto, 1H-4,5-dihydro-1,2,5-benzotriazepines, 6395

Phenylformylacetonitrile

action of secondary amines, 2481 deformylation, 2481

Phenylhydroxylamines, O-arenesulphonyl-, 999

y-Phenylpropanol, mutual exchange between the hydroxyl, and ortho hydrogens in the (deuterated) molecular ion, 1415

3-Phenylpropionate, 3-(2'-oxocyclopentyl)-ethyl.

γ-Phenylpropylbromide, mutual exchange between the a and ortho hydrogens in the (deuterated) molecular ion, 1427

Phenylsuccinonitrile, synthesis from phenyl and chloroacetonitriles, 175

Phloroglucinol, condensation with tetramethylleucocyanidin, 2653

Phosphanes, alkylidene-, reaction with optically active acyl chlorides, 3299

Phosphinates, mass spectra, 565

Phosphines

trialkyl and triaryl, reactions with unsaturated ketones, 3735

triamino-, reactions with a-diketones, 2275

Phosphinodithioic acids, reaction with 2-benzylidene-3(2H)thianaphthenone 1,1-dioxides, 4725

Phosphite

alkyl, reaction with 2-benzylidene-3(2H)thianaphthenone 1,1-dioxides, 4725

esters, 5-membered cyclic, and reactions with o-quinones and a-diketones, 1785

trialkyl as reagents in the oxyphosphorane condensation, 3153

triethyl, photochemical reactions with substituted acetones, 5739

Phosphole, 1,2,5-triphenyl-, reaction with dimethyl acetylenedicarboxylate, 3437

Phosphonium salts

 γ -acylpropenyl, conjugation and oxidation with derivs of HNO2, 1363

y-oximino, prep and rearrangement, 1363

Phosphoranes

cyclic and spiro, 5041 mass spectra, 3289 y-nitroso-y-acyl, 1363

 β -oxoalkylene, oxidation, 2419

pentaoxy-, hydrolysis, 1931 spiropentaoxy, 1785

triaminodioxy, 2275

Phosphoranylations, 5041

Phosphorus

compds, trivalent reactions with unsaturated ketones, 3735 pentavalent, 1785

NMR, 2275

NMR of spirooxyphosphotanes, 1785 pentavalent, NMR, 5041

synthesis with, 3153

tetravalent and trivalent structural factors and stability, 3735

Photochemical reactions

addition of 2-pyrrolidone to olefins, 4509 arylation, 4393

cyclization, 5499

dimerization of anthracene and meso substituted derivs, 3517

hydroxylation of phenols, 3475

lactonization, 3113

methylation of pyrimidines with methanol,

of 2-allylcyclohexylidenemalononitrile, 3955

of trans-anethole, 2183 of benzophenone with enamines, 6557

of benzyl methyl ketone, 1617

of trans-dienes, 4437

of enolic β -diketones with cycloolefins, 1821

of 4-hydroxy and 4-acetoxy-2,5-cyclohexadienones, 6167

of nitrosamines, mechanism studies, 5775

of substitute dacetones with triethyl phosphite, 5739

of 2,4,6-trialkyl-6-acetoxy-2,4-cyclohexadienones, 6157

of triketoindane derivs and alloxan hydrate, 6149

of 1,2,3-triphenylaziridine, 2193

of 2,4,6-triphenyl-o-quinolesters, 5385

Progesterone-diketal, 7-dehydro-, reaction with Photochemical reactions (continued) of xanthine, 8-methylxanthine, and uric acid, dimethyl diazodicarboxylate, 5151 Promazine, 4267 of unsaturated ketones, 5971 Propane organic syntheses, 6591 1-phenyl-1-hydroxy- (and acetoxy)-2-phthalioxidation of 3-methoxyflavones, 6615 mido, 3053 oxygenation of olefins, cyclodiolefins and **Propellanes** behaviour on electron impact. 975 other compds between +20 and -150° , synthesis of [4.4.4] propellanes, 975 Propionic acid, a-benzylsulphide- sulphoxidephotolysis of deuterated isopropanols, hydroand sulphone derivs, prep and NMR specgen formation, 117 of triazolines, 2757 trum, 6197 preparation of benzo (f) quinolines, 3069 Propiophenone-α-phthalimido-β-substituted, asyrearrangement of $\beta_{,\gamma}$ -unsaturated ketones, mmetric induction in Meerwein-Ponndorf reduction, 3053 6725 2-Propynylidenediamine, N,N,N',N'-tetramethyl-Phthalimide, N-alkyl, 4649 Phthalimidine, N-alkyl, 4649 3-phenyl-, prep, reaction with acetic acid, Picene from photocyclization of 1,2-distyryl-2-Propynylidenediamine (continued) benzene, 6845 reaction with methanol, 2767 Picrotoxinin, synthesis of a degradation product, 2-Propynylidynetriamine. N,N,N',N',N'',N'',the acid C7H8O4, also verification of hexamethyl-3-phenyl-, prep, reaction with structure of degradation product, 5421 methanol, 2767 Pigments, sea urchin, 2969 Proton of phenols, kinetics of acid-catalysed exchange. Pinacol rearrangement of 2,2'-dimethyl benzpinacol, 6851 transfer from trimethylpyrylium cation to Pinane-2,3-diols, stereochemistry, 6469 Pinane series, studies, 2435 pyridine, 4741 **Piperidines** steric effects in strongly acid soln, 4941 cis- and trans-2,6-dimethyl-, separation and Protonation of s-triaminobenzene, 6203 PMR spectra, 279 Pseudoaromatic compds, synthesis, 1945 Pseudocontact shifts, to assign configuration of N-chloro-, CD and absolute configuration, 99 NMR spectra, configurations and conformaoxetanodihydrofurans, 1299 tions of some derivs, 589 Pseudoguaianolides, 4091 cis (2,4), cis (4,6), cis (2,6)-2,4,6-trimethyl-, Pseudorotation in trigonal bipyramidal, phosphorus, 3735 prep and PMR spectrum, 279 Pseudoxazolones, 2-ethylidene-4-alkyl-, 575 Piperidin-2-one, t-tosyl-3-amino and derivs, 6351 Piperidones, NMR spectra, configurations and Pterocarpol constitution, 6231 conformations of some derivs, 589 Pulegone oxides conformation, octant rule 4-Piperidones, catalytic reduction, 5395 reversal, 4933 PM-method, 1559 Purine Podocarpaceae, chemistry, 2165 2-amino-6-alkyl-amino-, 3981 Podocarpanes, lactonic, 3113 cyclonucleosides with 8,2-0-anhydro linkage, Podocarpic acid, elaboration, 2165 synthesis of 1-methyl-N2-alkyl-guanines, 2611 Polarity of carbon-alkali metal bonds, 459 Putranjiva roxburghii triterpenoid constituent, Pelarography 6259 nitro derivs of fluorenone and fluoren-49, a malononitrile, 721 Putraniivadione, 1205 of aliphatic tertiary nitro compds in aceto-**Pyrans** tetrahydro-, formation during the cyclization nitrile, 1717 of geraniolene and its derivs in H2SO4 aq, oxidation of diphenyldiazomethanes, 5123 Polycarbonyls, cyclic, fragmentation, 4805

Polypeptides, solid phase synthesis of apofer-

Polyphosphonic acid, organic reactions, 545, 553,

Polyphosphoric acid, Friedel-Crafts cyclizations,

5,17(20)-Pregnadiene-3 β ,16-diols, synthesis and

nitromethane addition, stereochemistry, 893

redoxin, 4853

stereochemistry, 887 5,17(20)-Pregnadien-3β-ol-16-ones

synthesis and stereochemistry, 887

tetrahydro-2-methoxy-cis- and trans-5,6-dimethyl-, anomeric equilibrium, 6873

conformation tetrahydro-2-oxy-substituted, and the anomeric effects, 1707

Pyrazino[1.2.3.4-lmn]-1.10-phenanthrolinium dibromide, 5,6-dihydro-5-hydroxy synthesis and herbicidal activity, 6453

Pyrazole[1.5-a]quinoxaline, derivs synthesis, 2980 **Pyrazoles**

derivs, from 2,4,6-triphenylpyrylium salts, 5059 from diethynylketones, 4285

3-Pyrazolidones, 1-alkyl and 1-aralkyl-, dehydrogenation, 6809

Pyrazolines, thermal and photochemical decomposition, 5181

Pyridazines

3-amino-, prep from s-triazolo-[4.3b]-pyridazines, 2687

condensed, methyl substituted imidazo (1.2-b) pyridazines by synthesis and homolytic methylation, 2623

electrophilic substitutions on imidazo[1.2-b] pyridazines, 239

Pyridine-2-aldehyde, 3-hydroxy-, proton resonance spectra, ionization, 4477

Pyridine-4-aldehyde, 3-hydroxy-, proton resonance spectra, ionization, 4477

Pyridines, 4-alkyltetrafluoro-, halogenation of alkyl group, acidity of alkyl hydrogen atoms, 877

2-amino unsubstituted, and nitro- and benzo analogs, nitrogen isotope exchange of rearrangement of reversible ring opening, 441, 451

carboxylic acids, deuteration, 2269

H-bonding and basicity by H-bonding method, 5991

2-o-hydroxystyryl + N-ethylethylsulphate, 5023

pentafluoro-, nucleophilic substitution, 877 prep of deuterated derivs, 2269

Pyridinium

ethyl sulphate, and derivs, 5017

iodide, 2-o-hydroxystyryl-N-ethyl and derivs, 5017

2-Pyridmethyl ethers, tosyl acid cleavage, 4083
 Pyridobenzimidazoles, pyrido-imidazoles, 4581
 Pyridon-2,6-diones, 4,5-dichloro-3-alkyl-, synthesis, 1851

Pyridones from diethynylketones, 4285

2-Pyridones, N-β-arylethyl, action of POCl₃, 2517
 Pyridoxamine, proton resonance spectra, ionization, 4477

Pyrido[1.2-c][1,3] oxazines, octahydro-, 4423
Pyridoxol, proton resonance spectra, ionization,
4477

2-Pyridyl derivs, 3,5-dinitro-, reduction, 6995
Pyrimidines, hexahydro-, conformational isomerization, 829

△-Pyrones

aromatic character, 923

2,6-diaryl, 923

Pyrrole, all valence SCFMO treatment, 4689 Pyrroles

carbonyl compounds, diborane reduction, 1145 trans-2-(p-substituted styryl)-, 2013 synthesis and spectroscopic properties, 2013

2-Pyrrolidone, light-induced addition to olefins, 4509

Pyrrolines, formation by reduction of *p*-(2-nitro alkyl)- ketones, 1187

Pyrrolinones from diethynylketones, 4285

Pyrylium salts, 2,4,6-triphenyl-, pyrazoles and isoxazoles from. 5059

Quantum

EHT theory, diborane, 4595

mechanical calculation in photomethylation of pyrimidines, 5861

yield of photocyclization of cis-stilbenes, 5499 Quinazoline alkaloids, from Glycosmis arborea, interrelationship, 1

2- and 4-Quinazolinone, derivs, 5547

Quinazolino [4.3-b] quinazoline derivs, 5529, 5547 N-(4-Quinazolinyl) anthranilic acid derivs, 5529

o-Quinol esters, 2,4,6-triphenyl-o-quinolacetate; 2,4,6-triphenyl-o-quinolbenzoate, 5385

Quinol ethers cyclic, 4393

Quinoline

analogs of model compds, reduction for coenzyme-I, 1923

3-chloro-2,4-dimethyl-, from 2,3-dimethylindole, 491

2-o-hydroxystyryl + N-methylmethosulphate + N-ethyliodide, 5023

N-oxides, mass spectra, 3139

Quinoline[3.2-b]thiazin, 2,3-dihydro-3-keto-9-chloro-4-methyl-, synthesis, 1007

Quinoline[3.4-b]1,4-thioxin, 2,3,9,10-tetrahydro-3,10-diketo-, synthesis from 4-hydroxycarbostyril, 1007

Quinolinium ethyl sulphate, 4-o-hydroxystyryl-Nethyl and derivs, 5017

Quinolizidine alkaloids, stereochemistry by IR, 5439

2-Quinolone, 3-dimethylallyl-4-dimethylallyloxy-, a new alkaloid from Haplophylum tuberculatum, 3011

Quinone from exostemin, 6527

p-Quinones

condensation with a-diketones, formation of pentaoxyphosphoranes, 1931

methides, hindered rotation around the exocyclic C—C-double bond, 5133

nucleophilic 1,2-additions to the O group, 1931 Quinoxaline derivs, reaction and synthesis, 2980

Racemization, investigation by NMR spectroscopy, 1857

Radicals

anion of chinixalino[2.3.b]chinoxalin, 1843 anion salts of 2,4,5,7-tetranitrofluoren-4°, «malononitrile, 721

cations, derived from diquaternary salts of 1,10-phenanthroline, 5433

free electrolytically produced, 1163 oxidation, 2215

in decomposition of benzoyl nitrate, 4913

reactions, hydrogen abstraction from saturated hydrocarbons and dialkyl ethers by the difluoramino radical, 5089

of benzaldehydes, 4793

stable, of the hydrazyle series with one, two and three unpaired electrons, formation and properties, 1063

Rearrangement Schmidt reaction cis- and trans-1,2-ditolylethylene oxides, 6851 with 2-(o-carboxylphenyl) 3-phenylindone and O-arenesulphonyl-phenyl-hydroxylamines, 999 with 2-(o-carbomethoxyphenyl) 3-phenylazoxybenzene, acid-catalysed, 6671 indone, 4993 C₁₈H₉, skeletal, 3965 with 2,3-diphenylindone and similar compds, homoallylic of cyclopropylcarbinyl borates. 4981 6339 Sclerin, structure, 2345 indole derivatives, 6377 Scleroderma aurantium, a triterpene metabolite orthanilic acid to sulphanilic acid, 5011 from, 3949 thermal, of 1,3,6-triphenyl-6-acyloxy-bicyclo Sclerotinia libertiana, structure of sclerin, 2345 Sea urchin pigments, 2969 [3.1.0]hex-2-en-4-ones, 5385 Reduction 1,2,5-Selenadiazolo (3.4-b) pyridine, spectroscopy Birch, 7-methoxychroman, 2495 and synthesis, 6577 Semicarbazide, 1-phenyl-4-benzoyl- and derivs, by complex metal hydrides, 6513 Reduction (continued) synthesis and ring closure to triazole, 5205 "jervine-11β-ol" and 11-deoxojervine, with Li Seneol structure, 1633 Senepoxide structure, 1633 in ethylamine, 3461 Serpyllin, new flavone, isolation and structure, ketoximes with LAH, 4605 nitro compounds with titanous chloride, 4581 7027 Serratinine, mass spectra, 3541 oximes with LAH, 6177 Sesquiterpenes, 2055 Reserpine, zinc-acetic acid reduction, 5115 Resorcinol BF3-induced rearrangement of eudesmane-and 7-epieudesmane-based 1,2-epoxides, 3775 and amino derivs, calculation of bond lengths, pi-electron densities, bond order and cumambrins, structure, 5625 decompostin structure, 477 electronic singlet transitions, 6833 differential Kuhn-Roth C-methyl estimation, oxidation to hydroxy-quinones, 5615 phenyl-substituted, synthesis and oxidation, himachalenes structure, 3809, 3841, 3853 Resorcinol 4-(β -carbomethyethyl), synthesis and ar-himachalene and himachalanes, synthesis, reduction with LAH and 4-(y-hydroxy-3829 propyl), synthesis and hydrogenation with lactones ligustrin, 6087 do, revised structure and chemistry of rhodium, 2495 gafrinin, 1687 Rhamnopyranosyl-D-glucose, see Neohesperidose, do. structure and chemistry of griesenin and 4963 dihydrogriesenin, 6037 Rhodium trichloride, 5763 Rings ψ longifolic acid, structure, 4105 new perezinone derivs, 4007 contraction, on oxidation of phenyl-substituted tetracyclic, longicyclene, 4099, 4105 resorcinols, 4393 **Sesquiterpenoids** enlargement, norbornane derivs, 1537 Rosenonolactone, 6β -hydroxy-, metabolite of methyl migration in 9-methyl decalins, 3753 Trichothecium roseum, 3321 oil of Zingiber zerumbit, and humulene epoxides I and II, 4113, 4133 Rotation, hindered about-N=N-, 3899 Rotenoids, optically active aromatic chromosynthesis and formolysis of 4a,8-dimethyl-8aphores, 5519 hydroxydecahydronaphth-2-oic acid and Roxburghadiol and monoacetate, 6259 lactone, 4917 Roxburgholone total synthesis, 1801 and acetate, 6259 Sex attractants of bark beetles (Ips confusus), synthesis, 4249 structure, 6259 Sibiricin, new coumarin, constitution and synthesis, 3247 Saikogenins E, F and G, 675 Salannin, constitution and stereochemistry, 1525 Sideritis sicula diterpenes, 4073 Silicon in organosilicon compds, PMR investi-N-Salicylidene, deriv of (+)-1-(3-trifluoromethylgation of bonding properties, 79 phenyl)-2-aminopropane, 1283 Sanacocine and sanacodine alkalids, 7013 Sodium borohydride, reduction of 14-alkenyl-

Schiff bases

3675

β-diketones and o-hydroxy carbonyl compds, dimers, NMR spectra, 3069 NMR spectra, 5655

Sapogenin from Barringtonia acetangula, 1113

Scaposin, a new flavone from Hymenoxys scapo-

san, structure, degradation and synthesis,

in asymmetric synthesis, 2907 on electronic spectra, 933

Solvent effect

codeinones, 1829

Solid matrix, organic reactions, 5817

Solaniol, structure and physical properties, 4745

Solvation of transition state, olefinic compds and

bromine in solvent-mixtures, 3799

Solvolysis	Spectra (continued)
14β -hydroxy- 12β -tosyloxy steroids, 4207	cyclic sulphites and carbonates, 2949
phosphate esters of nerol and linalool, 43	depsides, depsidones, depsones, dibenzo-
Speciociliatine, configuration, 2681	furanes and diphenylbutadienes with
Speciogynine, configuration, 2681	positive and negative ions, 2707
Spectra	2,4-dinitrophenylhydrazones of ketones in
charge-transfer	Cyperus, 3891
between nitrol derivs of fluoren-Δ ⁹ ,α-	diphenic acid derivs, 3407
malononitrile with aromatic hydrocar-	fluorohydrocarbons, 1811
bons, 721	fragmentation of cyclic polycarbonyls, 4805
mono-, bis-, and triscycloalkenobenzenes,	gibberellins—II, 2327
2307	heterocyclic systems containing diphenyl
electronic, 6889	substituents, 3965 high resolution, 5749
cyclobutadiene and dimethylene-cyclobu-	correlations of Amaryllis alkaloids, 2825
tene, 2401	data, 6755
Diels-Alder adducts of dicyanoacetylene,	indoles and indolemines, 2227
1529	β-keto esters, 4159
cis-fixed cyanine dyes, 6685	natural C-glucosyl compds, 3697
naphthoquinone derivs, 6053	new hashish constituent and derivs, 5379
substituted anthraquinones, 933	nitrones, C-O bond formation upon
tricyclic hydrocarbons, 5943	electron impact, 5193
tropone molecules, 267	oligosaccharides, 5587
electron spin resonance acyl-alkyl-nitroxides, 1623	3-phenylisothiazoles, 6237
anion radicals of fluorobiphenyls, 6883	γ-phenylpropanol, 1415
free radicals from aliphatic tertiary nitro	γ-phenylpropylbromide, 1427
compds, 5075	phosphinates, 565
oxidative coupling of coclaurine derivs, 103	phosphoranes, 3289
phosphorus containing phenoxy radicals,	quantitative analysis, 633
5133	quinoline and isoquinoline N-oxides, 3139
studies on photomethylation of pyrimidines	serratinine and its derivs, 3541
with methanol, 5861	steroid lactams, 6797 steroid systems, 2339
fluorescence in acid solutions, of some quino-	substituted benzimidazoles, 1875
linols, 1777	substituted imides, 1051
infra-red	structural and stereochemical problems
absorption frequencies of cyclic ketones,	2707
2595	vobasine-type compounds, 2-acetyl-3-me-
alcohols, conformational heterogeneity, 4759	thylindole, 2-acetyl-1,3-dimethylindole
alkyl-tri-p-tolylphosphonium compds and	4177
the shape of the bands in the various	nuclear magnetic resonance, 3347, 3361, 3907
regions, 191	3923
correlation of the stretching frequencies of	γ-acylpropenylphosphoniumsalts, 1363
ketones, olefins and oximes and relation-	cis- and trans-6-t-butyldecahydroisoquino-
ship with bond angle, 381 cis-2,7-dichlorocycloheptanone, 65	line derivs, 705
1,3-diketonato-boronium salts, 1133	aromatic amines, 3595
O-methyl derivs of glucose and xylose, 4021	N-aryl β -lactams, 1237
O-methylated amylose and cyclodextrins,	azetidinium salts, 2357
803	bicyclic tetrahydropyridazine and piperid
7-methylated 3,5-cyclo-6-oxosteroids, 4041	azine systems, conformational equilibria
pyrazoles, 1293	123
stereochemistry of quinolizidine alkaloids,	bornane derivs, 1663
5439	1,6-bridged[10]annulenes, 7033
substituted oxindoles and Hammett con-	carane derivs, 1385
stants, 6093	carbon-halogen stretching frequencies of
s-triazolo[4.3-a]pyrimidones and s-triazolo	3-halogeno- and trans-3,4-dihalogeno-
[1.5-a]pyrimidones, solvent effects, 2839	tetrahydrofurans, 6625
mass, 4267	compounds containing 5-and 6-membered
benzylcyanide, 1435	rings with 1,3-heteroatoms, 2385
bis-1,3-dithiolanes and bis-1,3-dithianes,	conformational equilibria in di-, tetra- and
2809	hexahydropyridazine systems, 137

```
Spectra NMR (continued)
                                                   Spectra (continued)
    coupling between ring and methoxyl protons.
                                                     Proton magnetic resonance
       2121
                                                        use of pseudocontact shifts for assignment of
      correlation of kinetic studies, 2377
                                                          configuration, 1299
    deshielding effects by ethylthio and other
                                                        5 - acetoxy - N,N - dimethyl - 1,3,5 - triphenyl-
      electronegative substituents on a double
                                                          penta-2,4-dien-1-carboxamide, 5,benzoyl-
      bond to a proton in a 1.3-dieguatorial
                                                          oxy-N, N-d-mithyl-1,3,5-triphenyl-penta-
      position in the 4-substituted 4-en-3-oxo
                                                          2,4-dien-1-carboxamide, 1,3,6-triphenyl-
      steroid and 2-substituted 3,5,5-trimethyl-
                                                          6-acetoxy-bicyclo[3.1.0]hex-2-en-4-one, 1,
      cyclohex-2-enone systems, 959
                                                          3,6-triphenyl-6-benzoyloxy-bicyclo[3.1.0]
    1.8-diazabicyclo[4.3.0]nonanes, 6327
                                                          hex-2-en-4-one, 2,4,6-triphenyl-o-quinol-
    3.6-dihvdro-1.2-oxazines, 1043
                                                          benzoate, 5385
    α-diketones and o-hydroxycarbonyl compds,
                                                        cis- and trans-2,6-dimethylpiperidine and
                                                          cis (2,4), cis (4,6), cis (2,6)-2,4,6-trimethyl-
    2.4-dinitrophenylhydrazones of ketones in
                                                          piperidine, 279
      Nyperus, 3891
                                                        bicyclo[3.2.1]octene-2 derivs, 2927
    5.5-disubstituted 1,3-dioxans, 4559
                                                        carbohydrates, 4517
    diterpene alkaloids, 2019
                                                        compds containing the -SCH<sub>2</sub>-group, 1989
    estrogen catechols, 2199
                                                        configuration of epimeric steroid 17-thiols,
    2-ethyl- and 2-ethyl-3-nitroso-tetrahydro-
                                                           1441
                                                        glycyl and 1-leucyl peptides, 2773
       1,3-oxazines, 53
    gafrinin, 1701
                                                        indoles and indolemines, 2227
    gentioflavine, 1323
                                                        isolapachenole, 1981
                                                       silicon organo compds, bonding properties,
    griesenin, dihydrogriesenin and derivs, 6045
                                                          79
    H in phosphorus compds, temperature-
                                                     ultra violet
      dependence, 3735
                                                        alkyl-tri-p-tolylphosphonium compds and
    hydroxymethlene latones, 1651
    imidazo[1.2-b]pyridazines, 239
                                                          the shape of the bands in the various
    isoverbanone and some derivs, 1611
                                                          regions, 191
    O-methylated amylose and cyclodextrins,
                                                        N-aryl lactams, 1237
                                                        cis-2,7-dichlorocycloheptanone, 65
    7-methylated 3,5-cyclo-6-oxosteroids, 4041
                                                        1,3-diketonato-boronium salts, 1133
                                                        7-methylated 3,5-cyclo-6-oxosteroids, 4041
    7-monosubstituted cyclohepta-1,3,5-trienes,
                                                        mono-, bis-, and triscycloalkenobenzenes.
    octahydropyrido[1.2-c][1.3]oxazines, 4423
                                                          2307
                                                        optically active aromatic chromophores,
    8-oxa-1-azabicyclo[4.3.0]nonanes, 1997
    perhydrodipyrido[1.2-c; 2'.1'-e]imidazoles,
                                                          1231
                                                        4-quinazolones, effect of N-methylation, 1
      4411, 6625
                                                        substituted adamantanones, 4543
    phosphorus compds, 2275
                                                        substituted and bridged biphenyls, 2795
    phosphorus in tetravalent and pentavalent
      states, 3735
                                                        substituted oxindoles, 6093
                                                        s-triazolo[4.3-a]pyrimidines and s-triazolo
    pinane-2,3-diols, 6469
                                                          [1.5-a] pyrimidines, 2839
    quinone aniles and amides, 1857
    Schiff bases of \beta-diketones and o-hydroxy-
                                                   Spectral properties, of 2,6-diaryl-4-pyrones, 923
      carbonyl compds, 5655
                                                   Spergulagenic acid, structure and stereochemistry,
    structural studies, 3557
                                                          1107
                                                   Spinochrome A, C, D, E, 2969
    substituted and bridged biphenyls, 2795
    2-substituted 1,3 dioxalanes, 4377
                                                   Spinochromes, electronic spectra, 6053
    substituted oxindoles and oxindole alkaloids.
                                                   3.3'-Spirobi[benzo-[2H.4H]-[1.5]-dioxepine], 6983
                                                   1,1'-Spirobiphosphole, 1,2,5-triphenyl-2',3',4',5'-
    N-substituted piperidones and piperidines,
                                                          tetracarboxylic acid methyl ester, syn-
                                                          thesis and rearrangement, 3437
    succinic acid derivs, 7005
                                                   Spirocyclopropanes from bicyclic olefins, forma-
    sulphide-, sulphoxide-, and sulphone- acids,
                                                          tion and rearrangement, 5181
       6197
                                                   Spiro [dibenzo [f.h]-[1.5]-dioxacyclononane-3.1'-
    tetrahydro-1,3-oxazines, 4625
                                                          cyclopropane, 6977
    8 thia-1-azabicyclo[4.3.0]nonanes, 2485
                                                   Spirodicatecholtriphenoxyphosphorane, 5041
    tri- and tetrafluorobenzo[b]furans long-
                                                   Spiropentane, heat of formation and rearrange-
```

ment, 6863

Spiro[5.5]undecane-4,10-dione,

thyl- from acetone enamines, 6735

2,2,8,8-tetrame-

range H—F coupling in, 5457

3899

triazenes, detn of rate of -N=N-rotation,

Statistical evaluation of differences between cis-Stilbenes (continued) p-and m-substituted 5499 activation parameters of four isomers of Diels-Alder reaction, 5711 synthesis from styrene and benzene, 4819 Strychnine Stereochemistry, 5701 cis and trans-2,5-diferrocenyltetrahydrofuran, conversion into brucine and β -colubrine, 4573 new derivs, nitro, amino, hydroxy-, 4573 aziridine formation, 5677 formation from ethylbenzene by ammoxidadihydroflavonol glycosides, 823 himachalenes, 3841 tion, 6277 Michael addition, 357 oxide, reactions with enamines, 3671 oxyphosphoranes, 3735 Styrenes pinane system, 6469 β-bromo-nitro-, nucleophilic substitution, 663 quinolizidine alkaloids by IR, 5439 Diels-Alder reaction with trans, trans hexa-2,4reductive dehalogenation, 6007 diene, 1025 tetranortriterpenoids, 1489, 1507, 1517, 1525 Styryl quinoline and pyridine compds, synthesis, 471 veralinine, 6839 Stereospecific arylation of olefins, 5791 Substituent effects Steric effects, influence on conformations in through S or O atoms, 5721 phenol, rate of acid-catalysed proton exchange, 3*H*-indoles, 6825 Steric factors in a- and β -substituted cinnamic acids, 3569 relation between a-methyl effects and deuter-Sterigmatocystin, O-methyl-mycotoxin precursor, ium isotope effects, 1247 Substitution electrophilic aromatic, 5601 717 Succinic acid derivs, NMR data, 7005 Steroids Sugars of the kondurango-glycosides, A.A-,C.C-. a-bromo ketones, prep, 2979 chlorine containing from Jaborosa integrifolia, 5169 Sulphanilic acid, in rearrangement of orthanilic conformational aspects of ring D, 13 acid, 5011 containing 3-OH group, 5:6-double bond and Sulphenes A/B-cis ring fusion, effect of Raney nickel, intermediate reaction via, 3267 reaction with sulphonium ylides, 6563 6459 3,5-cyclo-6-oxo-steroids, Mannich reaction, **Sulphides** 4033 cyclic aromatic, mass spectra, 3255 divalent 3d-orbital resonance, 5271, 5283, 5293 glycosides, 4359 Sulphites, cyclic, mass spectrometry, 2949 heterocyclic, N-methyl-6-aza-8(14)-dihydroestrone methyl ether N-ethyl-6-aza-8(14)-Sulphones, cyclic aromatic, mass spectra, 3255 dihydroestrone methyl ether, 5881 Sulphonium ylides, reaction with sulphonyl N-methyl-6-aza-8(14)-dihydro-19-nor-testochloride, 6563 sterone, 5893 Sulphoxides, cyclic aromatic, mass spectra, 3255 A-homo-B-nor and A-nor-B-homo, synthesis Sulphur and conformational analysis, 5337 atoms, effect in geminol coupling in methylene α-hydroxymethylene keto, enzymatic brominagroups, 1989 tion, 2979 polyfluoroaryl compds, 2783 14β -hydroxy- 12β -tosyloxy, 4207 trioxide, sulphonation, 6453 lactams, mass spectrometry, 6797 Sulphuric acid polyenes, addition, 5151 as a medium for hydride transfer reactions reaction of bicyclobutanes derived from of and with the adamantyl cations, 5369 cholesta-3,5-dienes with carbonyl compds, as a medium for hydride transfer reactions with the adamantyl cation, as oxidizing A-seco, conformation and Cotton-effect, 2899 the prep of adamantanone, 5361 synthesis of unsaturated steroidal lactones and Superaromaticity in coronene, 2817 4-oxa-41,5(10)-3-ketones, 2851 Sussurea lactone, 4091 with aromatic ring A, Cotton-effect, 2899 **Swietenolide** Sterols, echinoderms, asteroids, holothurians, constitution and stereochemistry, 1507 echinoids, crinoids and ophiuroids, 5831 Steviol transformation of Gibberella fujikuroi, functional groups, 1503 **Syndones** 6291 MO calculated reactivities, 1673 bromohydrins and chlorohydrins, 1959 phenyl- lithium, reactions, 33

3-phenyl- and derivs, reactions, 33, 37

Tamaulipin-A, structure, 4091

oxides, stereochemistry of ring opening, 1959

cis-Stilbenes

a-substituted, 3031

Tautomerism

isoxazolin-5-ones, 151

reaction between anthrone and anthranol, 4779, 5311

Terpene alcohols, synthesis, 4249

Terreic acid, dihydro-, structure and stereochemistry, 4839

Terremutin, structure and stereochemistry, 4839 a-Tertienyl, biosynthesis from [2'.2"-bithienyl-(5')]-butadiine in Tagetes species, 1899

Testosterone acetate, desulphurization of the thioketal, 5425

Tetracvanoethylene

amide complexes, 3625

oxide, addition to anthracene and deuterium isotope effect, 2551

addition to dienes and polyenes, 2551 oxygen transfer to olefins, 2551

Tetracyclo[3.3.1.0^{2,4}0^{6,8}] nonane derivs, 5067 Tetrahydrofurans

cis and trans-2,5-diferrocenyl-, stereochemistry,

3-halogeno- and trans-3,4-dihalogeno-,C-halogen stretching frequencies and conformation, 3019

Tetranortriterpenoids, spectrum, PMR mexicamolide, 1497

Tetrazoles, 2,5-diaryl, kinetics of thermal decomposition, 3787

Thebainehydroquinone

base catalysed rearrangements, 5053 methyl ethers, 5053

Thebainone, 7-oxo-dihydro-, ketalization, 261

Thermal Michael reaction, 4565

Thermodynamic parameters, of conformational isomerization, 829

Thermolysis of unsaturated ketones, 5971

6-Thiabicyclo[3.2.1.]octan-7-one derivs, synthesis 6653

Thiacyclopentenones from diethynylketones, 4285 **1,3,4-Thiadiazoles**, 2-aryl-5-substituted derivs, 3209

Thiantheren, octafluoro-, synthesis and nucleophilic substitution, 3997

Thiapropellanes 975

1,4-Thiazines, 2,3-dihydro-, conformational behaviour, 2985

Thiazolines, intermediates for synthesis of coenzyme A analogs, 5241

Thienothiophenes, isomeric, heats of formation and reactivities, SCFMO treatment, 2567

Thioketal of testosterone acetate, desulphurization, 5425

β-Thioketothiolesters, syntheses, tautomerism, thermochromism, NMR, IR and UV spectroscopic investigations, 5323

Thiolactones, 6653

Thiol-3-ones from diethynylketones, 4285

Thiols, 17a and 17β -mercapto derivs of androstane and androstan- 3β -ol, 1441

Thiophene

analogues of fluorene, 3381

Thiophene (continued)

and isomeric thienothiophenes, 2567 heat of formation and reactivity, SCFMO treatment, 2567

SCF, MO investigation of α-orbital participation, 2663

Thiothiophthenes, electronic structure, 5899

(±)-Todomatuic acid, synthesis, 3127

Tohuene, over chromium oxide, kinetics of catalytic vapor phase ammoxidation, 4881

Toxin, from Penicillium cyclopium, 2101

Transannular interactions, in cyclododecanes, 2937

Trialkyloxonium salts, 6485

Triaminodioxyphosphoranes, 2275

Triazines, 1-aryl-3,3-dimethyl-, 3899

s-Triazines, hexahydro-, conformational isomerization, 829

1.2.4-Triazole

4-benzylideneamino- kinetics of nitrile elimination, 1031

derivs, synthesis, 5205

3-hydroxy-1,5-diphenyl and derivs, synthesis, 5205

1,2,4-Triazole-3(1H)-one,

derivs, synthesis, 5205

2,3-dihydro-2,5-diphenyl and derivs, synthesis, 5205

s-Triazole[4.3-a]pyrimidines, base catalysis, to s-triazolo[1.5-a]pyrimidines, 2839

Triazoline decomposition, photo and thermal, 2757

1,2,3-Triazolines, prep, structure, 349

s-Triazolo[4·5b]pyridiazines, quaternization, 2687 Tri-n-butylamine, nitric acid oxidation, 3425

Trichothecium roseum, new diterpene lactone from, 3321

Tricyclo[5.1.0.0.3,5]octane, trans-1,4,9-trimethyl-8,8-dibromo- and 8-bromo-, formation and conformation, 6075

Triethylamine, nitric acid oxidation, 3425

Triethylenediamine, as catalyst for aminolysis, 2367

Triiodoallenes, substituted synthesis, 415

Triketoindane, hydrate and alcohol adducts, photochemical reaction, 6149

Trimethylenecyclopropane, 2425

Trinucleoside diphosphates, prep, 2537

Triphenylenes, substituted, 3717

Trinhenvlmethyl

ester, of substituted benzoic acids, 1551 rate of addition to substituted styrenes, 1551

Triphenylmethylation, homolytic of benzene and anisole, app. partial rate factors and effect of solvent polarity, 1551

Triphenylstannane, as debrominating agent, 6449

Triscyclokenobenzenes, 2307 Trisdimethylaminophosphine, 2275

4,23,24-Trisnor- $(5\beta H)$ -5(4 \rightarrow 3)abeolupan-3-one, stereochemistry of reduction 6513

Triterpenes 1205

Triterpenes (continued)

abieslactone, structure and stereochemistry, 2859

23-hydroxylanosterol, 3949

Triterpenoids

from Bupleurum Falcatum L. 675 of fernane and arborane groups, 735 of Imperata cylindrica var. koenigii, 735 roxburgholone structure, 6259

Tropone, electronic spectrum, 267

barringtogenol structure, 1113

Tryptamines, N(b)-benzylidene and ring closure to β -carbolines, 403

Tuberostemonine, structure, 2631

Ulmus thomasii, lignan from heartwood, 1475 N-(2-Ureidobenzoyl) anthranilic acid, derivs, 5547 prep and dehydration, 5529

Uric acid, photosensitized oxygenation, 6609

Valepotriates, constitution, 297 Veatchine synthesis, a model for, 4535 Veralinine, structure and stereochemistry, 6839 Veralkamine

hydroiodide, X-ray analysis, 4875 novel steroidal alkaloid type with 17β-methyl-18-nor-17-iso-cholestane carbon skeleton, 4865

Veratrum album alkaloid veralinine, 6839 Verbanone, see Isoverbanone, 1611 cis-Verbenol, synthesis, 4249 Vibrational frequencies of cyclic ketones, 2595 Vinyl-interchange

mechanism, vinyl acetate with carboxylic acids weaker than acetic, 3887

Vinyl-interchange (continued)

vinyl acetate with carboxylic acids stronger than acetic, 2205

Vinyllithium reagents, arylation, 5791 Voacangine, new indole alkaloid, 4223 Vobasine-type compounds, synthesis, 4159

Wars, colouring matters, 497
Withadienolids from Jaborosa integrifolia, 5169
Wittig reaction, acetylenic by product in, 2443
Wood, lignan in elm heart, 1475

Xanthine, and 8-methyl-, photosensitized oxygenation, 6609

Xanthone

- 1,5-dihydroxy-6-(3',3'-dimethylallyl) and 4,8-dihydroxy-1-(3',3'-dimethylallyl)-xanthone 1601
- 6-(3,3-dimethylallyl)1,5-dihydroxy- and two related metabolites from Calophyllum scriblitifolium, 3059

X-ray structure, coclaurine, 5785 Xylose, IR spectra of O-methyl derivs, 4021 p-Xylylidene, formation of oligomer, 3267

Yamogenin, synthesis, 899

Ylides, phosphorus, stable, derived from maleic anhydrides, maleimides or iso maleimides, 2241

Zearalenone, absolute configuration and total synthesis, 2443

Zingiber zerumbit sesquiterpenoids, 4113

Zucker-Hammett criterion, non-applicability to acid-catalysed hydrolysis of α-diazosul phones, 1737